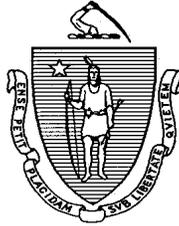


Regional Greenhouse Gas Initiative  
CO<sub>2</sub> Budget Trading Program



**Massachusetts  
Department of Environmental Protection**

**Massachusetts CO<sub>2</sub> Budget Trading Program**

**Offset Project Monitoring and Verification Report  
Instruction Packet**

**Landfill Methane Capture and Destruction**

Version 1.0

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## 1. Overview

To demonstrate the achievement of carbon dioxide (CO<sub>2</sub>)-equivalent (CO<sub>2</sub>e) emissions reductions from a landfill methane capture and destruction offset project that has received a consistency determination from the Massachusetts Department of Environmental Protection (MassDEP), a Project Sponsor must submit to MassDEP in accordance with these instructions a fully completed *Massachusetts Offset Project Monitoring and Verification Report – Landfill Methane Capture and Destruction Version 1.0 (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.

The Project Sponsor should review the Massachusetts CO<sub>2</sub> Budget Trading Program regulations at 310 CMR 7.70(10) for information regarding offset projects located in Massachusetts and the award of CO<sub>2</sub> offset allowances. All Massachusetts offset project submittal materials and documents are available at <http://www.rggi.org/offsets>.

## 2. Submission Instructions

The Project Sponsor should submit the completed *M&V Report*, and all attachments, via the Regional Greenhouse Gas Initiative (RGGI) CO<sub>2</sub> Allowance Tracking System (COATS) at <http://www.rggi-coats.org> under the established general account identified in the Massachusetts *Consistency Application* for the project. For additional information, consult the RGGI COATS User's Guide, available at <http://www.rggi-coats.org>.

The *M&V Report* includes three (3) 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. If attachments are being submitted as separate electronic documents, please include the form numbers in the file names of the documents.

When submitting documents electronically via RGGI COATS, it is not necessary to submit a scanned or paper hardcopy of the application forms. The Project Sponsor must retain the completed original copy of the *M&V Report* with the original signed documents. MassDEP reserves the right to request the original signed application documents at any time.

A completed hardcopy and/or CD of the *M&V Report* may also be mailed to: Climate Strategies Group, Massachusetts Department of Environmental Protection, Bureau of Waste Prevention, 6<sup>th</sup> Floor, One Winter Street, Boston, MA 02108-4747.

Questions about this form and how to submit it should be directed to [climate.strategies@state.ma.us](mailto:climate.strategies@state.ma.us) or 617-574-6815.

### **3. M&V Report Forms**

The *M&V Report* consists of eight (8) forms divided into three (3) parts, as follows:

#### **Part 1. General Information Forms**

- Form 1.1 – Coversheet
- Form 1.2 – General Information
- Form 1.3 – Attestations
- Form 1.4 – Project Sponsor Statement
- Form 1.5 – 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.

## Part 1. General Information Forms

The five (5) forms in Part 1 of the *M&V Report* address general requirements and documentation applicable to landfill methane capture and destruction offset projects. Instructions for the Part 1 forms are provided below.

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### Form 1.1 Coversheet

Enter the required information in the editable text fields in the form. Check the boxes to indicate that all forms are being submitted. For information about entering the Project Sponsor, offset project name and project ID code, and Regional Greenhouse Gas (RGGI) CO<sub>2</sub> Allowance Tracking System (COATS) account name and number, see instructions below for Form 1.2, General Information.

Submission of all forms, including the Coversheet, is required. If a form is not submitted, the *M&V Report* will not be considered complete for commencement of review by MassDEP.

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### Form 1.2 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:

Offset Project ID Code: Enter the 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 the RGGI CO<sub>2</sub> Allowance Tracking System (COATS). See the RGGI COATS User's Guide for more information about creating an offset project record in RGGI COATS, available at <http://www.rggi-coats.org>.

Project Information: Enter project information. The name of the offset project should be the same name entered by the Project Sponsor when creating a project record 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 summary narrative of the project should indicate all locations where project actions occur or will occur.

Project Sponsor: Identify the Project Sponsor and provide his or her contact information. The Project Sponsor is the natural person who is the Authorized Account Representative for the RGGI COATS general account identified in the *Consistency Application*.

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".

RGGI COATS General Account Name and Number: Enter the 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 CO<sub>2</sub> offset allowances related to the offset project will be transferred.

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### **Form 1.3      Attestations**

Sign and date the form. Submit the originally signed form via RGGI COATS as directed in the submittal instructions above. Note that the Project Sponsor must retain the completed original copy of the *M&V Report* and attachments with all original signed documents. MassDEP reserves the right to request the original signed application documents at any time.

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### **Form 1.4      Project Sponsor Statement**

Sign and date the form. Submit the originally signed form via RGGI COATS as directed in the submittal instructions above. Note that the Project Sponsor must retain the completed original copy of the *M&V Report* and attachments with all original signed documents. MassDEP reserves the right to request the original signed application documents at any time.

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### **Form 1.5      Disclosure 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 Massachusetts CO<sub>2</sub> 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 CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emissions reductions. Instructions for the Part 2 forms are provided below.

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### 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. If attachments are being submitted as separate electronic documents, please include the form numbers in the file names of the documents.

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### Form 2.2 Determination of Emissions Reduction

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

1. CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emissions reductions in short tons
2. Volume of methane collected in standard cubic feet (scf)
3. Mass of methane in pounds per standard cubic foot (lbs/scf)

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

1. Calculate CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) 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 = CO<sub>2</sub>e global warming potential of methane (23)

2. Calculate the volume of methane recovered during the reporting period as follows:
  - Obtain daily methane recovery volume as measured in standard cubic feet of methane per day (scf/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.

- Total the adjusted monthly volume of methane recovered during each month to obtain the total amount of annual methane recovered (in standard cubic feet (scf) of methane per year) from the landfill.
3. Determine the value for mass of methane per standard cubic foot (lbs/scf) as follows:
- Use the default value of 0.04246 pounds per standard cubic foot (lbs/scf) at 1 atmosphere and 20 degrees Celcius (°C) or justify and document the use of any alternate value.

Each spreadsheet attachment must include a header that indicates it is an attachment to Form 2.2 and includes the offset project name and offset project ID code. If attachments are being submitted as separate electronic documents, please include the form numbers in the file names of the documents.

## 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.

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### Form 3.1 Independent Verifier Certification Statement and Report

An accredited independent verifier must sign and date the form. Attach the accredited independent verifier report. The attached 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. If attachments are being submitted as separate electronic documents, please include the form numbers in the file names of the documents. Note that the Project Sponsor must retain the completed original copy of the *M&V Report* and attachments, including the verifier's original signed documents. MassDEP reserves the right to request the original signed documents at any time. 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 310 CMR 7.70(10).
2. The verifier has evaluated the adequacy and validity of information supplied by the Project Sponsor to determine CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emissions reductions in accordance with the applicable requirements of 310 CMR 7.70(10)(e) and the documentation required in the *M&V Report*.
3. The verifier has evaluated the adequacy and consistency of methods used by the Project Sponsor to quantify, monitor, and verify CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emissions reductions in accordance with the applicable requirements of 310 CMR 7.70(10)(e) and the Monitoring and Verification Plan submitted as part of the *Consistency Application*.

The verifier report must include 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