

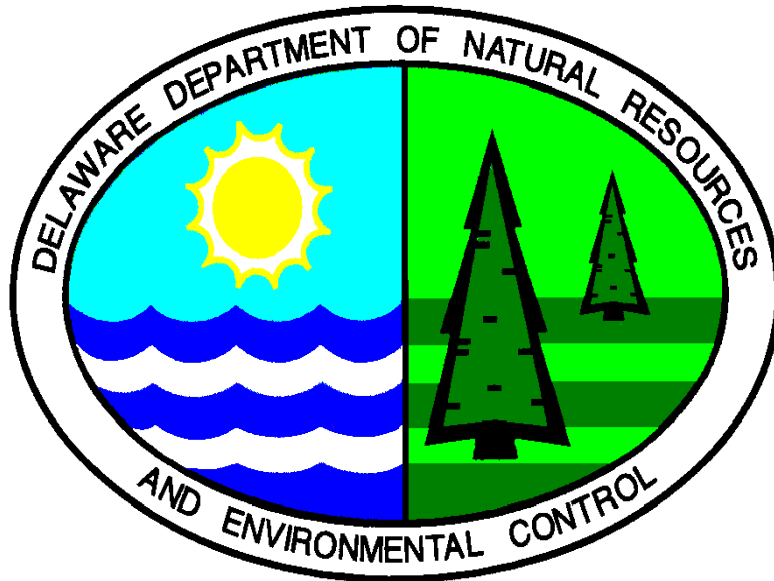
**DEPARTMENT OF NATURAL RESOURCES AND
ENVIRONMENTAL CONTROL**

DIVISION OF AIR QUALITY

CO₂ Budget Trading Program Offset Project:

Landfill Methane Capture & Destruction Monitoring & Verification Report

Instructions



OCTOBER 2010



**DNREC – Division of Air Quality
CO₂ Budget Trading Program
Consistency Application Instructions – Landfill Methane
Capture and Destruction Monitoring & Verification**

Consistency
Application
Instruction DAQ
– Offsets Landfill
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1. Overview

To demonstrate the achievement of CO₂-equivalent emissions reductions from a landfill methane capture and destruction offset project that has received a consistency determination from the Department, a Project Sponsor must submit to the Department in accordance with these instructions a fully completed Offset Project Monitoring and Verification Report – *Landfill Methane Capture and Destruction (M&V Report)* consisting of the coversheet and all forms and related attachments. Following these instructions will ensure that the *M&V Report* contains all necessary information and is submitted properly.

Each Project Sponsor should review 7 DE Reg. 1147 addressing offset projects and the award of CO₂ allowances. All offset application materials and other documents are available at <http://www.awm.delaware.gov/AQM/Pages/Offsets.aspx>

2. Submission Instruction

Submit one (1) complete paper hardcopy original and one (1) electronic copy of the *M&V Report* in the form of a CD disk. Submit hardcopies of forms requiring signatures as originally signed copies and scan such signed forms for electronic submission. Facsimiles of the *M&V Report* are not acceptable under any circumstances.

***CO₂ Budget Trading Program
DNREC Air Quality Management
156 South State Street
Dover, Delaware 19901***

The *M&V Report* includes three parts, as described below. Each part comprises specified forms and required documentation. The *M&V Report* has been created as a Microsoft Word document with editable fields. Enter information directly in the fields provided or submit information or documentation as an attachment, as instructed. Include headers on all attachments indicating the form to which each is attached, the offset project name, and offset project ID code.

The Project Sponsor should save an electronic copy for his or her file to serve as a reference for any necessary remediation.



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3. M & V Report Forms

The *M&V* Report consists of eight (8) forms divided into three parts, as follows:

Part 1. General Information Forms

- Form 1.1 – General Information
- Form 1.2 – Attestations
- Form 1.3 – Project Sponsor Agreement
- Form 1.4 – Disclosure of Greenhouse Gas Emissions Data Reporting

Part 2. Category-Specific Information and Documentation Forms

- Form 2.1 – Demonstration of Conformance with M&V Plan
- Form 2.2 – Determination of Emissions Reduction

Part 3. Independent Verification Form

- Form 3.1 – Independent Verifier Certification Statement and Report

The following instructions address each of the forms in numerical order. Note that the forms themselves include many embedded instructions.



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COVERSHEET

Check the boxes to indicate which forms are being submitted.

Part 1. Preliminary Information Forms

Form 1.1. General Information

Enter the requested information in the editable text fields in the Form. If a text field is not applicable or is unanswerable, enter “NA.” Note the following:

Project Sponsor: The Project Sponsor is the person who is the Authorized Account Representative for the RGGI COATS general account identified in the *Consistency Application*.

RGGI COATS General Account Name and Number: The RGGI COATS general account identified in the *Consistency Application* is the RGGI COATS account into which any awarded CO₂ offset allowances related to the offset project will be transferred.

Offset Project ID Code: The offset project ID code is the alphanumeric code generated when the Project Sponsor creates a record of the offset project in RGGI COATS. The project location entered should be the primary location of the project if the project consists of actions at multiple locations. The brief description of the offset project should indicate all locations where project actions occur or will occur. See the RGGI COATS User’s Guide for more information about creating an offset project record in RGGI COATS, available at: <https://rggi-coats.org/eats/rggi/>

Project Sponsor Organization: Provide the full legal name of the organization the Project Sponsor represents, including any alternative names under which the organization also may be doing business (e.g., John Doe Enterprises, Inc., d/b/a JDE). If the Project Sponsor is representing himself or herself as an individual, enter “NA”.



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Form 1.2 Project Sponsor Attestations

Sign and date the form. Submit the originally signed form as part of the paper hardcopy *M&V Report*. Scan the signed and dated form for submission as part of the electronic version of the *M&V Report*.

Form 1.3 Project Sponsor Agreement

Sign and date the form. Submit the originally signed form as part of the paper hardcopy *M&V Report*. Scan the signed and dated form for submission as part of the electronic version of the *M&V Report*.

Form 1.4 Disclosures of Greenhouse Gas Emissions Data Reporting

Check the appropriate box in the form to indicate whether greenhouse gas emissions data related to the offset project have been or will be reported to any voluntary or mandatory programs other than the CO₂ Budget Trading Program. For each program for which data have been or will be reported, provide the program name, the program type (voluntary or mandatory), program contact information (website or street address), the categories of data reported, the frequency of reporting, when the reporting began or will begin, and reporting status (prior, current, future). The Project Sponsor must disclose future reporting related to current commitments made to voluntary programs as well as future reporting mandated by current statutes, regulations, or judicial or administrative orders.



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Part 2. Category-Specific Information and Documentation Forms

The two (2) forms in Part 2 of the M&V Report address documentation of conformance with the Monitoring and Verification Plan (M&V Plan) and determination of CO₂-equivalent emissions reductions. Instructions for the Part 2 forms are provided below.

Form 2.1 Demonstration of Conformance with M&V Plan

Provide documentation that procedures and protocols specified in the M&V Plan were performed and records specified in the M&V Plan were generated and retained. Check the boxes in the tables in Form 2.1 to indicate that the referenced documentation is provided as an attachment to Form 2.1. All attached documentation must include a header that indicates it is an attachment to Form 2.1, identifies the number of the appropriate table and the reference number in the left-hand column of the table, and includes the offset project name and offset project ID code.

Form 2.2 Determination of Emissions Reduction

Enter the calculated values for the following in the editable text fields:

1. CO₂-equivalent emissions reductions (short tons)
2. Volume of methane collected (standard cubic feet)
3. Mass of methane per standard cubic foot (pounds)

Attach a spreadsheet documenting the data sources and calculations for the values, in accordance with the following:

1. Calculate CO₂-equivalent emissions reductions that occurred during the reporting period, in accordance with the following equation:

$$\text{Emissions (tons CO}_2\text{e)} = (V \times M \times (1 - \text{OX}) \times \text{GWP}) / 2000$$

Where:

- V = Volume of methane recovered in standard cubic feet
- M = Mass of methane per standard cubic foot (lbs/scf)
- OX = Oxidation factor (0.10)
- GWP = CO₂e global warming potential of methane (23)

2. Calculate the volume of methane recovered during the reporting period as follows:



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- Obtain daily methane recovery volume as measured in standard cubic feet of methane per day from the continuous monitoring system.
 - Sum the daily methane recovery volume for each month during the reporting period.
 - Adjust monthly methane recovery volume to account for recovered methane vented directly to the atmosphere rather than combusted and destroyed by the combustion device, during periods when the combustion device was inoperable.
3. Determine the value for mass of methane per standard cubic foot (lbs/scf) as follows:
- Use the default value of 0.04246 lbs/scf at 1 atmosphere and 20°C or justify and document the use of any alternate value.

Part 3. Independent Verification Form

The form in Part 3 of the M&V Report addresses requirements and documentation related to the independent verifier certification statement and report. Instructions for the form in Part 3 are provided below.

Form 3.1 Independent Verifier Certification Statement and Report

An accredited independent verifier must sign and date the form. Submit the originally signed form as part of the paper hardcopy of the M&V Report. Scan the signed and dated form for submission as part of the electronic version of the *M&V Report*.

Provide the independent verifier report as an attachment to Form 3.1. The verifier report must include a header that indicates it is an attachment to Form 3.1 and includes the offset project name and offset project ID code.

The verifier report must document the following:

1. The verifier has reviewed the entire M&V Report and evaluated the contents of the report in relation to the applicable requirements of 7 DE Reg. 1147.
2. The verifier has evaluated the adequacy and validity of information supplied by the Project Sponsor to determine CO₂-equivalent emissions reductions in accordance with the applicable requirements of 7 DE Reg. 1147 and the documentation required in the M&V Report.



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3. The verifier has evaluated the adequacy and consistency of methods used by the Project Sponsor to quantify, monitor, and verify CO₂-equivalent emissions reductions in accordance with the applicable requirements of 7 DE Reg. 1147 and the Monitoring and Verification Plan submitted as part of the Consistency Application.

Provide the independent verifier report as an attachment to Section 3.2 which includes the following contents, in the order listed below:

- Cover page with report title and date
- Table of contents
- List of acronyms and abbreviations
- Executive summary
- Description of objective of report
- Identification of the client, including name, address, and other contact information
- Identification of the offset project
- Description of evaluation criteria (applicable regulatory provisions and documentation requirements specified in the *M&V Report*)
- Description of the review and evaluation process, including any site visits and interviews
- Identification of individuals performing the verification work, including the verification team leader and key personnel, and contact information for the team leader
- Description of the materials provided to the verifier by the Project Sponsor
- Evaluation conclusions and findings, including level of assurance provided