

## CORRECTION AND CLARIFICATION TO AM0073 GHG EMISSION REDUCTIONS THROUGH MULTI-SITE MANURE COLLECTION AND TREATMENT IN A CENTRAL PLANT V1.0

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This document provides a correction and a clarification applicable to the CDM methodology [AM0073 GHG emission reductions through multi-site manure collection and treatment in a central plant v1.0](#) when used by a project in Verra’s Verified Carbon Standard (VCS) Program. This correction and clarification is effective on the document issuance date. Project proponents and validation/verification bodies (VVBs) shall apply and interpret AM0073, v1.0 consistent with the correction and clarification set out in this document.

These updates will be incorporated into the next issued revision of the methodology.

Correction/ Clarification	Description	Document and Section Reference	Effective Date
Clarification 1	Determination of manure and volatile solids in a consistent dry basis in equation 21 and Annex 2.	AM0073 v1.0, Baseline emissions	Effective immediately, including to all project requests currently in the Verra project review process
Correction 1	Measurement and monitoring procedures for average weight of manure.	AM0073 v1.0, Data and parameters monitored	Effective immediately, including to all project requests currently in the Verra project review process

### 1 CLARIFICATION 1

The parameter  $W_{\text{manure, LT}}$  in equation 21 must be determined in a dry basis:

$W_{\text{manure, LT}}$  = Average manure weight excreted by a defined population at the project site in kg/animal/day - **dry basis**

Given the parameter is generally measured in a wet basis, the Moisture Content or the Total Solids in the wet manure must be determined in a laboratory test as part of the determination of the  $VS_{\text{manure, LT}}$ .

The Total Solids (TS) relative to the wet manure must be used to convert the  $W_{\text{manure, LT}}$  to a dry basis before applying equation 21.

$$W_{\text{manure, LT}} [\text{Dry}] = W_{\text{manure, LT}} [\text{Wet}] * TS$$

Where:

$$TS = \frac{\text{Dry weight}}{\text{Wet weight}}$$

*Example from USDA-Agricultural Waste Management Field Handbook, Chapter 4 (pag.4-6).*

*A laboratory sample of manure weighing 200 grams is oven dried. After oven drying, the sample weighs 50 grams.*

$$\text{Total Solids} = \frac{50}{200} = 0.25$$

$$\text{Moisture} = \frac{200 - 50}{200} = 0.75 = 1 - TS$$

Alternatively, default values for moisture content in manure as excreted may be used from Tables 4-5 a), 4-8 a), 4-10 a) and 4-11 a) from *USDA-Agricultural Waste Management Field Handbook, Chapter 4* (pag.4-13 to 4-19).

The VVB must assess the validity of the laboratory tests by reviewing the data logs and compare the results with similar projects in the region (if any) and the default values as stated above. Any significant difference must be properly justified.

### **Background:**

The methodology does not state if the parameter  $W_{\text{manure, LT}}$  is determined in a dry or wet basis. To be technically correct,  $W_{\text{manure, LT}}$  and  $VS_{\text{manure, LT}}$  must be consistent with each other (both must refer to dry manure or to wet manure). Since Annex 2 already determines VS in a dry basis  $W_{\text{manure}}$  must also be in a dry basis.

Furthermore, Total Solids, Volatile Solids, Fixed Solids and Moisture Content are the characteristics of the manure and mathematically related. Therefore, the laboratory test ensures consistency among them.

## 2 CORRECTION 1

Under section III. MONITORING METHODOLOGY, the table with the description of the parameter  $W_{\text{manure,LT}}$  should read:

Data / parameter	$W_{\text{manure,LT}}$
Data unit	kg/animal/day – dry basis
Description	Average manure weight excreted by a defined population
Source of data	Project proponents
Measurement procedures (if any)	<p>Direct measurement or through representative sample of each population (90/10 precision).</p> <p>Weight of manure, or manure volume measured together with the density.</p> <p>The quantity of animal manure and number of animals from different farms and different animal types must be recorded separately.</p> <p>Archive electronically during project plus 5 years</p>
Monitoring frequency	<del>Daily</del> –At least annually, based on direct measurement or representative sampling
QA/QC procedures	---
Any comment	The PDD should describe the system on monitoring the weight of manure Excreted

### Background:

The parameter is an average value and can be determined at different frequencies in weight or volume, depending on the characteristics of the manure and practice in the farms, as long as the resulting average value is representative.