

MARYLAND DEPARTMENT OF THE ENVIRONMENT

Air and Radiation Management Administration • Climate Change Division
1800 Washington Blvd. • Suite 730 • Baltimore Maryland 21230
(410) 537-4177 • 1-800-633-6101 • <http://www.mde.state.md.us>



Maryland CO₂ Budget Trading Program
Offset Project Monitoring and Verification Report
U.S. Forest Projects – Reforestation

June 2015



Contents

1. Overview	3
2. Submission Instructions.....	3
3. M&V Report Forms.....	3
Part 1. General Information Forms	5
Part 2. Category-Specific Information and Documentation Forms	12
Part 3. Independent Verification Form	18



1. Overview

To demonstrate the achievement of CO₂-equivalent emissions reductions from a reforestation offset project that has received a consistency determination from the Maryland Department of the Environment, a Project Sponsor must submit to the Maryland Department of the Environment in accordance with these instructions a fully completed *Offset Project Monitoring and Verification Report – U.S. Forest Projects – Reforestation 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.

The Project Sponsor should review the CO₂ Budget Trading Program regulations at COAMR 26.09.03 addressing offset projects and the award of CO₂ offset allowances. All offset project submittal materials and documents are available at www.mde.state.md.us.

2. Submission Instructions

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.

Maryland Department of the Environment
Air Quality Planning Program, Offsets
1800 Washington Boulevard
Baltimore, MD 21230

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.

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 – 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 Reporting Period Sequestration

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 afforestation offset projects. Instructions for the Part 1 forms are provided below.

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 offset project ID code, and RGGI 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 the Maryland Department of the Environment.

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 CO₂ Allowance Tracking System (RGGI 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 CO₂ offset allowances related to the offset project will be transferred.

Form 1.3 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 1.4 Project Sponsor Statement

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 1.5 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 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.



Offset Project Name

Offset Project ID Code

Form 1.1 – Coversheet

Project Sponsor (RGGI COATS Authorized Account Representative)

Project Sponsor Organization

Reporting Period

RGGI COATS General Account Name

RGGI COATS General Account Number

Check the boxes below to indicate submission of the following required forms:

- 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
- Form 2.1 – Demonstration of Conformance with M&V Plan
- Form 2.2 – Determination of Reporting Period Sequestration
- Form 3.1 – Independent Verifier Certification Statement and Report



Offset Project Name Offset Project ID Code

Form 1.2 – General Information

Project Sponsor (RGGI COATS Authorized Account Representative)

Telephone Number **Fax Number** **Email Address**
Street Address
City **State/Province** **Postal Code** **Country**

RGGI COATS General Account Name
RGGI COATS General Account Number

Name of Offset Project **Project Commencement Date**
Summary Description of Offset Project
Project City **Project County** **Project State**

Project Sponsor Organization
Primary Street Address
City **State/Province** **Postal Code** **Country**
Brief Description of Project Sponsor Organization
Telephone Number **Website URL**

Independent Verifier (Company/Organization) **States Where Verifier Accredited**
Primary Street Address **Website URL**
City **State/Province** **Postal Code** **Country**
Point of Contact for Project
Contact Telephone Number **Contact Fax Number** **Contact Email Address**
Contact Street Address
City **State/Province** **Postal Code** **Country**



Offset Project Name

Offset Project ID Code

Form 1.3 – Attestations

The undersigned Project Sponsor certifies the truth of the following statements:

1. All offset projects for which the Project Sponsor or project sponsor organization has received CO₂ offset allowances, under the Project Sponsor's or project sponsor organization's ownership or control (or under the ownership or control of any entity which controls, is controlled by, or has common control with the Project Sponsor or project sponsor organization) are in compliance with all applicable requirements of the CO₂ Budget Trading Program in all participating states.

2. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this *M&V Report* and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Project Sponsor Signature

Date

Printed Name

Title

Organization

Notary



Offset Project Name

Offset Project ID Code

Form 1.4 – Project Sponsor Statement

The undersigned Project Sponsor hereby confirms and attests that the offset project upon which this Monitoring and Verification Report is based is in full compliance with all of the requirements of COMAR 26.09.03. The Project Sponsor holds the legal rights to the offset project, or has been granted the right to act on behalf of a party that holds the legal rights to the offset project. The Project Sponsor understands that eligibility for the award of CO₂ offset allowances under COMAR 26.09.03 is contingent on meeting the requirements of COMAR 26.09.03. The Project Sponsor authorizes the Maryland Department of the Environment or its agent to audit this offset project for purposes of verifying that the offset project, including the Monitoring and Verification Plan, has been implemented as described in the *Consistency Application* that was the subject of a consistency determination by the Maryland Department of the Environment. The Project Sponsor understands that this right to audit shall include the right to enter the physical location of the offset project and to make available to the Maryland Department of the Environment or its agent any and all documentation relating to the offset project at the Maryland Department of the Environment's request. The Project Sponsor submits to the legal jurisdiction of Maryland.

Project Sponsor Signature

Date

Printed Name

Title

Organization

Notary



Offset Project Name

Offset Project ID Code

Form 1.5 – Disclosure of Greenhouse Gas Emissions Data Reporting

Check the box below that applies:

- No greenhouse gas emissions data related to the offset project referenced in this *M&V Report* have been or will be reported to a voluntary or mandatory program other than the CO₂ Budget Trading Program.
- Greenhouse gas emissions data related to the offset project referenced in this *M&V Report* have been or will be reported to a voluntary or mandatory program other than the CO₂ Budget Trading Program. Information for all such programs to which greenhouse gas emissions data have been or will be reported is provided below.

Name of Program to which GHG Emissions Data Reported

Check all that apply:

- Reporting is currently ongoing
- Reporting was conducted in the past
- Reporting will be conducted in the future
- Reporting is mandatory
- Reporting is voluntary

Enter Frequency of Reporting

Enter Reporting Start Date

Program Contact Information – Address

Program Website

Categories of Emissions Data Reported

Name of Program to which GHG Emissions Data Reported

Check all that apply:

- Reporting is currently ongoing
- Reporting was conducted in the past
- Reporting will be conducted in the future
- Reporting is mandatory
- Reporting is voluntary

Enter Frequency of Reporting

Enter Reporting Start Date

Program Contact Information – Address

Program Website

Categories of Emissions Data Reported

Add extra pages as needed.



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 net carbon sequestered during the reporting period. 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 where indicated in Form 2.1 to indicate that the referenced documentation is provided as an attachment to Form 2.1. Each attachment must include a header that indicates it is an attachment to Form 2.1 and includes the offset project name and offset project ID code. Documentation must include the following:

1. Documentation of Inventory Methodology. Describe the inventory design, detailing the year of the inventory and how the sampling plots were selected. If the project is stratified, include the stratification rules, attach a map of vegetation strata, and describe the results of stratification (area by strata) and the tools for application (GIS, aerial photos, etc.). The inventory methodology must be cross referenced with the information provided in the M&V Plan.
2. Identification of Sampling Plots. Attach a map depicting the project boundary and the locations of the sampling plots as well as a list of the number, sizes, and coordinates of the plots. The attachment must include recent photos of the plots, and distinct plot identifiers to provide for verification of reported sequestered carbon by an independent verifier or the Maryland Department of the Environment.
3. Documentation of Field Measurements. Attach a list that documents all field procedures that were used to take measurements and monument the sampling plots. All procedures must be cross referenced with the M&V Plan.
4. Documentation of the Modeling Plan. Attach the project modeling plan that was used to update the inventory and describe the approved model, cross referencing all procedures with those specified in the M&V Plan. The modeling plan must contain all of the elements specified in Appendix B.3.
5. Assessment of Forest Management Practices if Commercial Timber Harvest Activities Have Occurred. If commercial timber harvest activities occurred during the reporting period, attach the assessment or certification issued by the American Tree Farm System (ATFS), Forest Stewardship Council (FSC), Sustainable Forestry Institute (SFI), or other similar organizations as approved by the Maryland Department of the Environment ensuring that the land within the offset project boundary is being managed in accordance with environmentally sustainable forestry practices. If no commercial timber harvesting occurred, do not check box number 4 in Form 2.1.
6. Documentation of Quality Assurance Procedures Conducted. Document the quality assurance procedures that were conducted during the reporting period to ensure



accuracy in data collection, data analysis, and data storage, and cross reference all procedures with those specified in the M&V Plan.

Form 2.2 Determination of Reporting Period Sequestration

Provide documentation of the carbon sequestered during the reporting period where indicated in Form 2.2 or as an attachment to Form 2.2, as directed below. Each 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. Multiple attachments may be integrated into a single document, as appropriate, as long as each element is clearly identified, as specified below. For submission of the electronic version of the *M&V Report*, spreadsheets must be provided as a distinct electronic file or files (distinct spreadsheets may be incorporated into a single spreadsheet file, as appropriate, as long as each element is clearly identified, as specified below). Check the boxes in Form 2.2 to indicate that required documentation is attached and includes the required components.

The following documentation must be provided:

1. Identify Reporting Period. Enter the dates of the reporting period (start and end dates) and the dates when the field measurements were made (may include a range), where requested in Form 2.2.
2. Net Carbon Sequestered. Enter the values (in metric tons of CO₂-equivalent) for the following, where requested in Form 2.2: reporting period actual carbon stocks; baseline carbon stocks or actual carbon stocks as of previous reporting period; net carbon sequestered in reporting period. Enter the confidence deduction and Reversal Risk Rating where requested in Form 2.2.
3. Reporting Period Carbon Pools. Enter calculated carbon content in metric tons of CO₂-equivalent for the carbon pools included in the reporting period, where requested in Form 2.2:
 - RF-1: Standing live carbon
 - RF-2: Shrubs and herbaceous understory carbon
 - RF-3: Standing dead carbon
 - RF-6: Soil carbon (included if significant soil disturbance during site preparation)
 - RF-7: Carbon in in-use forest products
 - RF-8: Forest product carbon in landfills (included if project harvest is below baseline)
 - RF-9: Biological emissions from site preparation activities
 - RF-10: Mobile combustion emissions from site preparation activities
 - RF-13: Biological emissions from clearing of forestland outside the Project Area
 - RF-17: Biological emissions from decomposition of forest products

Values for all required carbon pools must be entered. Note that some carbon pools are calculated as a component of other pools. In those cases, enter “included” in Form 2.2.

4. Field Measurement Data. Attach a spreadsheet that contains the field measurement data collected from each project inventory sampling plot that was randomly selected for the site visit verification. Data that must be entered in the spreadsheet include:



- Sampling plot IDs, dimensions, and slopes
 - Standing live tree species, diameters (DBH), and heights
 - Standing dead tree species, diameters, heights, and decomposition classes
 - File names for plot photographs
5. Documentation of Carbon Stocks. Attach a spreadsheet that documents all carbon stock calculations for each pool. The spreadsheet must include the following:
- a. Document use of the inventory data and modeling outputs to estimate actual onsite carbon stocks for the current reporting period. Modeling outputs must include project harvest, inventory, and growth estimates presented in total and per acre as well as harvest yield streams on modeled stands. Document that approved volume equations, biomass equations, and growth models were used per Appendices A and B of the protocol. Document the calculation of the confidence deduction applied to actual onsite carbon stocks per Appendix A.4.
 - b. Document that the actual carbon in harvested wood products was calculated based on harvest volumes during the current reporting period and the guidance in Appendix C.
 - c. Document that the project's secondary effects were calculated per Equations 6.2, 6.3, and 6.4. Identify the site preparation emissions factor, the leakage risk percentage, and the total secondary effect emissions.
6. Documentation of Reversal Risk Rating. Attach a spreadsheet that documents the determination of the project's reversal risk rating. The spreadsheet must document that the reversal risk rating was calculated per the guidance in Appendix D.



Offset Project Name

Offset Project ID Code

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. All attached documentation must include a header that indicates it is an attachment to Form 2.1 and includes the offset project name and offset project ID code.

Check the boxes below to indicate that the following required documentation is provided as an attachment to Form 2.1:

- 1. Documentation of Project Inventory. Description of the inventory design and plot selection process. List of stratification rules, map of vegetation strata, and description of vegetation strata, if applicable.
- 2. Identification of Sampling Plots. Map of sampling plots and list of number, sizes, and locations of all sampling plots used for developing the project inventory, including recent photos and distinct sampling plot identifiers.
- 3. Documentation of Field Measurements. List all field procedures used to take measurements and monument the sampling plots, cross referenced with those specified in the M&V Plan.
- 4. Documentation of the Modeling Plan. Description of approved model and the modeling plan used to update the project inventory with cross references to all procedures in the M&V Plan.
- 5. Assessment of Forest Management Practices if Commercial Timber Harvest Activities Have Occurred. If applicable, the assessment or certification issued by American Tree Farm System (ATFS), Forest Stewardship Council (FSC), Sustainable Forestry Institute (SFI), or such other similar organizations as approved by the Maryland Department of the Environment ensuring that the land within the offset project boundary is being managed in accordance with environmentally sustainable forestry practices.
- 6. Documentation of Quality Assurance Procedures Conducted. Documentation of quality assurance procedures conducted during the reporting period to ensure accuracy in data collection, data analysis, and data storage, and cross reference of all procedures with those specified in the M&V Plan.



Offset Project Name

Offset Project ID Code

Form 2.2 – Determination of Reporting Period Sequestration

Provide documentation of the carbon sequestered during the reporting period where indicated in Form 2.2 or as an attachment to Form 2.2, as directed below. Each 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. Multiple attachments may be integrated into a single document, as appropriate, as long as each element is clearly identified, as specified below. For submission of the electronic version of the M&V Report, spreadsheets must be provided as a distinct electronic file or files (distinct spreadsheets may be incorporated into a single spreadsheet file, as appropriate, as long as each element is clearly identified, as specified below).

A. Reporting Period Data

1. Reporting Period.

Enter the dates of the reporting period (start/end)

Enter dates when field measurements were taken (may include a range)

2. Net Carbon Sequestered. Enter results of net carbon sequestration calculations:

Reporting period actual carbon stocks in metric tons of CO₂-e

Baseline or previous reporting period actual carbon stocks in metric tons of CO₂-e

Confidence deduction

Net actual carbon sequestration during reporting period in metric tons of CO₂-e

Reversal risk rating

Reversal risk-adjusted net carbon sequestration during reporting period in metric tons of CO₂-e

3. Reporting Period Carbon Pools. Enter reporting period carbon content in metric tons of CO₂-e for the included carbon pools:

RF-1: Standing live carbon

RF-2: Shrubs and herbaceous understory carbon

RF-3: Standing dead carbon

RF-6: Soil carbon (if applicable)

RF-7: Carbon in in-use forest products

RF-8: Forest product carbon in landfills (if applicable)

RF-9: Biological emissions from site preparation activities

RF-10: Mobile combustion emissions from site preparation activities

RF-13: Biological emissions from clearing of forestland outside the Project Area

RF-17: Biological emissions from decomposition of forest products

Total of above



Offset Project Name

Offset Project ID Code

B. Reporting Period Documentation

Check the boxes below to indicate that the following required documentation is attached:

- 4. Field Measurement Data. Spreadsheet containing field measurement data collected from each sampling plot that was randomly selected for the site visit verification, including:
 - Sampling plot IDs, dimensions, and slopes
 - Standing live tree species, diameters (DBH), and heights
 - Standing dead tree species, diameters, heights, and decomposition classes
 - File names for plot photographs
- 5. Documentation of Carbon Stocks. Spreadsheet that documents all carbon stock calculations.
- 6. Demonstration of Reversal Risk Rating. Spreadsheet that documents the determination of the project's reversal risk rating.



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 Part 3 form 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's 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 COMAR 26.09.03.
2. The verifier has evaluated the adequacy and validity of information supplied by the Project Sponsor to determine CO₂-equivalent sequestration in accordance with the applicable requirements of COMAR 26.09.03 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 CO₂-equivalent sequestration in accordance with the applicable requirements of COMAR 26.09.03 and the Monitoring and Verification Plan submitted as part of the *Consistency Application*.

In addition, the verifier report must contain the information detailed in the *Verification Report Template*. This template is posted on the RGGI website.



Offset Project Name

Offset Project ID Code

Form 3.1 – Independent Verifier Certification Statement and Report

An accredited independent verifier must sign and date the form. Attach the accredited 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.

Name of Accredited Independent Verifier

I certify that the accredited independent verifier identified above reviewed this *M&V Report*, including all forms and attachments, in its entirety, including a review of 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 COMAR 26.09.03 and the required information that must be provided in the *M&V Report*.
2. The verifier has evaluated the adequacy and validity of information supplied by the Project Sponsor to determine CO₂-equivalent sequestration in accordance with COMAR 26.09.03 and the required documentation that must be provided 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 CO₂-equivalent sequestration in accordance with the applicable requirements of COMAR 26.09.03 and the Monitoring and Verification Plan submitted as part of the *Consistency Application*.

A verification report is attached that documents the verifier’s review of the items listed above and includes evaluation conclusions and findings.

Verifier Representative Signature

Date

Printed Name

Title

Notary

