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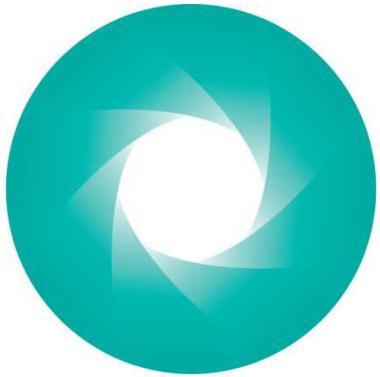

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Inventory Quality Management and Verification

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Learning Objectives

In this lesson, you will learn:

- How to improve the quality of your inventory
- The basics of verification
- Who participates in a verification
- What documents, data, etc. verifiers will review
- How a verification report may be used

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Elements of Inventory Quality

- Methodologies used
- Data
- Inventory processes and systems
- Documentation

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High quality inventories – types of assistance

- Technical assistance
- Inventory management plans
- Desktop reviews
- Verification

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Technical Assistance

- Assistance during inventory process
- Can be provided by experts

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Inventory Management Plans

- Participant information
- Boundary conditions
- Emission quantification
- Data management
- Base year
- Management tools
- Auditing and verification

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Desktop Reviews

- Review inventory together with supporting information:
  - IMP
  - Activity data
  - Emission factors

- Conducted by:
  - Contractors
  - Verifiers

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Desktop Review of Corporate Data

- Are all emission source types within operational boundaries included?
- Are emissions values within a reasonable range for company type and size?
- Are all significant differences in annual emission totals explained?
- Are changes consistent with previous years' inventories?
- Are thorough descriptions of data collection, management, and review processes included?
- Does the inventory provide adequate records and data to track progress towards a reduction target (if applicable)?

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Internal Assurance

- Verification usually done by independent, external third party
- However, companies may internally verify information to improve GHG inventories
- Internal verification
  - Is done by staff not involved in GHG accounting and reporting
  - Follows similar process to external verification
  - Can supply external verifiers with useful information
  - Does not provide as much credibility as external, third party verification

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Verification

Objective assessment of accuracy and completeness of reported GHG information and of the conformity of this information to pre-established principles or standards

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Verification Basics

- Discrepancies: differences between reported data and data generated from the proper application of relevant standards and methodologies

- Verification assesses risks of material discrepancies in reported data

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GHG Principles and Verification

RELEVANCE
COMPLETENESS
CONSISTENCY
TRANSPARENCY
ACCURACY

- Verification provides confidence to users that reported information represents a faithful, true, and fair account of GHG emissions

- To ensure successful, efficient verification
  - adhere to all GHG principles and
  - maintain transparent audit trail

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Goals of Verification

- Clearly define goals before commissioning third party verification

- Goals may include
  - To increase credibility of publicly reported information
  - To increase senior management confidence in reported information
  - To improve internal accounting and reporting practices
  - To prepare for mandatory verification requirements of GHG programs

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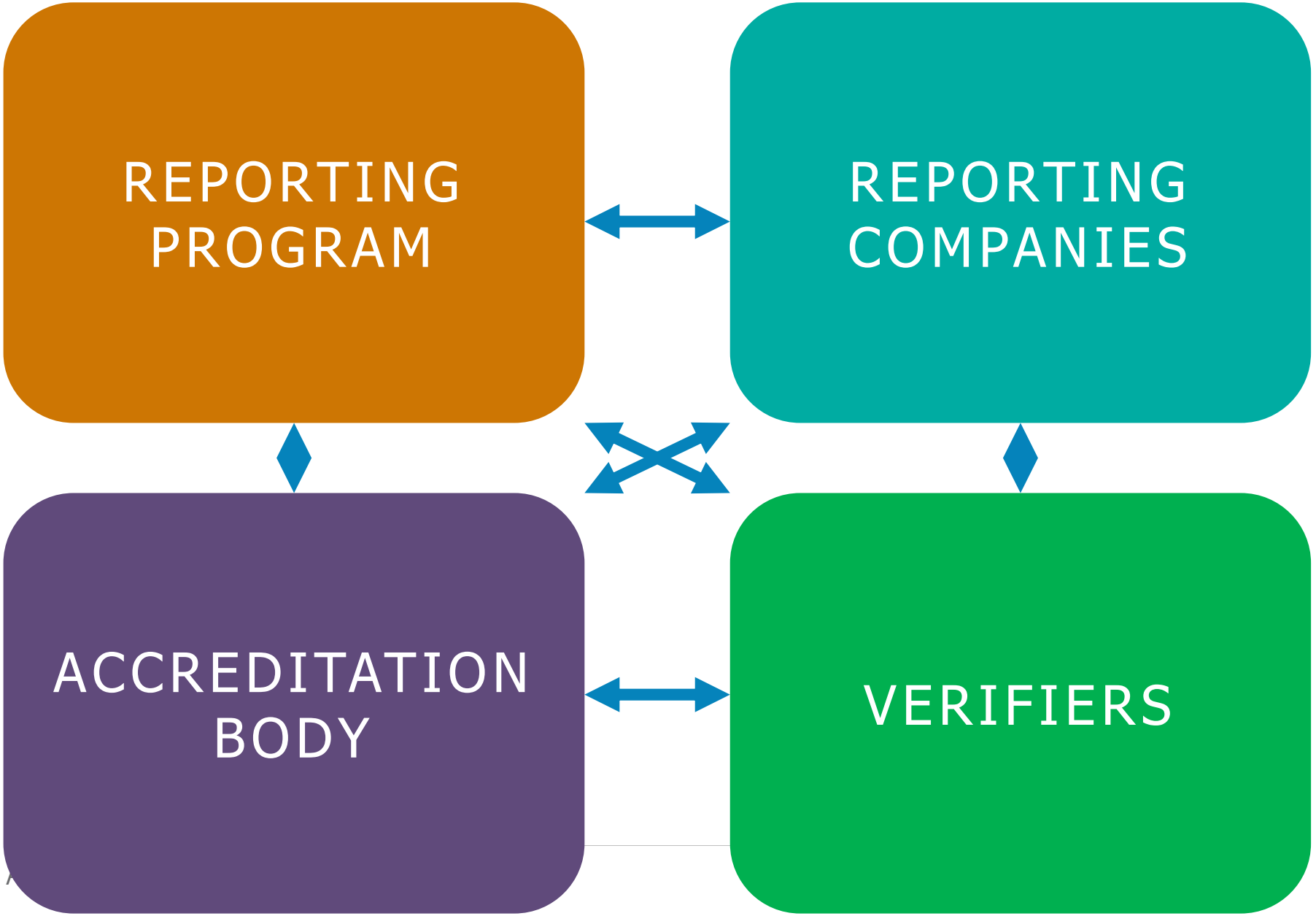
Who is involved in verification?



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Reporting Program

Responsibilities:

- Can define verification requirements
- Defines key accreditation criteria
- Collect and register inventories

Interactions with other players:

- Oversees verification program and Accreditation Body
- Resolves disputes between Companies and Verification Bodies

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Reporting Companies

Responsibilities:

- Select (accredited) Verification Body
- Correct errors found in verification
- Review verification findings

Interactions with other players:

- Provide Verification Bodies access to required information, personnel, and facilities

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Accreditation Body

Responsibilities:

- Accredits Verification Bodies

Interactions with other players:

- Monitors Verification Bodies' work
- Sanctions Verification Bodies
- Accompanies Verification Bodies on facility visits to monitor compliance

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Verifiers

Responsibilities:

- Becomes accredited
- Verifies emission reports
- Produces verification report

Interactions with other players:

- Works under contract with Companies
- Conducts Verification Activities
- Provides detailed Verification Report to Company
- Provides feedback to Reporting Program on program improvements

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Materiality

- Information is **material** if its inclusion or exclusion would influence any decisions or actions taken by its users

- **Material discrepancy**: an error, omission, or misstatement that results in a reported quantity or statement being significantly different from the true value or meaning

- **Material threshold:** the point at which a discrepancy becomes material
  - Usually 5% of total inventory
  - GHG programs or national verification standards may have specific material thresholds

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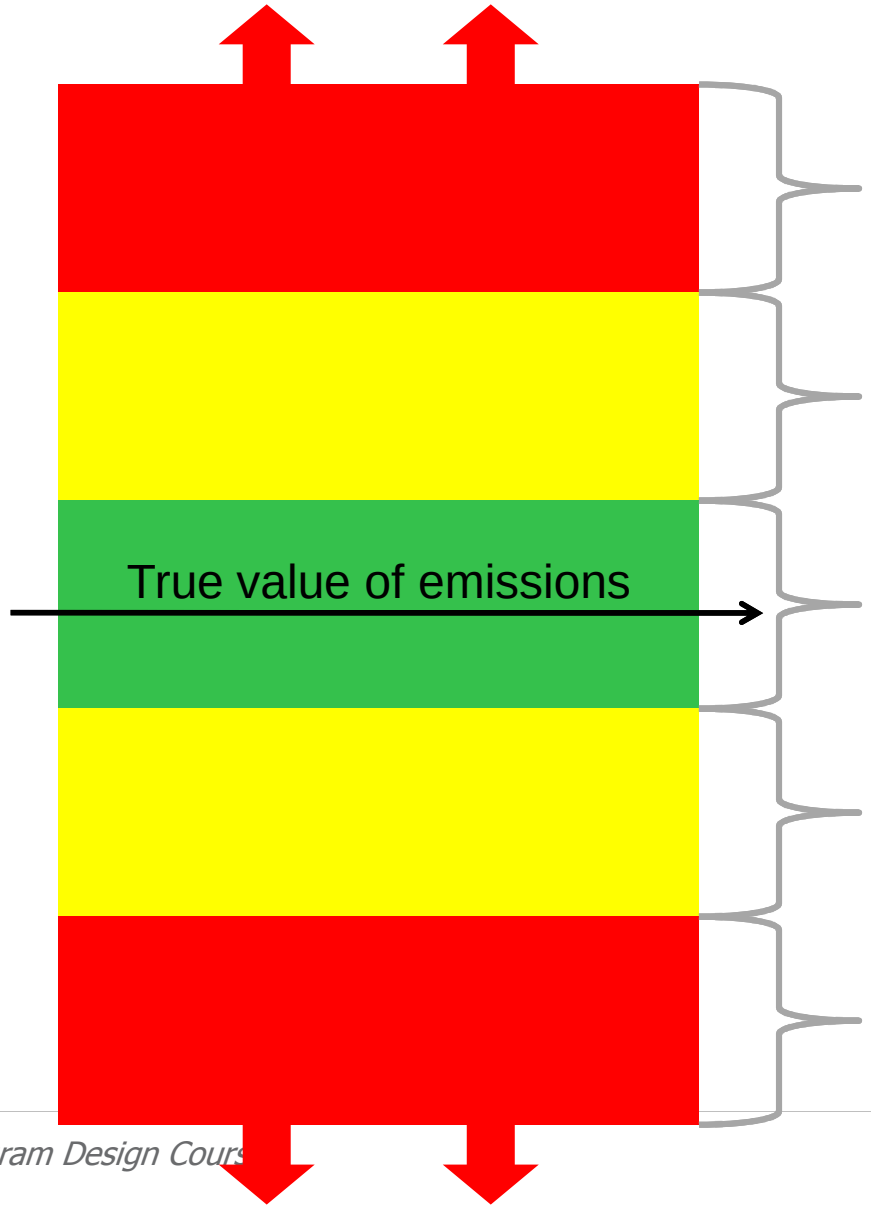
Materiality



Material discrepancy

Non-material discrepancy

Inherent Uncertainty

Non-material discrepancy

Material discrepancy

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Level of Assurance

Reasonable Assurance

Positive declaration

The inventory **is** materially correct

- Leads to a deeper an more intensive verification process
- Least risk to the reporting company

Limited Assurance

Negative declaration

There is **no** evidence that the inventory is **not** materially correct

- Leads to a shallower, less intensive verification process
- Most risk to the reporting company

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Site Visits

- Depending on level of assurance required, verifiers may need to visit company operating sites

- Site visits enable verifiers to obtain evidence of the

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Site Visits

- Meet with key personnel on-site
- Sample data
- Track data through data management system
- Check procedures, industrial operations, calibration records, monitoring, equipment quality certificates, etc.

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Site Visits

- Visit sites with highest risk for error:
  - Highest emissions or most emissions sources
  - Highest risk for error
  - Resulting from strategic analysis from original data provided
- Establish confidence in reported data
- Identify opportunities to improve procedures, processes, and sometimes costs

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Timing of Verification

Verifier may be involved at various stages of GHG inventory preparation and reporting process

- **Internal verification** may be done at any point
- **External verification** may be done before inventory finalized to allow for corrections before publishing
- Some GHG programs may require independent verification after report submission

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Using Verification Findings

- Verifiers may require reporting company to correct any material errors identified

- Verifiers should then
  - Issue opinion on whether inventory is free of material information
  - Issue verification report based on the agreed scope
  - Provide recommendations for future improvements

- Verification process can help improve a company's GHG accounting and reporting system

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Cost considerations

- Size and complexity of company and emissions sources
- Level of assurance
- Continuation with the same verifier
- Verifier's access to activity data and calculation methodologies
- How well-documented data is
- Local verification market trends

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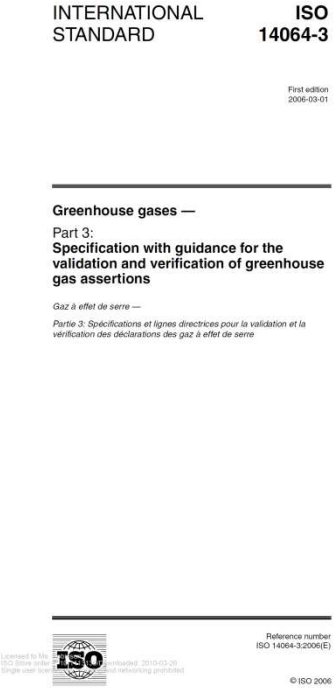
Available Protocols and Standards


INTERNATIONAL STANDARD **ISO 14064-3**

First edition
2006-03-01

Greenhouse gases —
Part 3:
Specification with guidance for the validation and verification of greenhouse gas assertions

Gaz à effet de serre —
Partie 3: Spécifications et lignes directrices pour la validation et la vérification des déclarations des gaz à effet de serre

Reference number
ISO 14064-3:2006(E)

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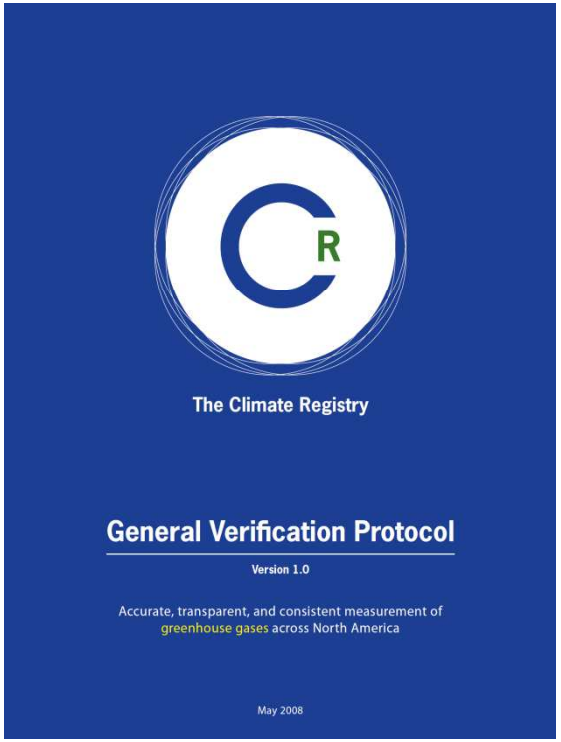

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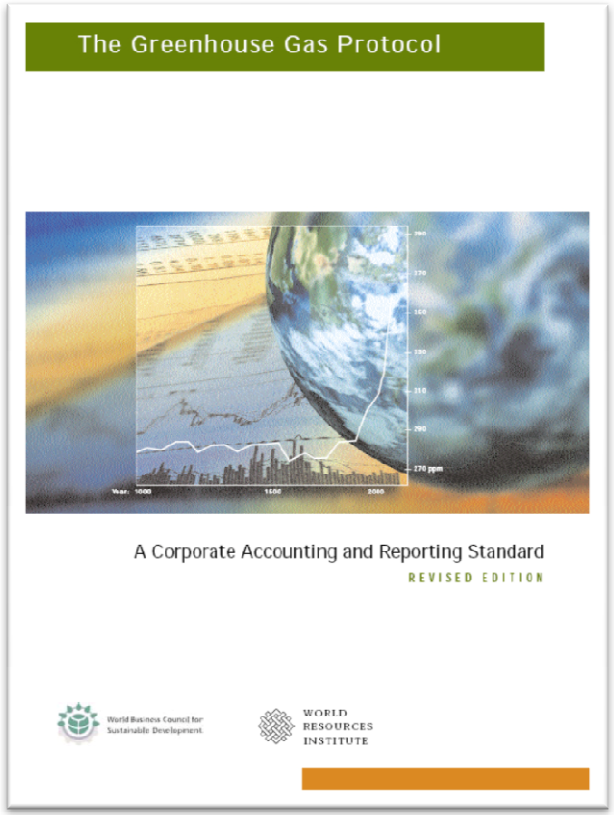
Further Reading



The Greenhouse Gas Protocol: A Corporate Accounting & Reporting Standard

Chapter 10: Verification of GHG Emissions

Chapter 7: Managing Inventory Quality

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