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DEPARTMENT OF ENVIRONMENT, FORESTRY AND FISHERIES

NO. 920 **24 AUGUST 2020**

NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004 (ACT NO. 39 OF 2004)

CONSULTATION ON DRAFT TECHNICAL GUIDELINES FOR VALIDATION AND VERIFICATION OF GREENHOUSE GAS EMISSIONS

I, Barbara Dallas Creecy, Minister of Forestry, Fisheries and Environment, under section 56 and section 57 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) give notice of my intention to publish the Technical Guidelines for Validation and Verification of Greenhouse Gas Emissions, as indicated in the Schedule hereto.

Members of the public are invited to submit to the Minister, within 30 days after the publication of the notice in the Government *Gazette*, written representations or comments to the following addresses:

By post: The Director-General: Department of Environment, Forestry and Fisheries
Attention: Mr Jongikhaya Witi
Private Bag X447
Pretoria
0001

By hand: Ground Floor (Reception), Environment House, 473 Steve Biko Road, Pretoria.

By email: By email: GHGReporting@environment.gov.za or by fax: 086 615 4321.

The document can be accessed at https://www.environment.gov.za/legislation/gazetted_notices under "Draft documents for comment".

Any inquiries in connection with the draft guidelines can be directed to Mr Jongikhaya Witi at 012 399 9048 or 067 417 3831.

Comments received after the closing date may not be considered.

BARBARA DALLAS CREECY

MINISTER OF FORESTRY, FISHERIES AND ENVIRONMENT

SCHEDULE

Technical Guidelines for Validation and Verification of Greenhouse Gas Emissions- DRAFT FOR DISCUSSION PURPOSES ONLY.

A companion to the South African National Greenhouse Gas Emission Reporting Regulations

Abbreviations

DEFF	Department of Environment, Forestry and Fisheries
GHG	Greenhouse Gas
GIZ	German Society for International Cooperation
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial processes and product use
ISO	International Organization for Standardization
NAEIS	National Atmospheric Emission Inventory System
NGERs	National Greenhouse Gas Emission Reporting Regulations
SAGERS	South African Greenhouse Gas Emissions Reporting System
SANAS	South African National Accreditation System
tCO2e	Tonnes of carbon dioxide equivalent

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1. INTRODUCTION AND OVERVIEW

1.1 INTRODUCTION

This Guidelines for Verification of Greenhouse Gas Emissions (Verification Guideline) for purposes of the National Greenhouse Gas Emissions Reporting Regulations, 2016. (NGERs), describes the process that will be followed to verify the greenhouse gas (GHG) emissions data and submissions made by Data Providers in terms of the NGERs to the National Inventory Unit based at the Department of Environment, Forestry and Fisheries ("Competent Authority"). The Verification Guideline provides further detail to implement the requirements of Section 11 of the NGERs, which outlines the legal requirements for verification of information submitted by Data Providers to the Competent Authority.

All terms defined in the NGERs and used in the Verification Guideline have the same meaning as in the NGERs and are outlined in the Glossary of this document.

The purpose of the Verification Guideline is to support the implementation of the mandatory GHG reporting regime in South Africa. The Verification Guideline provides direction to the Competent Authority, Data Providers and Independent Verifiers on the verification process for the NGERs and details the responsibilities of these role players. This Verification Guideline is applicable to all anthropogenic emissions by sources and removals by sinks as outlined in Annexure 1 of the NGERs. More specifically the Verification Guideline outlines:

- The structure of the NGERs Verification Programme;
- The Competent Authority's responsibility and the internal review and validation process that the Competent Authority will follow;
- The Data Providers' responsibilities;
- The independent verification process to be followed;
- Accreditation requirements of independent verification bodies; and
- Important considerations for all role players during the verification process.

The Verification Guideline is made up of three primary sections, including:

1. Competent Authority review and validation process;
2. Independent verification process; and
3. Accreditation process and competence requirements for Independent Verifiers.

The Verification Guideline is intended to be used in conjunction with the NGERs and the Methodological Guidelines for Reporting of Greenhouse Gas Emissions.

1.2 OVERVIEW OF THE VERIFICATION PROGRAMME

The Verification Programme for the NGERs will use a combination of system checks, reviews and on-site inspections by the Competent Authority and independent verification to obtain the required level of confidence over the Emissions Reports submitted to the Competent Authority. The Verification Programme aims to ensure that the GHG emissions and removals computed and submitted by Data Providers are complete, transparent and accurate. The Verification Programme is aligned to the reporting process described in the NGERs and the Methodological Guidelines.

Figure 1.1 and Table 1.1 below provides a high-level summary of the structure of the Verification Programme, associated processes and high-level roles and responsibilities of key parties, including the Competent Authority, Data Providers and Independent Verifiers. Additional detail on each of these sections follows in the document.

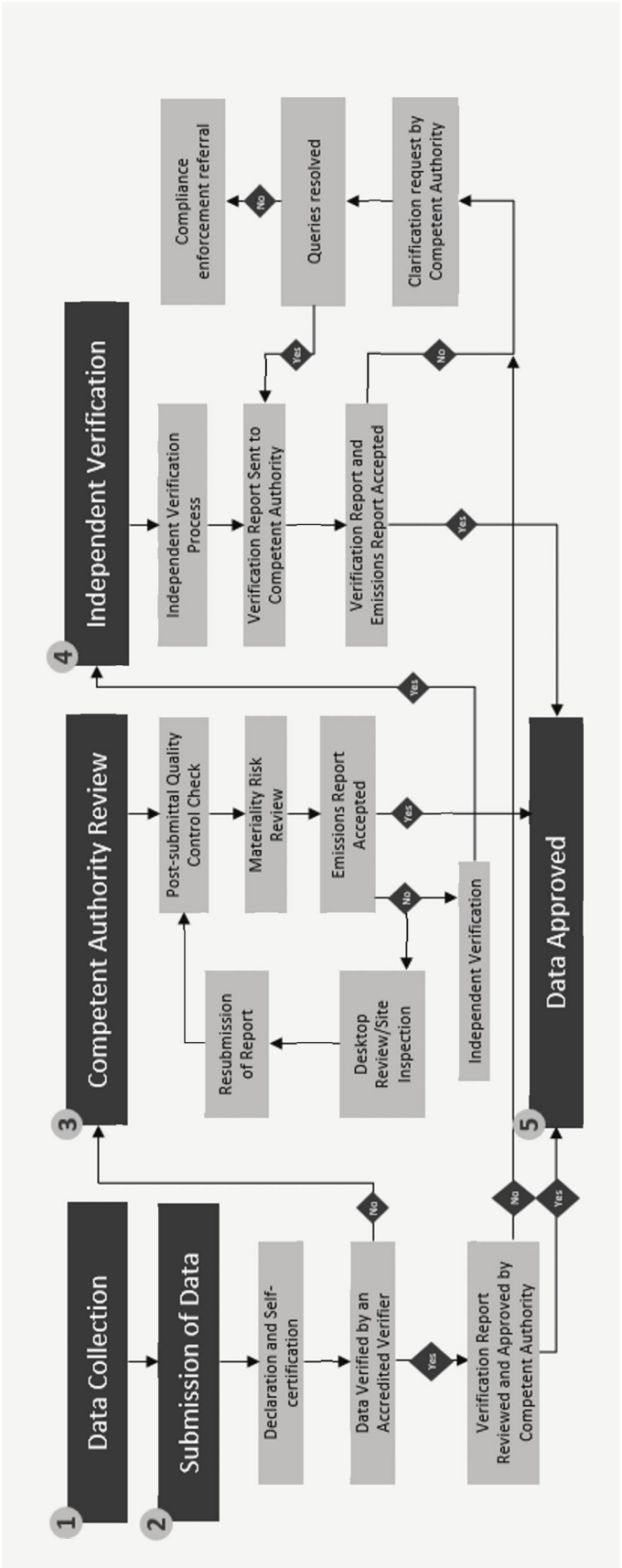

Figure 1.1: Process flow summary of the NGERs Verification Programme

Table 1.1: Summary of steps and roles and responsibilities of the NGERs Verification Programme

Process Stage	Details of the Verification Guideline Section	Applicable Guideline Section
1 Data Collection	The Data Provider is required to collect and store relevant data and supporting evidence related to its GHG emissions (Emissions Report). It is regarded as good practice that the facility establishes a Monitoring Plan. See Section 2.1.1 for additional detail in this regard.	Section 2.1
2 Submission of Data	The Data Provider is required to complete the self-declaration and submit the requested documentation on the South African Greenhouse Gas Emissions Reporting System (SAGERS), which is the GHG reporting module of the NAEIS. Data Providers who have voluntarily submitted an acceptable verification statement on the GHG reporting module of NAEIS (SAGERS) for a facility from an accredited or approved Independent Verifier (in accordance with process stages 4 and 5) alongside their Emissions Reports, may have their data immediately approved by the Competent Authority for that facility, provided the requirements of Section 2.2.1 have been met.	Section 2.2
3 Competent Authority Review	Once the Data Provider has submitted the required data onto the GHG reporting module of NAEIS (SAGERS), the Competent Authority will conduct a series of post-submittal data and materiality risk assessment checks (see Section 2.3.2). The results of these checks will be used by the Competent Authority to determine which Data Providers should undergo desktop review, site inspection or independent verification and which Data Providers should have their Emissions Reports approved.	Section 2.3
4 Independent Verification	If a Data Provider is selected for independent verification, they will be required to select an Independent Verifier approved by the Competent Authority prior to undertaking the verification assessment based on their competence being aligned to the SANAS accreditation requirements as outlined in Section 4.2. This is a transitionary arrangement and Independent Verifiers will need to be SANAS accredited from 2023 to undertake independent verification. Additional detail on this is provided in Sections 4.1.1 and 4.1.2. The verification process must be completed within 90 days of notification. Once a signed Verification Opinion and final Verification Report has been issued by the Independent Verifier and the Competent Authority has conducted final checks on the Emissions Report and Verification Report and is satisfied with the outcome (in accordance with Figure 3.6), the Emissions Report will be approved.	Sections 4.1.1, 4.1.2 and 4.2
5 Data Approved	The Data Providers' Emissions Report is deemed accepted if the Competent Authority does not respond to the Data Provider with questions for clarification or corrections within 60 days of having received the Verification Report. By default, the NAEIS system will generate formal communication in this regard after the 60-day period. If a Data Provider is required to undergo independent verification as outlined in Step 4, the Competent Authority will notify the Data Provider once the Emissions Report has been reviewed and accepted.	Sections **Error! Reference source not found.** and 3.2.4

1.2.1 UPDATES TO THE VERIFICATION GUIDELINE

Periodic reviews examining the design and implementation of the Verification Programme, to assess its effectiveness, is vital to its long-term success. This process is key to identifying the modifications that should take place to ensure it is addressing the programme purpose and ensure the programme remains relevant to evolving needs.

It is recognised that the Verification Guideline will need to be updated as amendments are made to verification strategies, methodologies and reporting requirements, as a result of a maturing Verification Programme and improved reporting by Data Providers. The Competent Authority will conduct periodic reviews of the Verification Guideline to determine if any amendments or additions are required.

1.3 PHASED APPROACH OF THE VERIFICATION PROGRAMME

It is widely recognised that the establishment of a credible and robust national GHG emissions database is resource and time intensive. In line with best practice internationally, the Verification Programme for the NGERs is designed using a phased approach in order to uphold a principle of continuous improvement. The objective of the phased approach is to gradually improve the accuracy, completeness and transparency of reported GHG emissions information over time for the purposes of the National GHG Inventory.

The phased verification approach is structured, from a timing perspective, to be aligned with the phases of the Carbon Tax and the proposed Carbon Budgets. Phase 1 will start on approval of the Verification Guideline and run until December 2022 and Phase 2 will start from January 2023.

One of the most important characteristics between Phase 1 and Phase 2 relates to the requirements of the Independent Verification process. In Phase 1, Independent Verifiers that meet specific competence requirements will be allowed to conduct independent verification. Additional detail on this is outlined in Section 4.2.2. In Phase 2, from January 2023 only, Independent Verifiers accredited in terms of ISO 14065 (*Greenhouse gases - Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition*) by the South African National Accreditation System (SANAS) will be allowed to conduct independent verification. The rationale behind this is to allow time for Independent Verifiers to become accredited with SANAS,

while at the same time initiating a process to ensure that the data reported to the Competent Authority is complete, accurate and transparent.

2. PART 1: COMPETENT AUTHORITY REVIEW AND QUALITY CONTROL PROCESS

2.1 DATA COLLECTION

Data Providers must ensure transparency of the Emissions Reports by archiving all data, calculations, algorithms, procedures and/or technical references used to estimate and/or calculate GHG emissions. This information relates to the calculations performed for the listed activities in line with the requirements of the NGERs and the Methodological Guidelines for Reporting of Greenhouse Gas Emissions. This is done to ensure that verification of submissions made in terms of the NGERs can take place, in accordance with Regulation 13(1) and 13 (2). Data Providers must keep a record of the information submitted to the Competent Authority for at least five years and such records must, on request, be made available for inspection by the Competent Authority.

Examples of the type of information that should be held to support data submitted is outlined in

Table 2.1 below:

Table 2.1: Examples of documentation that should be held on record

DATA PROVIDER LEVEL	• Documents that inform operational control (e.g. contracts and ownership agreements supporting ownership and the status and extent of control over each facility). • Documentation of assessments made over excluded emission sources, including process and facility boundary diagrams. • Data management system documentation, including descriptions of the processes for data collection, input, calculation, and management. • Annual GHG emissions inventory reports and statements. • Results of any internal audit or third-party verification activities.

FACILITY LEVEL[1]	• Facility level breakdowns of tonnes of GHG emissions separately by GHG and by source. • If available, latest schematic/overview diagrams of the facility, including emissions sources, e.g. process diagrams, emissions source diagrams. • Invoices for fossil, biogenic and non-fossil fuels purchased. • Records of incidents or events on site that may impact on production or other emissions drivers (e.g. shutdowns, upset conditions, etc.). • Maintenance and calibration records for key metering points, including flow meters. • Correspondence with suppliers of energy and fuel (e.g., invoices and fuel characteristics and composition). • Metering and calibration logs. • Justification of the quantification methodology and emission factors used, including documented references and citations, and root data upon which site-specific factors were derived. • Documentation of any key assumptions and uncertainties associated with the GHG data. • Description of GHG reduction projects and operational incidents that impact GHG performance. • Explanation of trends in GHG emissions from historical data and forecasts. • Facility production and operational data records and other drivers of tCO_2e. • Supporting spreadsheets detailing source data.

2.1.1 MONITORING PLANS

The use of monitoring plans by Data Providers is recommended to enhance the quality of GHG emissions data and facilitation of the verification process. Monitoring plans include a complete documentation of the methodologies employed by Data Providers in the recording, monitoring and reporting of their GHG emissions.

Although it is currently not a mandatory requirement of the NGERs for Data Providers to have a Monitoring Plan, Monitoring Plans may become a mandatory requirement in Phase 2 of the Verification Programme. An example of the kind of information required in a Monitoring Plan is provided in Annexure D.

[1] The type of documentation that must be stored is dependent on the facility's emission sources and emissions calculation methods used.

2.2 SUBMISSION OF EMISSIONS REPORTS

2.2.1 SUBMISSION PROCESS AND TIMING

In accordance with Regulation 7 of the NGERs, all Data Providers are required to submit their Emissions Report on the GHG reporting module of NAEIS (SAGERS) for the preceding calendar year, to the Competent Authority by 31 March of each year.

Data Providers who have submitted a Verification Report for a specific facility, in accordance with Section 3.2.4 of this guideline, with the submission of their Emissions Report via the NAEIS, may have their data immediately approved by the Competent Authority for that facility provided:

- The independent verifier has issued a positive Verification Opinion (See Section 3.2.4 for further detail) and any material misstatements detected in the independent verification process have been rectified;
- The Competent Authority is satisfied that the Verification Report and Opinion produced by the independent verifier is in line with the requirements of the Verification Guideline; and
- A final check of the Emissions Report by the Competent Authority is completed.

Data Providers who have been selected for independent verification, as an outcome of the process outlined in Section 2.3, should submit the Verification Report to the Competent Authority within 90 days of being notified of the requirement to undertake independent verification by the Competent Authority. Additional detail on this process is provided in Section 3.2.4.

2.2.2 SUBMISSION CONTENT

Data Providers are required to submit the following information on the GHG reporting module of NAEIS (SAGERS) by 31 March:

i) **Emissions Reports**: Data Providers are required to complete the Emissions Report Template on the GHG reporting module of NAEIS (SAGERS) (Annexure A) for each of its registered facilities.

ii) **Self-declaration**: As a part of the submission, data providers will be required to self-declare on the NAEIS that they have reviewed their Emissions Report

for accuracy before submitting onto the NAEIS, and that all information submitted on the NAEIS is truthful, accurate, complete and in compliance with the NGERs, to the best of their knowledge.

iii) **Verification Reports (Optional)**: Data providers who have **voluntarily** completed an independent verification exercise in accordance with the Verification Guideline, may submit their facility level Verification Report and Verification Opinion at this stage of submission. Data Providers may have their data immediately approved by the Competent Authority for that facility, if they have opted to have their emissions verified, provided the requirements of Section 2.2.1 have been met.

iv) **Monitoring Plan (Optional)**: While it is not mandatory for Data Providers to submit monitoring plans to the competent authority in Phase 1 of the Verification Programme, Data Providers who have monitoring plans in place may do so.

2.3 REVIEW BY THE COMPETENT AUTHORITY

2.3.1 OVERVIEW

There are several factors that the Competent Authority will consider when deciding whether data is approved or whether a Data Provider is required to undertake independent third-party verification of their facility. These are broadly summarised in two steps, with additional detail on each of these provided in Sections 2.3.2 and 2.3.3 below:

1. **Step 1: Post-submittal quality control checks**. The first step involves a series of internal post-submittal quality control checks by the Competent Authority to determine the level of risk involved in the data submitted by the Data Provider.
2. **Step 2: Materiality risk review**. The second step includes a review of the total emissions of the data provider to assist in understanding the materiality of the risk identified by the post-submittal quality control checks on the national GHG inventory. Additional detail on this is outlined in Section 2.3.3 below.

The results of Step 1 will be the primary determining factor on the actions that the Competent Authority will take. The outcome of Step 2 will provide additional, but supplementary, information on the actions. This means that the scale of the emissions of a facility will not be the determining factor on whether a Data Provider is requested to

undertake independent verification. The specific actions that the Competent Authority will take are outlined in Section 2.3.4 below.

2.3.2 STEP 1: POST-SUBMITTAL QUALITY CONTROL CHECKS

Once the Emissions Report has been formally submitted on the NAEIS, the Competent Authority will run a number of post-submittal checks to evaluate the validity of submitted data and identify areas where risk of inconsistencies or inaccuracies exist. The post-submittal checks will entail a combination of automated system and manual checks. The purpose of the checks is to determine the potential level of risk of the data submitted and are the primary criteria used to determine whether a facility will be required to undertake independent verification.

The results of the checks will be documented in a preliminary internal audit score. Examples of the checks that will be conducted are outlined in Table 2.2 below. Examples of the automated system checks (pre-audit criteria) are outlined in Table 2.3.

Table 2.2: Post-submittal data quality checks to be performed by the Competent Authority

Type of Check	Description
Range Checks	Determine if the Emissions Report data is within the expected range.
Statistical checks	Evaluate data from similar facilities and identify data sets that appear to be outliers.
Algorithm checks	Consider the relationships between different pieces of entered information to compare them to an expected value. A non-exhaustive list of checks that the Competent Authority may conduct includes: • The Competent Authority may back-calculate the applied emissions factor using an Implied Emission Factors (IEF) where the emissions are divided by the relevant measure of activity (e.g. IEF = Emissions / Activity data in order to check for correct usage of the emission) factor, checking against default IPCC emissions factor and range. • If a mass balance/direct measurement methodology is used, use productivity data and resulting emissions to assess the time-series of emission estimates. • Cross-check descriptions of activity data, emission factors and other estimation parameters with information on categories and ensure that these are properly applied.

	• Cross-check a sample of input data from each category (either measurements or parameters used in calculations) for transcription errors. • Reproduce a data provider's emissions and removals calculations. • Check that emissions and removals data are correctly aggregated from lower reporting levels (Facility-Level) to higher reporting levels (Data Provider-Level) when preparing Annexure 3 submissions.
Change in ownership and company registration checks	• Determine if there have been any changes to emissions sources as a result of acquired or disposed assets. • Assess if a change in ownership of a facility has resulted in different methods, procedures and controls being used for the calculation and recording of GHG emissions. • Assess the data provider's registration documents in order to determine correct boundaries.
Outside data checks	The submitted emissions and activity data may be compared with other independently compiled datasets, in order to check for completeness, validity and accuracy.
Missing data checks	Identify any gaps in emissions sources, compared to the facilities emission's activities.
Unit checks	• Ensure consistency of units used. • Check that units are properly labelled in calculation sheets. • Check that units are correctly carried through from beginning to end of calculations. • Check that conversion factors are correct
Cross-checks	Cross-checks with new data or common parameters used across sectors against that of other entities in the same sector or sector averages.
Boundary checks	Assess whether data captured is in the correct reporting period, and that the data should be included as a part of the facilities data or not. Specific issues that could be checked include: • A change in process that results in an additional emission stream/s that materially contributes to the GHG emissions of the facility during the reporting year, and which are regarded as technically complex (e.g. process emissions). This may happen, for example, if a facility constructed a new plant. • Changes in process conditions/ design that influences emissions or if the process involves reuse of GHG emissions. • Emissions source/activity as an output in one facility becomes an input/activity data in another facility.

	• Reporting of emissions sources as "Not Estimated" or "Included Elsewhere".
Trend analysis	Identify unusual or unexplained trends greater than 5% and outliers that may be indicative of errors between reporting years.
Methodology Checks	• Changes in calculation method, e.g. from Tier 2 to Tier 3. • Use of the incorrect method, which does not align with the NGERs or IPCC. • Checking application of Transitional Arrangements from 2022 onwards per Regulation 15 of the NGERs for the requirement of methodological tiers used for calculating emissions.
Verification Checks	• Checks of the results of a previous verification completed in line with the Verification Guideline

Table 2.3: Pre-audit criteria questions used by the Competent Authority in their review.

Question During the reporting period (last calendar year):
Has the facility added an additional emission source?
Was there a removal of an emissions source at the facility?
Were there any changes to the emissions quantification method and alternative approach used?
For any sources of emissions, has the Tier for calculating the emissions changed?
Was there an introduction of new procedures or change in existing procedures related to sampling analysis and calibration of equipment for recording and calculation GHG emissions at the facility?
Have responsibilities for managing GHG emissions at facility level changed?
Were there any disruptions in the recording of GHG emissions activity data?
Were there any changes to the emissions factors used, in comparison to the previous year?
Were there any incidents or changes that either significantly increased or decreased (10% difference) the GHG emissions at the facility?
Did the facility undergo independent verification of its Emissions Report in line with the requirements of the Verification Guideline?
Is there any other information regarding your emissions report that you wish to share that may be useful in understanding your GHG emissions data?

2.3.3 STEP 2: MATERIALITY RISK REVIEW

Step 2 includes a review of the total emissions of the data provider to assist in understanding the materiality of the risk identified by the post-submittal quality control checks on the national GHG inventory. Facilities with proportionally higher total tCO_2e

contribute more to the national GHG inventory and represent a potentially greater risk if errors are detected in the data submitted than those facilities with lower emissions. If the outcomes from Step 1 above indicates a high potential risk of misstatement and the facility's emissions are regarded as significant, the likelihood of the Competent Authority requesting independent verification is high. Conversely, a facility may have a high potential risk of misstatement, but the emissions are low, then the Competent Authority may not require independent verification.

The scale of the emissions will not be the primary determining factor in the Competent Authority requesting independent verification but will assist the Competent Authority in understanding the overall risk. The emissions threshold levels that the Competent Authority will use as a guide in the assessment are provided in Table 2.4.

Table 2.4: Total tCO_2e facility thresholds used to determine impact of misstatement of emissions on the national inventory

Total tCO_2e	Impact of misstatement of facility emissions
> 50,000	High
25,000 - 50,000	Moderate
15,000 - 25,000	Low
< 15,000	Very Low

2.3.4 ACTIONS FROM THE RESULTS OF THE COMPETENT AUTHORITY REVIEW

The completion of Steps 1 and 2 will determine the anticipated actions that the Competent Authority will take with respect to the submitted data. The Competent Authority will decide on one of the following outcomes:

i) **Data approval:** If the Competent Authority has not detected any significant errors or data quality risks as a result of the review conducted, the Emissions Report may be deemed accepted and approved. A Data Provider's Emissions Report is deemed accepted if the Competent Authority does not respond to the Data Provider with questions for clarification, corrections or instruction for verification within 60 days of the submission. By default, the NAEIS system will generate formal communication in this regard after the 60-day period. In the instance that a Data Provider is required to undergo independent

verification, the Competent Authority will communicate with the Data Provider on the verification requirements and any necessary instructions and will provide confirmation once the verification process has concluded and the data has been approved by the Competent Authority.

ii) **Desktop document review**: Where areas of unexplained risk are detected, the Competent Authority will contact the Data Provider to resolve failed checks or explain why the failed checks do not indicate an error. This may entail a process of documentation requests by the Competent Authority for additional evidence to explain sources of error in the Emissions Report.

iii) **On-site inspection:** If areas of unexplained risk cannot be clarified via document review; or if Data Providers do not provide the required information; or if the results of the post-submittal quality control checks and emissions threshold review determine a high risk of misstatement, an inspection of the facilities may be requested by the Competent Authority. The on-site inspection will be undertaken at the discretion of the Competent Authority and will be determined by availability of personnel.

iv) **Independent verification:** The Competent Authority will request the facility's emissions report to undergo independent verification. Should the Data Provider Emissions Report/s be selected to undergo independent verification, the Competent Authority will notify the Data Provider. The notification for independent verification will at a minimum contain the following details:

- Indication of the reason for being selected for independent verification;
- Detail on the timelines for the finalisation of the independent verification process;
- The scope of the independent verification (see Section 2.3.2.1 below); and
- Additional administrative guidance on the independent verification process.

The outcome of the post-submittal quality control checks and emissions threshold review checks are the determining factor in which of the four actions listed above are undertaken. If the results demonstrate that there is potentially high risk of misstatement, the Competent Authority may request the facility to undergo independent verification without starting with a desktop review or on-site inspection.

3. PART 2: INDEPENDENT VERIFICATION PROCESS

3.1 INDEPENDENT VERIFICATION PRINCIPLES AND REQUIREMENTS

3.1.1 PRINCIPLES OF VERIFICATION

The Independent Verifier shall adhere to the following principles of verification throughout any independent verification engagement:

i) Independence and objectivity –The Independent Verifier and its verification team shall remain independent of the facility and activity being verified, and free from bias and conflict of interest. The verification teams shall maintain objectivity throughout the verification to ensure that the findings and conclusions will be based on objective evidence generated during the verification.

ii) Ethical conduct - Demonstrate ethical conduct through trust, integrity, confidentiality and discretion throughout the verification process.

iii) Fair presentation - Reflect truthfully and accurately verification activities, findings, conclusions and reports. Report significant obstacles encountered during the verification process, as well as unresolved, diverging opinions among verification team members, the Independent Verifier and the Data Provider.

iv) Due professional care - Exercise due professional care and judgment in accordance with the importance of the task performed and the confidence placed by the Data Provider and Independent Verifier. Have the necessary skills and competencies to undertake the verification.

3.1.2 FACILITY LEVEL VERIFICATION

The Competent Authority will request independent verification at the facility level, in alignment with the requirements of the NGERs. The independent verification process, in certain circumstances, may only apply to specific emissions streams at an individual facility.

The purpose of both facility and emission stream specific verification is to reduce the cost and time needed to undertake the independent verification process, by focusing on

those areas identified as having a higher risk of misstatement. In addition, facility-specific verification eliminates any potential bias when sampling of facilities by Independent Verifiers that may occur if verification is required at a Data Provider level.

3.1.3 SCOPE OF VERIFICATION

The verification team shall plan and perform the verification to state with a reasonable level of assurance (as described in Section 3.1.4) that the aggregated error in the total GHG emissions for the reporting period does not exceed the materiality limit.

The Verification Guideline outlines the type of verification procedures that shall be conducted (i.e. substantive testing, controls testing, site visit) to achieve a reasonable level of assurance. However, the Verification Guideline is not intended to be prescriptive about the exact verification activities to be performed during verification. The exact verification activities shall be conducted based on the lead verifier's professional judgment.

3.1.4 REASONABLE LEVEL OF ASSURANCE

The level of assurance refers to the degree of assurance the intended user requires in a verification. The level of assurance is used to determine the depth of detail that a verifier designs into their verification plan to determine if there are any material errors, omissions or misrepresentations. Absolute assurance is not attainable because of factors such as the use of judgement, use of testing, inherent limitations of control and the qualitative nature of some types of evidence. The verifier assesses the evidence collected and expresses a conclusion in the verification statement.

In general, there are two levels of assurance:

- "reasonable assurance engagements"; and
- "limited assurance engagements".

For a reasonable level of assurance, the verifier provides a reasonable, but not absolute, level of assurance that the responsible party's GHG assertion is materially correct

A reasonable level of assurance entails a reduction in verification engagement risk to an acceptably low level in the circumstances of the verification engagement, as the basis for a positive form of expression of the verifier's conclusion. A reasonable level of assurance requires that sufficient appropriate evidence is obtained as part of a systematic verification engagement process, that includes:

- Obtaining an understanding of the verification engagement circumstances;
- Assessing risks;
- Responding to assessed risks;
- Performing further evidence gathering procedures; and
- Evaluating the evidence obtained.

A limited level of assurance has a higher verification risk than a reasonable level of assurance verification. A verifier does not design and apply as many evidence-gathering activities or pursue evidence trails to the same depth as in a reasonable assurance engagement. This is possible because there is an underlying assumption that the control environment and controls are reliable.

3.1.5 **MATERIALITY**

Materiality refers to the concept that individual errors or the aggregation of errors, omissions and misrepresentations could affect the Emissions Report and influence decisions made from this information. Therefore, materiality is used to identify information that, if omitted or mis-stated, would significantly misrepresent the Emissions Report as a whole. The prescribed materiality limit for independent verification engagements under these guidelines is **5%** based on international standards and norms.

Only Emissions Reports that the Independent Verifier are able to state with a reasonable level of assurance that the aggregated error in the total GHG emissions for the reporting period does not exceed the materiality limit, may be issued a positive Verification Opinion statement (Refer to 0). Evaluating materiality of any misstatements found is essential in concluding whether the Emissions Report can be verified as positive. It is important to note that every identified misstatement and non-conformity shall be corrected or explained by the facility (see Section 3.2.3).

The prescribed materiality limit shall be considered on an aggregated basis for the facility's total emissions stated in the Emissions Report (i.e. the deviation of the verification team's value from the facility's Emissions Report shall not exceed the prescribed materiality limit in order for the verification team to issue a positive Verification Opinion statement).

Although materiality is assessed quantitatively at an aggregated emissions level, the Independent Verifier shall also assess and consider the following before issuing the Verification Opinion statement:

1. Deviation of the Independent Verifier's value from the value in the Data Providers Emissions Report at the individual emission stream level; and
2. Other qualitative aspects or issues that may influence the decisions and actions of the Competent Authority or intangible issues that affect the Emissions Report. Examples include:
    a. Control issues (see section 3.2.2.2 for further detail) that erode the verifier's confidence in the reported data;
    b. Poorly managed documented information; and
    c. Difficulty in locating requested information.

Even if the materiality limit is not exceeded at the aggregated emissions level, it is important to note that the verification team may not issue a positive Verification Opinion statement if the verification team assessed that there are qualitative aspects or issues that may influence the decisions and actions of the Competent Authority.

3.2 INDEPENDENT VERIFICATION PROCESS

An Independent Verification engagement is comprised of four main stages:

1. Pre-verification engagement assessment;
2. Verification planning;
3. Conducting verification activities; and
4. Reporting.

Figure 3.1 below highlights the key activities within each of the verification stages:

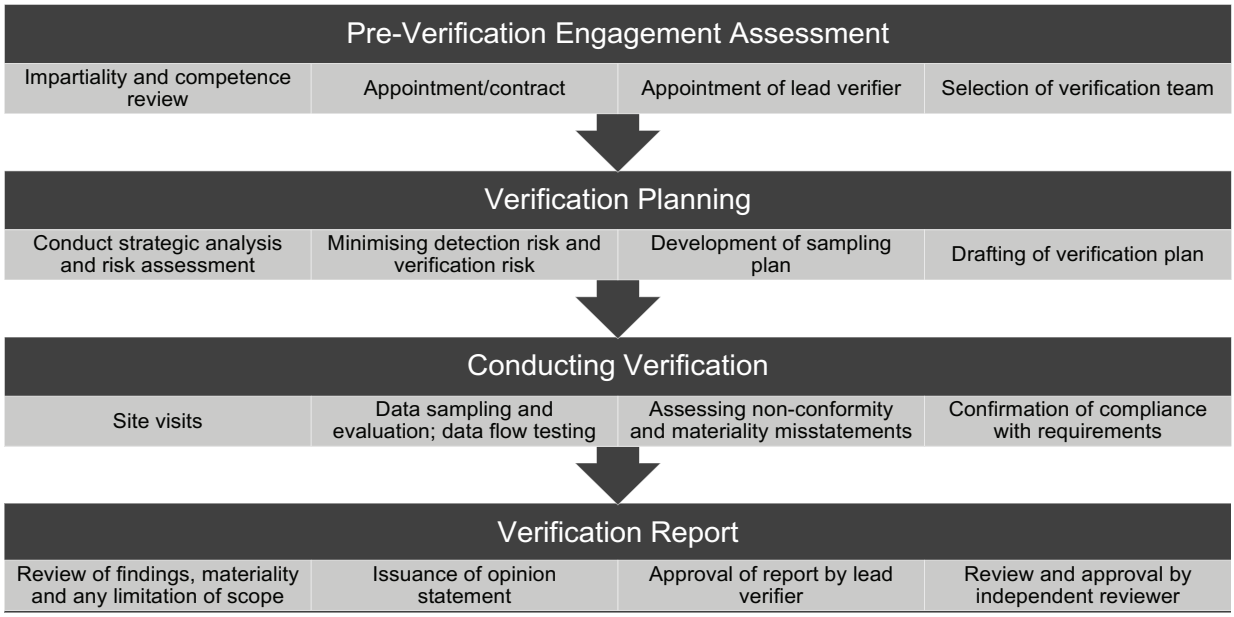

Figure 3.1: Key Activities for Each Verification Stage

3.2.1 PRE-VERIFICATION ENGAGEMENT ASSESSMENT

Prior to commencing any verification engagement of a facility, the Independent Verifier shall undertake a pre-verification engagement assessment. The purpose of the pre-verification engagement assessment is to evaluate:

i) Whether the Independent Verifier is able to competently and objectively complete the independent verification of the facility's Emissions Report in line with the NGERs (e.g. ensuring that its scope of accreditation is appropriate for the verification, and to affirm the independence and objectivity of the verification team);
ii) Whether there are any risks to the Independent Verifier as a result of undertaking a verification engagement with the facility or Data Provider; and
iii) The resources required and cost of performing verification engagement of the Emissions Report.

The Independent Verifier shall carry out the following checks before undertaking any verification engagement:

i) Evaluate the risks involved in undertaking the verification engagement, considering:

a. The nature of the facility's operations and the Data Provider's interests to assess what risks are involved in undertaking the verification engagement;
b. Potential risks to independence and objectivity of the Independent Verifier or Verifiers; and
c. Risks involved in terms of time and resource allocation to the verification engagement.

ii) Undertake a review of the GHG measurement and reporting information supplied by the facility to assess the scope and complexity of the verification engagement. Relevant information could include the existence of a Monitoring Plan, and the previous year's Emissions Report and Verification Report, if applicable.
iii) Assess whether the Independent Verifier is capable of issuing a Verification Report given the sector and activities of the facility and the Independent Verifier's competence.
iv) Assess whether the Independent Verifier has the competence, personnel and resources required to select a verification team for this specific verification engagement and to complete the verification activities within the timeframe required.
v) Determine the time needed to properly carry out the verification engagement. The Independent Verifier should ensure that the scope of the verification work and the time allocated is consistent with the risks identified.
vi) Review the appointment of the lead verifier, taking into account technical requirements.
vii) Assess and be able to demonstrate that:

a. The Independent Reviewer is not a member of the verification team;
b. No personnel involved in the verification has provided consultancy or technical assistance related to the preparation of an Emissions Report with any facility owned by the Data Provider within the previous two (2) years;
c. No personnel involved in the verification was employed as staff of the Data Provider involved in any GHG emissions related work within the previous two (2) years; and
d. No personnel involved in the verification has any conflict of interest with the facility and/or the Data Provider.

viii) Has not provided verification services to the facility for more than six (6) consecutive reporting periods.

The composition of the verification team must also be appropriate to address the complexity and size of the verification engagement and may require additional verifiers and technical experts on the verification team (see Section 3.1.1 with regards to roles and responsibilities of the team). There are numerous factors that can influence the technical and effort requirements of the verification engagement including, but not limited to, the following:

i) **Industrial processes and product use (IPPU) emissions:** Facilities with emissions activities falling under Code 2 in Annexure 1 of the NGERs, are expected to have more complex emissions streams. For such facilities it is likely that the verification team will need to include a technical expert or verification team member who has experience and knowledge of the relevant industrial processes and product use related emissions.
ii) **GHG Emissions Sequestration activities:** Facilities with emissions activities falling under Code 3B1 in Annexure 1 of the NGERs. For such facilities it is likely that the verification team will need to include a technical expert or verification team member who has experience and knowledge of the relevant emissions sequestration activities.
iii) **Number of emissions streams and sources:** Independent verification of facilities with multiple emissions streams and GHG sources, are likely to result in a more complex and resource intensive verification exercise, due to the range of different verification activities that will need to take place.
iv) **Total tCO_2e:** The total tCO_2e of the facility can be an indicator of the amount of effort required to verify the facility and will signal if there is a need for additional verification team members and support from technical experts.
v) **Tier 1,2 or 3 methodology used:** The tiers being used for calculating the emissions streams at a facility may impact on the complexity of the verification activities. In some cases, higher tiers will require specific technical knowledge related to mass-balance approaches that will trigger the need to include a technical expert within the verification team.

vi) **The results of the risk assessment:** A facility with an assessed high risk of misstatement will require additional verification effort and in turn may require additional verification team members.

The facility shall make the necessary documentation available to the Independent Verifier for it to perform this assessment. The Independent Verifier shall ensure independence and objectivity at all times during the verification and shall declare any conflict of interests to the Competent Authority and the Data Provider at any stage of the verification.

3.2.2 VERIFICATION PLANNING

Verification planning is a strategic, risk-based exercise carried out in order to develop the verification plan of data sampling and activities to be performed during the verification. For practical reasons, verification planning activities will be initiated before going to site (as described in Section 3.2.31), but much of the verification planning may only take place once on site.

This section provides the overview of key activities to undertake during verification planning, including:

1. Strategic assessment;
2. Risk assessment;
3. Data sampling; and
4. Development of the verification plan.

Figure 3.2 below shows the relationship between verification planning activities and the results of the independent verification within the context of the four verification process stages. It is important to note that the findings during the independent verification itself and any misstatements identified may require a revised risk assessment and revised plan of verification activities. Therefore, verification planning can be an iterative process in order to minimise the verification risk.

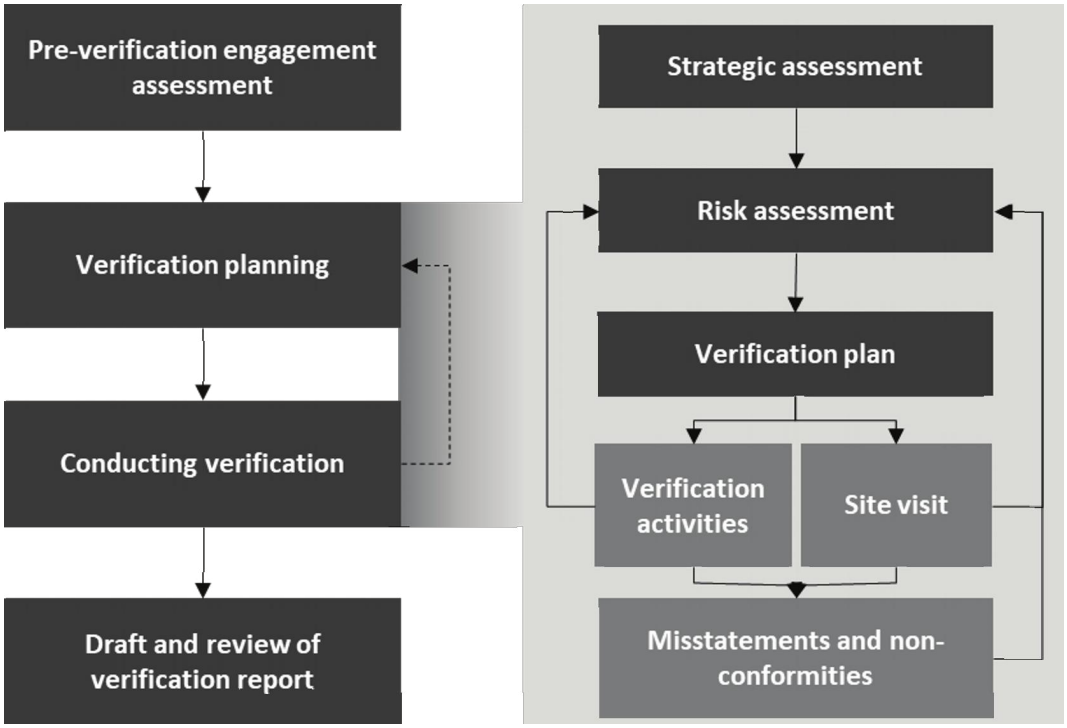

Figure 3.2: Relationship between verification planning activities

3.2.2.1. ***Strategic Assessment***

At the start of verification, the verification team shall carry out a strategic assessment of all relevant activities of the facility/facilities in scope. This analysis assists the verification team to understand the activities taking place at the facility/facilities in scope to determine the likely nature, scale and complexity of the verification activities to be performed in order to ensure sufficient allocation of resources, and also provides input for structuring the subsequent risk assessment. It may draw upon the work performed during the pre-verification engagement assessment.

Strategic assessment involves a review of the existing GHG-related information and reporting procedures for the reporting period and any relevant previous emissions reporting.

In order to assess the inherent risks due to the environment within which the Emissions Report was produced, several areas shall be considered across:

i) The operations, including:
   a. Type and scale of the facility/facilities and its/their operations, and its/their normal operating conditions and planned and unplanned events

(including typical schedule for shutdown and maintenance, plant upsets, emergency shutdown); and

b. Number, nature and links between emission sources from emission source/ stream diagrams.

ii) Data management (collection, processing and storage), including:

a. Variety of methods of quantifying GHG used for each emission stream; and

b. Availability of records and data required during verification.

iii) Facility management and Data Provider business environment, including:

a. Findings and non-conformities corrected during previous verifications, if relevant.

iv) Preliminary findings of data analysis, including:

a. Outliers, unexpected trends or apparent misalignment of emissions data with operational events; and

b. Significant differences from the previous reporting year or projected values.

v) Compliance with the NGERs:

a. Completeness, robustness and proper implementation of the procedures mentioned in the NGERs and Methodological Guidelines; and

b. Controls and quality assurance implemented.

3.2.2.2. ***Risk assessment***

Building on the knowledge and understanding gained from the strategic assessment, the verification team shall perform a risk assessment to inform the planning and design of required verification activities in order to achieve a reasonable level of assurance and to minimise verification risk.

Verification risk is the overall risk that the verification team issues an inappropriate Verification Opinion statement and is assessed based on inherent risk, control risk and detection risk. The relationship between verification risk and its constituent risk components is expressed by the formula:

$$\boldsymbol{Verification\ Risk = Inherent\ Risk \times Control\ Risk \times\ Detection\ Risk}$$

The risk assessment directs the verification effort to weaker areas of the facility's data generation, control environment, control system, management and reporting process,

i.e. areas that give rise to an increased risk of misstatement or non-conformities. If during the verification process, the verification team identifies additional risks that need to be reduced or concludes that there is lower risk than originally expected, the risk assessment and verification plan has to be updated. The risk assessment is an iterative process and should be updated if data flows or the on-site verification shows that the risks are higher or lower than initially assessed when necessary. Other findings during the verification might also result in the need to revise the risk assessment and subsequently modify and/or repeat verification activities.

Figure 3.3 depicts the risk assessment process which is used to systematically evaluate the inherent and control risks in order to design the verification activities to minimise the detection risk, and therefore the verification risk.

Figure 3.3: Elements of risk assessment process

Step I: Identify and assess the inherent risks

Inherent risk refers to the susceptibility of a parameter in the facility's Emissions Report to misstatements, individually or when aggregated with other misstatements, before taking into consideration the effect of any related control activities. Inherent risks are risks linked to the data flow activities[2], assuming that there are no related control activities to mitigate these risks and without considering the facility's control environment. Inherent risks are related to the size and characteristics of the facility's data flow.

[2] Data flow activities are all operational activities and systems necessary to produce the data for the Emissions Report. This may include measuring, monitoring, collecting, recording, processing, analysing and calculating parameters and handling any subsequent data.

Factors the verification team will need to consider in determining the inherent risk of non-conformity or misstatement shall include, but are not limited to, the following possible sources of inherent risks:

i) Complexity and number of emission sources (including types of fuel, types of industrial processes);
ii) Malfunctions, shut-downs or changes in the production process during the reporting period;
iii) Addition and/or removal of emission stream(s);
iv) Information security environment within which the data is managed (e.g. who has access/permission);
v) Extent of manual transfers and input of data (e.g. fuel supplies, lab results, calibration);
vi) Complexity of data management systems for collecting data and quantifying emissions (e.g. multiple spread sheets related/linked to each other) or changes in data management since the last verification engagement;
vii) Inconsistent or complex monitoring and reporting policies (including where the facility has multiple reporting methods for different reporting purposes or differing reporting frequency for elements of an emission stream);
viii) Unit conversions when consolidating information from different components or streams (e.g. converting mass to volumetric flowrates, energy consumption to fuel use etc.); and
ix) Management override of controls.

In addition to the sources of inherent risk associated with the systems and policies in place, the verification team shall perform an assessment of inherent risk of misstatement or non-conformity due to the operations during the reporting period. This shall include, but is not limited to, the following checks:

i) An analysis of the fluctuations and trends in the emissions data in order to detect inconsistencies and deviations; and to identify the nature and size of the inherent risks associated with these fluctuations. The verification team shall compare detailed calculation data with data from previous reporting period(s) and request a justification from the facility for any obvious unexplained differences; and

ii) An assessment of whether the data management system is functioning properly.

Once the inherent risks have been identified, the verification team shall assess the magnitude of these inherent risks, ranking them as high, medium and low risks in relation to their likelihood to give rise to misstatements and their impact on the reported data.

The verification team shall also consider the relative size of the different emission sources and their importance to the total emissions, identifying major, minor and negligible contributing streams. The size of contribution of a stream along with the assessment of inherent risks and their ranking gives an indication as to where misstatements could arise in the reported data and where a non-compliance with the NGERs could exist in the data management system.

Step II: Review of control activities to mitigate inherent risks

If the inherent risks of a misstatement in a data flow activity are high, this particular data flow activity and its population shall be subject to extensive data testing, unless appropriate control activities have been put in place to mitigate these inherent risks.

For Step II, the verification team will therefore assess the adequacy of the control activities in terms of their ability to prevent misstatements arising in the Emissions Report, including misstatements as the result of a non-conformity or a non-compliance. The review of site documentation and interviews with management is required to understand the number, type and nature of control activities in place.

Control activities are any acts carried out or measures implemented by the facility to mitigate inherent risks. Control risk refers to the susceptibility of the facility's Emissions Report to misstatements, which will not be prevented or detected and corrected on a timely basis by the control system. Therefore, control risks are risks that the control system may not be adequate to prevent, detect or correct misstatements arising from inherent risks in a timely manner.

The verification team shall assess the robustness of the control activities in terms of their ability to prevent misstatements arising due to errors in reported data or non-compliance. If the review by the verification team identifies areas where controls are insufficient to

prevent misstatements, the facility shall implement the resulting recommendations for improvement or provide explanations.

Step III: Identify and assess control risks

Step III is used to evaluate which data streams are at the greatest risk of misstatement or non-conformity based on the review in Step II. The verification team should consider the following factors associated with control risk:

i) The organisation of tasks, safeguards, and competence within the monitoring and reporting processes. This includes:
   a. Quality assurance review on the work delivered by subcontractors;
   b. Responsibility and competence of personnel involved in the monitoring and reporting process (e.g. if the staff have sufficient knowledge and experience to carry out the control activity effectively, consistency of personnel performing checks and calibrations, cross and double checks);
   c. Controls over how misstatements are being prevented, identified or rectified by the facility;
   d. Changes in the monitoring and reporting process compared with previous years;
   e. Existence and effective functioning of management systems and computer information systems covering the activities under verification and how these relate to, and properly integrate, the emissions reporting process;
   f. Sections of the installation that are being audited by third parties;
   g. The manual or automatic nature of the controls;
   h. Frequency of control activities; and
   i. Segregation of duties (i.e. checks and balances) with appropriate delegation of authority. The control risks are considerably lower if measurements, calculations, analyses, checks and reporting of data are performed by separate persons.

ii) The calibration and maintenance of measurement and laboratory equipment or other measures that have been implemented by the facility to prevent misstatements from occurring (e.g. cross checks, corroborative calculations to substantiate measured data). This also includes factors such as the nature

and frequency of calibration and the proper design specification and installation of metering etc.

iii) Whether the information systems being used are part of the normal administrative/operational information systems in the installation. Where the information systems are separate from the normal information systems, the control risks are likely to be greater (e.g. when activity data are kept in separate spread sheets and not automatically generated from existing finance or process control systems).

iv) In the case where separate information systems are used for emissions data collection and management, the adequacy of the interface between the main information system(s) and the emission monitoring and reporting database/spread sheets.

v) The manner in which data, data flow activities, control activities and procedures for control activities are implemented and documented. Where these activities are not properly documented, the control risks are higher, especially when there are changes in staff responsible for elements of the process.

vi) Changes in the facility's risk assessment and control activities compared to previous years and the reason for those changes (e.g. improvements to the risk assessment and control activities to reduce control risks following suggestions from previous GHG verification engagements or internal audit).

The verification team shall evaluate the magnitude of each control risk based on its ability to prevent data loss or errors and therefore misstatement of total emissions in the Emissions Report.

Table 3.1 below outlines the significance of a high, medium or low control risk.

Table 3.1: Significance of the control risk levels

Risk Level	Reasoning
High	The control system is likely not to prevent, detect and correct misstatements and there is a high risk of misstatements occurring.
Medium	The verification team is not sufficiently confident that the control system will prevent, detect and correct a misstatement which could lead to misstatements.
Low	The control system is well-structured, well-documented, well implemented and well-maintained, leading to confidence on the part of the Independent Verifier that misstatements will be avoided or corrected as a result.

Step IV: Plan verification to reduce detection risk to an acceptable level

The verification risk consisting of inherent risks, control risks and detection risks, shall be reduced to a low level to obtain a reasonable level of assurance to issue the Verification Report that positively states that the aggregated error in the total GHG emissions for the reporting period does not exceed the materiality limit. The verification team reduces the verification risk through the design and implementation of the verification plan.

Whilst inherent and control risks are related to the systems and activities of the facility, detection risk relates to the nature, extent and timing of verification activities. Detection risk is the risk that the verification team does not detect a misstatement.

The verification team shall design the verification plan so as to arrive at a sufficiently low detection risk that will compensate for the inherent risks and control risks of the facility.

The verification team shall rank the facility's overall inherent risk and control risk in semi-quantitative terms of high, medium or low risk. The acceptable level of detection risk may vary based on the verification team's assessment of the inherent and control risks. If both the inherent risk and the control risk are high, the verification team has to apply more detailed and strengthened verification activities and increase the sample size to lower the detection risk to a very low level. However, if both the inherent and the control risks are low, the verification activities can be less extensive and elaborate, implying that the verification team can accept a higher detection risk. In a similar way, at the intermediate levels of the inherent and control risks, the verification team can set the verification activities at an intermediate level, thereby accepting a medium detection risk.

In no situation shall low assessed levels of inherent and control risks be used as justification to eliminate the need to perform any data testing or testing of control activities.

3.2.2.3. ***Data Sampling***

Data sampling allows the verification team to perform substantive data testing to verify the accuracy of a subset of data used to calculate the emissions within a given stream, in order to assess the likelihood of misstatement of the total emissions for that stream. Data sampling can also be used when checking the implementation of control activities

by sampling documents related to the procedures involved, such as calibration records or laboratory tests.

The verification team shall establish an appropriate data sampling plan in order to achieve the desired level of detection risk identified in the risk assessment. It is essential that for each risk identified during the risk assessment, appropriate verification activities are designed to gather sufficient evidence to ensure that the verification risk is acceptable.

The following key sampling principles shall be considered:

i) Sampling is based on the verification team's risk assessment and detailed in the verification plan;
ii) The sampling approach and the sampling size must be fully documented in the verification plan;
iii) The sampling approach must be specific to the facility;
iv) Sampling the data universe of several facilities or combining data of several sites is prohibited as the data set is not homogenous;
v) Sampling must be representative of the total population of the control activities, procedures or the data selected; and
vi) In determining the sampling approach for the current verification engagement, the verification team takes into account the sampling approach and results from prior year verification engagements.

3.2.2.4. ***Risk assessment sample volume***

Sampling is one of the verification activities that is impacted by the risk assessment. Based on the verification team's analysis of the level of inherent and control risks, the verification team will then determine whether the sampling is justified, which samples[3] it needs to take, what the sampling size and selection approach should be, and which types of tests or other checks it should undertake on each sample. A greater sample size gives a higher confidence that there are no undetected misstatements in the population being sampled.

[3] Any subset of the total population of data or control activities and procedures, that is selected for assessment.

If the combination of inherent and control risks is high (i.e. high risk of misstatements), the verification team should aim for a low detection risk in order to be sure that it will detect misstatements as much as possible to facilitate an acceptably low level of verification risk to obtain reasonable level of assurance. In practice, a lower detection risk and verification risk can be achieved through more extensive testing and sampling.

3.2.2.5. ***Sampling techniques***

The verification team shall use their professional judgement to decide on the sampling approach (statistical or non-statistical), technique and sample size. The most appropriate sampling techniques as well as sample size required to verify each emission stream in order to achieve reasonable level of assurance will depend on the relevant activity data tier, GHG quantification method, uncertainty and controls, and therefore the level of associated risk established in the risk assessment. The following sampling techniques can be used:

i) **Random** selection of samples requires a selection tool that will ensure that the selection of samples is indeed "random", i.e. independent from the judgement or preference from the sampler. This is important to ensure that all items in the population to be sampled have an equal chance to be taken.

ii) **Systematic** sampling picks "randomly" a starting point and then applies a systematic rule to select further items e.g. each 10th item after the first (at a randomly selected) starting item.

iii) **Risk-based** sampling is a non-statistical selection of items based on various international (thus, biased) elements.

Determination of the appropriate sample size for testing control activities depends on the (i) frequency of the internal control tests/activities (e.g. a control activity carried out monthly would have a frequency of 12 over the reporting period), and the (ii) number of data flows that need to be controlled by each control activity (e.g. how many measurement instruments are being used, how many calibration reports there are, how many documents are there in the documentation management system for that given control etc.). Combining the two gives the total population size of data available relating to a control activity and this will form the basis for the number of samples required to verify that control activity.

Table 3.2 below gives an illustrative example of determining appropriate sample size, based on the measurement frequency and resulting data population size in relation to the inherent and control risks.

Table 3.2: Example of difference in sample size to achieve low verification risk given the inherent and control risk

Measurement frequency and resulting annual data population size	Combined inherent risk and control risk	
	High	Low
Annually, or less than once a year (1)	1	1
Quarterly (4)	2	2
Monthly (12)	4	2
Weekly (52)	10	5
Daily (365)	50	30

3.2.2.6. ***Verification plan***

The verification plan is an outline of the planned schedule of verification activities to be performed to reach the desired level of verification risk, including data sampling and site visit plans.

The verification plan resulting from the analyses outlined in this section shall include:

iv) Proposed document and data reviews;
v) A verification schedule describing the nature, timing and extent of the verification activities;
vi) A plan setting out the scope and methods of testing the control activities and procedures for control activities;
vii) A data sampling plan setting out the scope and methods of data sampling related to data points underlying the aggregated emissions;
viii) An assessment of how the planned verification activities cover the inherent, control and verification risks;
ix) Overall timetable of verification services; and
x) Dates of proposed meetings and/or site visit(s).

The verification plan shall be modified to include more extensive testing when:

i) A review of sample data identifies issues with controls that affect the integrity of the data (e.g. lack of training for key personnel, incorrect data collection or review processes etc.);
ii) Additional risk is identified during site visits and management interviews; and
iii) Aggregated uncorrected misstatements approach materiality limit. The verification team may modify the verification plan to collect additional evidence to confirm whether the aggregated errors are material.

3.2.3 CONDUCTING VERIFICATION

The objective of the verification engagement is to perform checks and testing to obtain sufficient supporting evidence in order for the verification team to issue the Verification Opinion statement with a reasonable level of assurance. The verification team shall follow the sampling and testing activities outlined in the verification plan and conduct appropriate analysis to assess the correct implementation of control activities and integrity of data flows. The verification team shall also assess whether the underlying cause of any misstatements or non-conformities identified in previous verification engagements have been corrected.

To verify the accuracy of the reported data in the Emissions Report, the verification team shall check that the Emissions Report has been prepared in accordance with the NGERs and the Methodological Guidelines.

Where the verification team uncovers anomalies, emissions trend variances, data gaps or data that are inconsistent with other relevant information or that differ materially from expectations, the verification team shall obtain explanations from the facility. These issues shall be included in the issues log of the Verification Report.

3.2.2.1. *Site visit*

In order to ensure that a reasonable level of assurance is attained, the lead verifier shall conduct a minimum of one (1) site visit to each facility as part of every verification engagement regardless of the complexity of the facility's processes or previous verification result. The site visit is essential in evaluating the correct and appropriate implementation of control activities. The purpose of a site visit is to gather sufficient evidence to enable the verification team to issue the Verification Opinion statement to a reasonable level of assurance.

If the site visit objectives are not met in the first visit, subsequent visits shall be scheduled in order to carry out additional verification procedures such as walk-through tests, interviews, sampling.

Activities during site visits shall include, but are not limited to, the following:

i) Interviews with key personnel (i.e. the Manager responsible for GHG emissions), as well as other relevant staff involved in compiling data and preparing the emissions data report (e.g. data owners, process engineers);
ii) Checking the facility's boundaries, the data flow and assessing the completeness of source streams and emission sources;
iii) Observation or testing of the control activities;
iv) Obtaining physical evidence through assessment of measurement equipment, monitoring systems, data flows, processes; and data sampling to support documentation provided;
v) Making direct observations of equipment for data sources and equipment supplying data for sources determined in the sampling plan to be high risk;
vi) Confirming the correct installation of measurement equipment; and
vii) Assessing conformance with measurement accuracy and missing data substitution requirements, as well as approved alternate methods, temporary methods, and approved meter calibration postponements.

All checks performed shall be documented in the internal verification documentation, including any observations and conclusions.

3.2.2.2. ***Checking Implementation of Control Activities***

The verification team should check that the site has implemented the following:

i) Process to ensure that all emission sources and streams are recorded and reported;
ii) Process to determine that the selected GHG quantification methods are appropriate, including the approach to determine any site-specific conversion factors;
iii) Quality assurance process to ensure that standard operating procedures for maintaining and/or calibrating measurement instrument and IT tools are followed appropriately;

iv) Process to ensure no conflict of interest between compilation/computation and counter-checking roles;
v) Process to ensure accurate collection and checking of activity data;
vi) Change management process to ensure proper documentation of updates to data collection and computation approaches;
vii) Process to check that data submitted in the Emissions Report is accurate, robust and complete; and
viii) Process to review appropriateness of data compilation and computation.

Verification of the above quality control procedures shall include data checks, document review and site visit, to ensure that control activities and processes:

i) Have been adequately implemented and are up to date;
ii) Are operating effectively throughout the year in preventing and identifying misstatements; and
iii) Are sufficiently documented and retained.

The verification team shall consider the factors outlined in the Figure 3.4 below in performing control activity checks.

Based on the findings of the above, the verification team shall assess the effectiveness of such monitoring controls and whether the results have any bearing on the verification risk and tailored verification procedures. If the review by the verification team identifies areas where procedures are insufficient to prevent misstatements, the facility should implement the resulting recommendations for improvement. If applicable, the verification team shall also assess if recommendations for improvement arising from findings of prior reporting period(s) have been implemented.

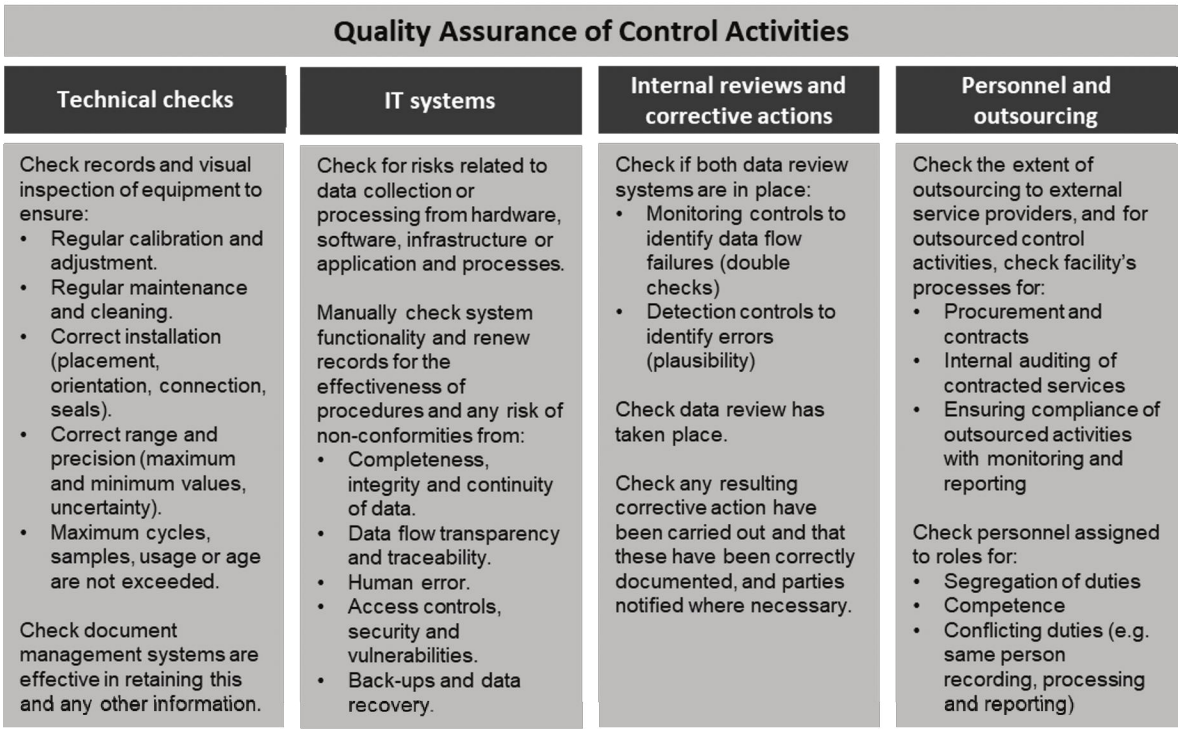

Figure 3.4: Quality assurance of control activities

3.2.2.3. ***Data Sampling, data flow testing and data analysis***

Three different approaches shall be combined in order to assess the validity of the reported data:

i) Controls testing and testing of data flows and systems to evaluate the integrity of the data population;
ii) Substantive data sampling to identify errors or gaps in data; and
iii) Data analysis applied to identify trends and outliers not visible through sampling or control testing.

Substantive data sampling is the selective analysis of a representative subset of data in order to establish the likelihood of errors in the population as a whole. Analysis of sampled emissions data may include:

i) Tracing site-specific emission factors and activity data to the primary sources such as lab analysis results, fuel invoices etc.;
ii) Checking the reconciliation from the aggregated reported data to the data flow activities, through to the primary data sources;

iii) Performing cross-checking e.g. emission data with production data and external sources (e.g. fuel data from external providers);
iv) Checking readings from the measurement instrument;
v) Re-calculating data and checking the appropriateness of formulae applied;
vi) Checking how emissions established through the alternative approach relate to other data;
vii) Checking that extraction of emissions data from internal systems has been performed correctly;
viii) Checking the appropriateness and validity of manual adjustments to the reported data; and
ix) Checking the extraction of the emissions data from internal system or checking the collection/manipulation of data for the report.

Substantive data flow testing is the detailed data testing to ensure the integrity of the systems from which sample data is taken. Data testing shall include:

i) Data verification through methods of testing such as tracing the data back to the primary data source, cross-checking with internal and external data sources, carrying out recalculation of parts of the overall emissions calculation to check certain subsets and elements (e.g. that factors are correctly calculated from source data);
ii) Checking the correct application of the monitoring methodology by using approaches such as spreadsheet assurance techniques, recalculating the reported data, or inserting different input data in the monitoring methodology to check its correct application (i.e. re-performance of data aggregation); and
iii) An analysis of fluctuation and trends in the data including an analysis of relationships that are inconsistent with other relevant information or that deviate from predicted amounts. This should involve approaches such as comparisons of emissions from the same sources over a period of several years, analysis of anticipated production and emission data, investigation of whether the reported figures can be confirmed by other analytical means such as cross-checking emission data with production and other operational data.

In addition to data flow testing and detailed review of sampled data, data analysis applied to the entire population of data should be used to identify data gaps or potential risk of misstatements. Where analysis of the reported data shows that it is unexpectedly high

or low, the verification team shall tailor the nature, timing and extent of the other verification activities (including sampling or site visit checks) to reduce the verification risk to an acceptably low level, in order to gain comfort over the reported data.

Assessment of misstatements and non-conformities

When performing checks on a sample, the verification team shall analyse any misstatements and nonconformities and their occurrence in the sample, and use the results to estimate the total likely error in the entire dataset.

The magnitude of the misstatement together with the estimated emissions, shall be based on the physical evidence obtained or observations during the verification engagement and the verification team's professional judgement, and shall be recorded in the internal verification documentation.

When analysing misstatements or nonconformities, the verification team shall consider their magnitude, nature, likely cause and possible impacts on other areas of verification and the Verification Opinion statement as a whole to determine their material impact on the total reported emissions data.

Impact of a misstatement or non-conformity on the sampling size

When misstatements or data gaps are identified through carrying out of data analysis or as a result of the data verification process, the verification team shall perform a revision of the verification plan in order to resolve any issues and evaluate the materiality of remaining misstatements.

The verification team shall consider the pathways as highlighted in Figure 3.5 below. Should data gaps occur on a more frequent basis over a period of time, this could indicate that the control activities are not operating effectively.

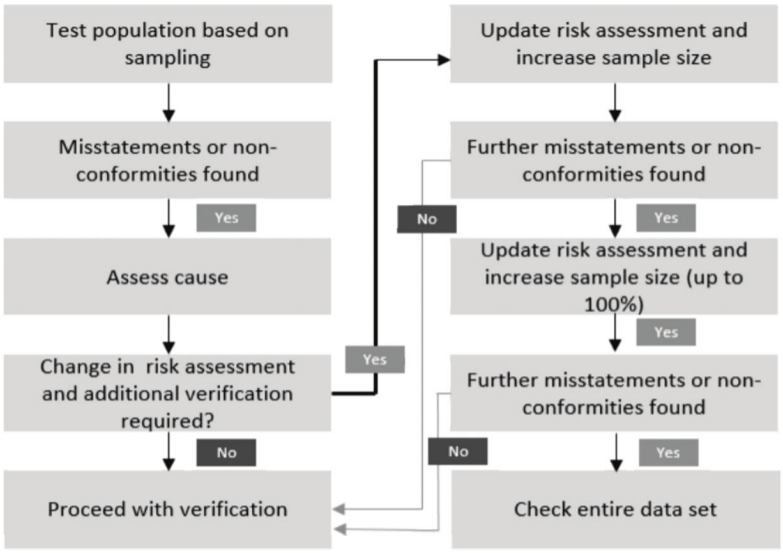

Figure 3.5: Sampling workflow and addressing misstatements or non-conformities

If deviations result from testing the control activities, the verification team shall determine the following:

i) Whether the testing provides an appropriate basis for relying on the control activities;
ii) Whether the identification of the increased risks require additional testing of control activities; and
iii) Whether the risks of misstatements need more detailed data testing. The revised risk assessment should then lead to an increased sample size, tailoring of the sampling activities or further testing requiring the verification plan to be updated.

If deviations result from checking the sampled data, the verification team shall assess the following:

i) The risk of misstatements and non-conformities in other parts of the population from which the sample was taken and commensurately increase the sample size; and
ii) Whether further sampling activities and testing is required.

The verification team shall affirm in the verification plan whether the sample selected provides a reasonable basis for conclusion about the tested population to achieve a reasonable level of assurance.

Addressing misstatements and non-conformity

The facility shall correct each misstatement and non-conformity and their underlying causes (if any), identified by the verification team in the course of the verification engagement. Once the Emissions Report has been corrected, it should be re-submitted to the Competent Authority, if it has previously been submitted.

Evaluating materiality

The verification team shall evaluate the magnitude and resulting materiality of any uncorrected misstatements or non-conformities identified. The verification team shall assess the deviation of the misstatements at the individual emission stream level, as well as the materiality of the misstatements at an aggregated emissions level.

In Example 1 below, while item 1 is individually material and item 2 is not individually material, in aggregate the variance is material:

Table 3.3: Example 1

Item	Reported (A)	Verifier's Value (B)	Difference (B)-(A)	Material[(B)-(A)]/(A)%
Item 1	28,000	30,000	2,000	7% (Yes)
Item 2	35,000	36,400	1,400	4% (No)
Total	**63,000**	**66,400**	**3,400**	**5.4% (Yes)**

In Example 2 while item 1 and 2 are material individually, due to the overstatement and understatement elements, it is not material on an aggregate basis:

Table 3.4: Example 2

Item	Reported (A)	Verifier's Value (B)	Difference (B)-(A)	Material[(B)-(A)]/(A)%
Item 1	30,000	25,000	(5,000)	17% (Yes)
Item 2	35,000	39,000	4,000	11% (Yes)
Total	**65,000**	**64,000**	**1,000**	**1.5% (No)**

Factors that can be relevant in determining whether a misstatement or nonconformity has material impact could include, but are not limited to, the following:

i) Whether it is a one-off or pervasive misstatement/non-conformity;
ii) Refusal of facility to correct the misstatement or non-conformity identified;
iii) Likelihood of the misstatement or non-conformity reoccurring;
iv) Whether the misstatements and non-conformities are the result of an act with or without intent; and
v) Extent of non-compliance with the NGERs.

3.2.4 VERIFICATION CONCLUSION

Once all of the verification activities from the final verification plan have been performed and the materiality of any resulting misstatements and non-conformities have been evaluated, the verification team shall ensure that it has gathered sufficient appropriate evidence to conclude on the findings and to issue a Verification Opinion statement. The verification team shall justify the conclusion and findings based on the quality and reliability of the evidence supplied.

The reliability of evidence is influenced by its source and by its nature and is dependent on the individual circumstances under which it is obtained. For example:

i) If evidence is obtained from external, independent and knowledgeable sources (e.g. external lab analysis), it could be more reliable than internal sources in the facility;
ii) Evidence that is generated internally is more reliable when the related control activities are effective or if the verification team has directly obtained the evidence (e.g. observing how the facility has carried out a manual cross check on the data instead of inquiring whether the facility has carried out such a control); and
iii) There is typically greater confidence and therefore the verification team generally obtains more assurance from consistent evidence obtained from different sources or from evidence of a different nature than from items of evidence considered individually. When evidence obtained from one source is inconsistent with that obtained from another, the verification team will

determine what additional verification activities mentioned under the process analysis are necessary to resolve the inconsistency.

At the conclusion of the verification activities, a Verification Report shall summarize the findings and a Verification Opinion statement shall be issued, based on the quality and reliability of the evidence supplied.

After the verification activities have been concluded to the satisfaction of the lead verifier, a Verification Report and Verification Opinion statement shall be produced detailing any significant findings and the conclusion.

3.2.2.1. ***Verification Report Requirements***

The verification team shall use the Verification Report template provided by the Competent Authority (**0**). A completed Verification Report template along with the supporting documents will form the Verification Report submission.

The Verification submission shall include the following:

i) Details of the facility and reporting period covered in the verification engagement;
ii) Total verified GHG emissions (tCO_2e);
iii) Verification opinion statement (see Section 3.2.2.2);
iv) Details of the Independent Verifier and list of personnel involved in conducting verification activities (with any changes from notice of verification);
v) Date of site visit(s) and summary of activities conducted during site visit;
vi) Issues log detailing any corrected misstatement and non-conformities with the NGERs identified during the verification engagement, and all uncorrected misstatements and non-conformities at the time of issuing the Verification Report with the estimated magnitude of any misstatement and their materiality;
vii) Any misstatements or non-conformities identified in previous verification engagements that have not been rectified in the reporting year, where applicable;
viii) A summary of the approach and types of verification activities conducted to reach the Verification Opinion statement, highlighting significant matters arising where professional judgment was required; and

ix) Sign off by the lead verifier and independent reviewer.

3.2.2.2. ***Verification opinion statements***

The verification engagement shall conclude with a Verification Opinion statement (Example included in **0**) based on the verification activities conducted by the verification team. The Verification Opinion statements are summarized in Table 3.5 below.

Table 3.5: Verification opinion statements, justification and required actions

Verification opinion statement	Justification	Required actions
Positive opinion	The verification team can state with a reasonable level of assurance that the aggregated error in the total GHG emissions in the Emissions report does not exceed the materiality limit.	For all uncorrected misstatements and non-conformities, the verification team shall recommend to the facility the corrections to be made. The facility shall correct the underlying cause of any uncorrected misstatements or non-conformities before the submission of the Emissions Report for the subsequent reporting period.
Negative opinion	The verification team is unable to give a positive Verification Opinion statement at a reasonable level of assurance. The reasons for giving a negative Verification Opinion statement may include, but not be limited to the following: i) The aggregated error in the total GHG emissions in the Emissions Report exceeded the materiality limit. ii) Non-conformities individually or collectively provide insufficient clarity to provide a positive opinion statement. This may arise from the following situations: a. Missing data which prevents the verification team from obtaining the evidence required to reduce the verification risk to the level needed to obtain reasonable level of assurance. b. The facility has failed to make sufficient information available to enable the verification activities to be carried out.	The verification team shall make a reasonable estimation of the total emissions from the facility on the basis that the uncorrected misstatements had been corrected. For all uncorrected misstatements and non-conformities, the verification team shall recommend to the facility the corrections to be made. The facility shall correct the underlying cause of any uncorrected misstatements or non-conformities before the submission of the Emissions Report for the subsequent reporting period.

The Verification Report may include recommendations for improvements in the facility's GHG-related data management systems based on the findings during the verification engagement, even where the current systems did not result in misstatements or non-conformities.

3.2.2.3. ***Independent Review***

Prior to the issuance of the Verification Report to the facility, the verification work and related documentation shall be reviewed by an independent reviewer. The independent reviewer must not have carried out verification activities that are subject to his/her review.

The main objectives of the review shall include, but are not limited to, the following:

i) Quality check to identify errors and/or omissions;
ii) A final assessment that due professional care and judgement has been applied in accordance with the Independent Verifier's quality control procedures;
iii) Assess that the verification work carried out by the verification team is in line with the Verification Guidelines; and
iv) Assess that the evidence gathered during the course of the verification engagement is sufficient to support the Verification Opinion statement.

Checks undertaken by the independent reviewer shall include, but are not limited to, the following:

i) Whether the team competencies are appropriate;
ii) Whether the strategic assessment, risk assessment and verification plan, including revisions of the risk assessment and the verification plan have been carried out appropriately;
iii) Whether the verification engagement has been sufficiently documented in order to support the Verification Opinion statement, and the consistency between the working files and the Verification Report;
iv) Whether misstatements and non-conformities have been communicated to the facility, if they have been addressed by the facility, and how these have been identified in the Verification Report;
v) Whether uncorrected misstatements and non-conformities and their impact on the reported data have been appropriately assessed; and

vi) Whether an appropriate Verification Opinion statement has been issued.

If the independent reviewer has identified errors or concludes that insufficient evidence has been gathered to achieve a reasonable level of assurance, the lead verifier shall ensure that the verification team corrects these and obtains the missing evidence or confirmation to substantiate the Verification Opinion statement. Changes that the verification team makes in the Verification Report as a result of the independent review shall be reviewed by the independent reviewer, along with the new evidence gathered before issuing the report to the Data Provider and the Competent Authority.

3.2.2.4. ***Verification report submissions***

Data Providers who have been selected for independent verification should have their Verification Report submitted to the Competent Authority within 90 days of notification by the Competent Authority. This section, along with Figure 3.6 below, outlines the Verification Report submission process:

1. After the Draft Verification Report has been reviewed by the independent reviewer, the Independent Verifier shall submit the Draft Verification Report to the Data Provider.
2. Once both parties have agreed on the content of the Draft Verification Report, any material misstatements that were identified during the verification process will need to be rectified by the Data Provider.
3. If there is no agreement on the content of the Draft Verification Report, the Independent verifier can proceed to submit the report to the Competent Authority. If the Competent Authority is satisfied with the independent verification assessment, the data provider will be notified of such decision. If the data provider still maintains that the originally submitted report is correct, the Competent Authority can refer the matter for compliance enforcement process as per the South Africa National Environmental Management Act 107 of 1998 will be triggered.
4. The Data Provider should notify the Competent Authority if there is a need to update their Emissions Report on the NAEIS.
5. Once the Independent Verifier is satisfied that the Emissions Report on the NAEIS agrees to the Draft Verification Report, the Independent Verifier may submit a finalised Verification Report to both the Data Provider and the Competent Authority for their review.

6. The Competent Authority will review the Verification Report and approve the Verification Report and Emissions Report on the NAEIS system if they are satisfied with the contents of both.
7. If the Competent Authority identifies any required amendments to either the Verification Report or the Emissions Report, the Competent Authority will notify the Independent Verifier and the Data Provider accordingly.

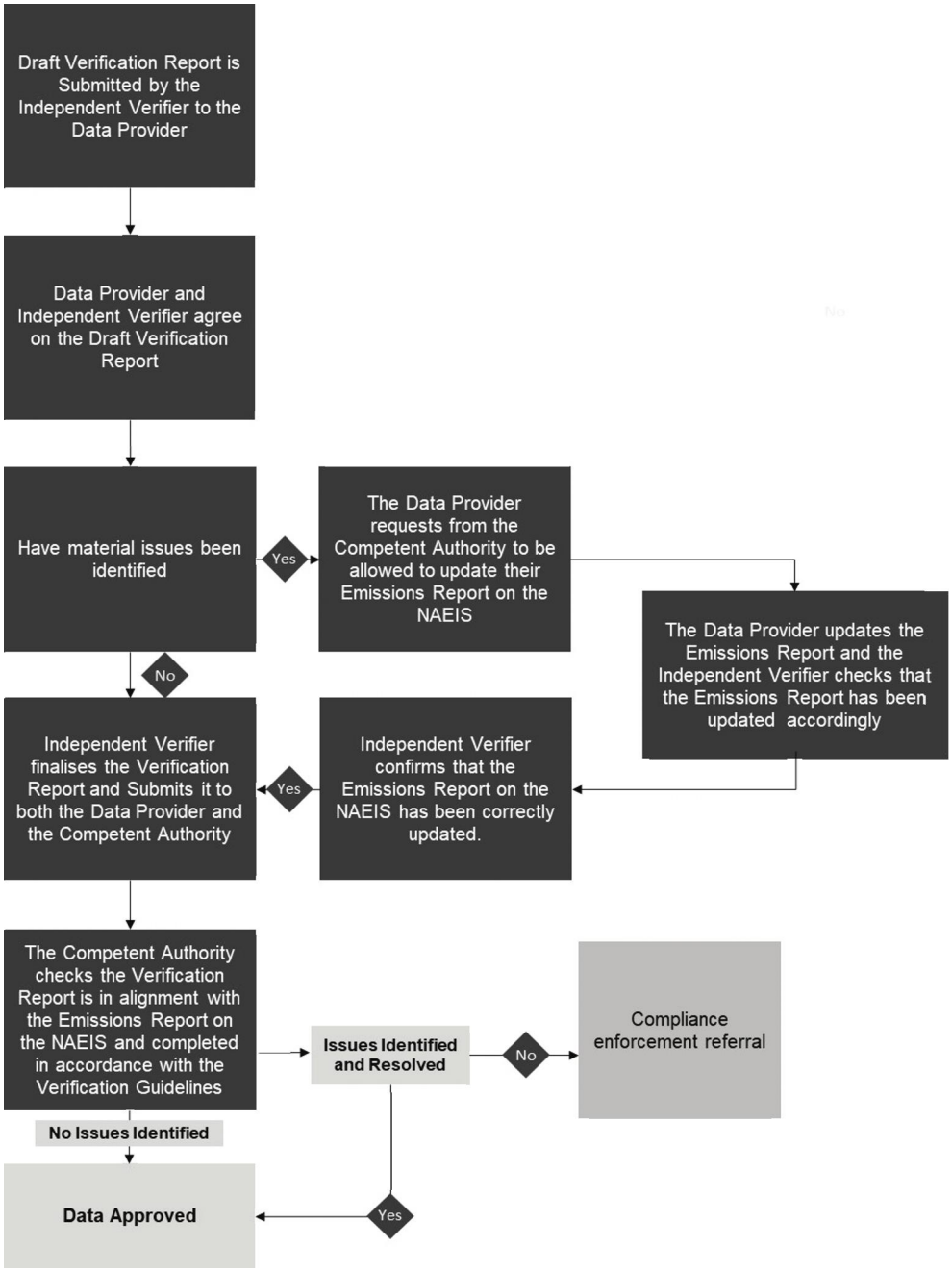

Figure 3.6: Verification Report Submission Process

3.2.2.5. ***Penalties for non-compliance by Data Providers***

It is important for the Data Provider to be aware of the penalties stipulated under the NGERs relating to misstatements in the Emissions Report and non-compliance with the NGERs. The Data Provider may be subject to penalties, elaborated on in Section 17 of the NGERs, if offences as described in Section 16 of the NGERs are identified during the verification process.

3.2.2.6. ***Internal verification documentation***

The verification team must compile and maintain its own internal project verification documentation[4] to provide a complete trail of evaluations and decisions that allowed the verification team to reach its Verification Opinion statement with a reasonable level of assurance. The internal verification documentation shall include both the corrected and uncorrected misstatements and non-conformities identified during the verification engagement.

The internal verification documentation needs to be transparent and must be drafted in such a manner that the reader is able to assess whether the verification engagement has been performed in line with the NGERs and the Verification Guideline (i.e. could replicate the verification activities if necessary).

The internal verification documentation shall be compiled (i.e. there should be enough documentation to support the Verification Opinion statement) before the Verification Report is issued. No substantial changes can be made after the Verification Report is issued. All internal verification documentation shall then be finalised and stored properly within 60 days from the issuance of the Verification Report.

The Independent Verifier shall provide access to its internal verification documentation when requested by the Competent Authority, within the time frame stipulated by the Competent Authority.

[4] Refer to the International Standard on Auditing (ISA) 230, “Auditing Documentation” for more information on how to document and store internal verification documentation.

4. PART 3: ACCREDITATION AND COMPETENCE

4.1 ACCREDITATION PROCESS FOR INDEPENDENT VERIFIERS

4.1.1 ACCREDITATION AND VERIFICATION DURING PHASE 1

During Phase 1 of the Verification Programme (up to the end of 2022), it will not be mandatory to have Independent Verifiers accredited and those that are not accredited must apply to the Competent Authority prior to appointment by the Data Provider, to demonstrate that they have sufficient competence to verify Emissions Reports as a part of the NGERs (See Section 4.2.21). The list of approved Independent Verifiers will be provided on the DEFF website (on the GHG reporting module of NAEIS (SAGERS)).

4.1.2 ACCREDITATION AND VERIFICATION DURING PHASE 2

From 2023 (Phase 2 of the Verification Programme) Independent Verifiers will need to become ISO 14065 accredited by SANAS to perform GHG verification. The accreditation process is provided by SANAS (and it is currently outlined on SANAS's website (https://www.sanas.co.za/Pages/index.aspx)) and will replace the process outlined in Section 4.2 during Phase 2.

4.2 COMPETENCE ASSESSMENT PROCESS IN PHASE 1

Section 4.2 provides clarity to independent verifiers during Phase 1. After Phase 1, where all independent verifiers will be SANAS accredited, the guidelines must be used in conjunction with SANS / ISO standards for GHG verification. Although all effort was made to make sure that the requirements stipulated here are in line with SANAS accreditations rules and criteria, it must be noted that SANAS accreditation rules take precedence over Section 4.2 of the verification guidelines in Phase 2.

4.2.1 COMPETENCE ASSESSMENT PROCESS

To be allowed to conduct independent verification during Phase 1 of the verification programme, Independent Verifiers will need to go through the following process with the Competent Authority:

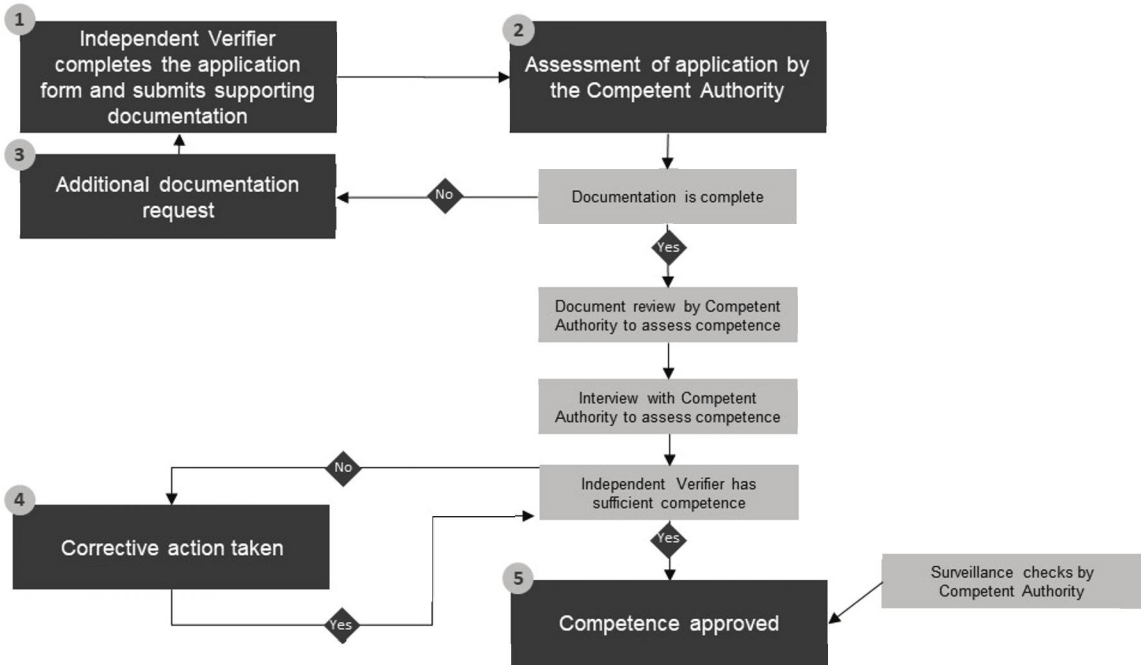

Figure 4.1: Interim Verification Process with the Competent Authority for Phase 1

1. The Independent Verifier must complete the application form in Annexure C and submit it to the Competent Authority via the Competent Authority's official e-mail address (GHGReporting@environment.gov.za). The Independent Verifier should also submit the following supporting documentation to the Competent Authority along with the application form:
   a. Company registration certificate;
   b. Supporting documents for organisation structure;
   c. Supporting documents for lead and supporting verifier(s) competence; and
   d. Supporting documents for independent reviewer(s) competence.

   Possible supporting documents to evidence the competence of the lead verifier and independent reviewer includes:

   a. Previously signed off Verification Reports for reasonable assurance engagements including Scope 1 GHG emissions under other assurance standards;
   b. Qualification certificates; and
   c. Records of training courses completed.

2. Once the Independent Verifier has submitted all the required documentation, the Competent Authority will assess if the Independent Verifier is sufficiently competent in accordance with Section 4.2.2 of the Verification Guideline.
3. Part of this assessment may include a face-to-face interview with the applicants.
4. If the Independent Verifier has not submitted all necessary documentation, the Competent Authority will notify the Independent verifier to submit additional documentation.
5. If the Independent Verifier is not deemed sufficiently competent in accordance with Section 4.2.2 of the Verification Guideline, they will be required to take corrective actions, before they are approved by the Competent Authority.

After approval has been granted, the Competent Authority holds the discretion to ensure the competence of the Independent Verifier. This may include surveillance activities such as either of the following approaches:

- **Witness audits**: At its discretion, the Competent Authority may carry out witness audit(s) to observe how a verification is conducted to assess the competence and performance of personnel involved in the verification. The Competent Authority may observe any stage of the verification activities including planning, meetings, calls, data sampling, and site visits to the facility. The Competent Authority may interview any verification team member or verification company's personnel.
- **Review of documentation and Verification Reports:** The Competent Authority may request to review supporting evidence used to conclude on specific observations detailed in the Verification Report. The Competent Authority will also review the Verification Report to ensure it is in line with the requirements outlined in the Technical Guidelines.

4.2.2 COMPETENCE AND REQUIREMENTS

4.2.2.1. *Roles and responsibilities*

The Independent Verifier shall at a minimum comprise a lead verifier. There shall also be an independent reviewer to perform the required internal quality control checks. The team may also include additional verification team members as well as technical expert(s), if required. The roles and responsibilities of the respective team members and the independent reviewer are summarized in Table 4.1.

Table 4.1: Typical Roles and responsibilities of the independent verification team

Role Player	Roles and Responsibilities
Lead verifier	The lead verifier leads and manages the entire verification engagement, from planning and execution to issuing the Verification Report, including: i) Determining the team requirements and resource allocation on the verification, including assembling the verification team and assessing competence and independence of the verification team; ii) Allocation and briefing on specific tasks to verification team members; iii) Responsibility for ensuring the verification plan is complete and appropriate, as well as its proper implementation and any necessary amendments during the verification process; iv) Responsibility for submission of the notice of verification, verification plan summary, notice of site visit and Verification Report to the Competent Authority; v) Maintaining communication with the reporting Data Provider; vi) Conducting the site visit, including assembling the team for the site visit and managing the process and communication of planning and concerns to the facility; vii) Ensuring that all internal verification documentation, including supporting evidence, is complete and compiled in compliance with document retention requirements; viii) Guiding the drafting of the Verification Report; ix) Providing assistance, clarification and response to requests from the independent reviewer in order to complete the Verification Report quality checks; and x) Endorsing the Verification Report and issuing the Verification Opinion statement.
Independent reviewer	An independent reviewer must maintain independence by not participating in verification activities for the facility. The independent reviewer's role is to provide independent internal quality control at two stages: i) Upon completion of the initial verification plan; and ii) Upon completion of all verification activities, and before submission of the Verification Report to the Data Provider and the Competent Authority. The independent reviewer will review documents applicable to the verification services provided and identify any failure to comply with the verification plan, NGERs, or with the Independent Verifier's internal policies and procedures for providing verification services. The independent reviewer must concur with the verification findings and sign off on the Verification Report before it can be issued to the Data Provider and the Competent Authority. The independent reviewer's assessment and sign-off shall serve as a final check on the verification team's work to identify any errors made by the verification team in the conduct of the verification engagement, including errors in planning, errors in data sampling, and errors in judgement by the verification team related to the Verification Opinion statement.
Verifier team members	Assist the lead verifier to carry out verification activities, including: i) Confirming the scope of verification with the facility; ii) Assisting the lead verifier in assessing whether the verification objectives are addressed in the detailed verification planning; iii) Undertaking the data sampling; iv) Resolving issues relating to verification, in particular those associated with the materiality of reported data; v) Compiling the internal verification documentation; and vi) Drafting the Verification Report.
Technical expert	The role of a technical expert is not always necessary but is important to supplement the verification team with detailed information on certain specific processes of the

	facility where the team lacks technical expertise, knowledge or experience. For example, on a specific piece of measurement equipment or understanding a complex process emission stream. As such, the technical expert need not possess GHG verification experience and shall not be part of the decision-making process of the verification.

4.2.2.2. ***Qualifications and Competence requirements***

Confidence and reliance in the verification of GHG emissions depends on the competence of those conducting the verification. Personnel performing verification of GHG emissions must be competent on the basis of the appropriate education, training, skills and related sector scope experience.

Personnel conducting or performing verification should maintain and improve their knowledge and skills through continuous professional development (CPD) activities, such as training, private study, seminar and conferences. Verifier's and Independent Reviewers must maintain their continuous professional development records.

4.2.2.3. ***Qualification Requirements***

The minimum qualification criteria for verification are provided for in the SANAS Technical Requirement for Bodies Providing Greenhouse Gas Validation and Verification (TR88-01) and reproduced in italics below. This is consistent with and additional to the requirements of ISO 14065.

I. *Minimum qualification for scopes are based on the complexity of sector, taking emission sink quantity, number of sites, emission sources and types of Greenhouse gasses into consideration:*
   - *Low complexity – total of scope 1 and 2[5] less than 10,000 ton CO_2e per year.*
   - *Medium complexity – total of scope 1 and 2 less than 100,000 ton CO_2e per year.*
   - *High complexity – total of scope 1 and 2 more than 100,000 ton CO_2e per year.*

II. *If number of sites exceeds 5 and there are more than one source of emissions for scope 2 complexity is increased.*

[5] It is recognised that the NGERs do not use the terms Scope 1 and 2 emissions and that only direct emissions are reported by Data Providers. This terminology is, however, used in the SANAS technical document and is only relevant with respect to determining complexity.

III. *If more than just CO_2 in the GHG is accounted for (e.g. methane, Sulphur Hexafluoride, nitrous oxide, HFCs and PFCs) then complexity is increased.*

IV. *Generic competencies of ISO/SANS 14065, ISO/SANS 14063 and ISO/SANS 14066 should normally be sufficient to cover low complexity sector specific competencies.*

V. *Generic competencies as per low complexity plus sector specific competencies*

VI. *relevant to the process emissions should be appropriate for medium complexity.*

VII. *Competencies as per medium complexity plus the demonstrated ability to ensure that the team accurately aggregates very large or high complex inventories should be appropriate for high complexity.*

Complexity	*Education Requirements*	*Knowledge and Skills*	*GHG Sector Experience*
Low	*Hold at least a minimum Grade 12 Certificate or equivalent.*[6]	*SANS 14065; SANS 14063; SANS 14064-1/2; SANS 14066.* *Demonstrated Skills*	*Direct or related more than 1 years.*[7]
Medium	*Hold at least a minimum 3 year national diploma or degree in science, engineering, commercial, economics or equivalent.*[6]	*SANS 14065; SANS 14063; SANS 14064-1/2; SANS 14066.* *Demonstrated Skills*	*Direct or related more than 1 years.*[7]
High	*Hold at least a minimum 3 year degree or equivalent in science, engineering, economics.*[6]	*SANS 14065; SANS 14063; SANS 14064-1/2; SANS 14066.* *Demonstrated Skills*	*Direct or related more than 3 years.*[7]

In addition to the requirements above, for Phase 1 of the Verification Programme, a **lead verifier** shall have:

i) Performed verification of Scope 1 GHG emissions on at least three (3) completed verification engagements at a reasonable level of assurance over the past four (4) years. GHG emissions verified can be either as part of an official emissions trading or carbon pricing scheme, or as part of voluntary assurance of non-financial disclosures, including Carbon Disclosure Project, ISO 14064 disclosure, and sustainability reporting, but must include Scope 1 emissions and involve on-site testing and sampling of data.

A lead verifier shall be able to demonstrate the following:

i) Experience in planning and conducting verification activities including assessment of sampling methodology, data and control activities, conducting risk assessment and determining materiality and overall audit confidence level;

[6] In some cases, extensive experience in the relevant field of expertise for GHG may be substituted for formal qualification.

[7] With a minimum of one year in a technical area and three years in a complex technical area.

ii) Knowledge of GHG related processes and measurement and the potential GHG emission sources in order to understand the Emissions Report, and draw accurate and meaningful conclusions from observations, facility documentation and relevant literature;

iii) Knowledge of international GHG standards (i.e. IPCC guidelines on treatment of emissions sources, GHG Protocol, ISO 14064), the NGERs and its associated Methodological Guidelines;

iv) Experience in identifying misstatements and non-conformities in GHG emissions reporting;

v) The ability to assess the scope of verification activities required in order to reach a reasonable level of assurance and assign sufficient resources to the verification team;

vi) The ability to assess the skills of verification team members in order to assign appropriate verification activities and functions to team members, and contract appropriate technical experts where necessary;

vii) The ability to oversee and manage the verification process and reporting, having sufficient knowledge to assess the quality and completeness of verification activities performed; and

viii) The knowledge to assess compliance with verification regulations and guidelines, including activities performed by the verification team members including technical experts (if applicable).

In addition to the requirements above, for Phase 1 of the Verification Programme, an **independent reviewer** shall have

i) Performed within the past four (4) years independent review of at least two (2) completed verification engagements at reasonable level of assurance; and

ii) Been involved in at least one (1) verification of scope 1 GHG emissions over the past four (4) years.

An independent reviewer shall be able to demonstrate the following:

i) Experience in reviewing or planning and overseeing verification activities including sampling methodology, data and control activities, risk assessment and materiality, and overall audit confidence level;

ii) Sufficient understanding of industrial GHG related processes, GHG measurement, and potential GHG emission sources in order to understand the verified information and data;

iii) Knowledge of international GHG standards (i.e. IPCC guidelines, GHG Protocol, ISO 14064) and the NGERs and its guidelines;

iv) Experience in identifying misstatements and non-conformities in a Verification Report; and

v) Experience in ensuring compliance of the verification activities performed by the verification team members, with the verification regulations and guidelines and the verification company's internal policies and procedures for providing verification services.

4.2.2.4. ***Competence Requirements***

Competence is the ability to apply knowledge and skills to achieve intended results. Competence, as defined in ISO 14066, is the broad range of knowledge, skills, attitudes and observable behaviour that together comprises the ability to deliver a specified professional service; it also involves adoption of a professional approach that values accountability to the public and leadership in professional practice, the public sector, the corporate sector and education.

The competence requirements for GHG verification teams are detailed in SANS 14066:2012 / ISO14066:2011 and supplemented by Section 6.2 of ISO 14065:2013; and will need to be met by the teams applying to conduct verification during Phase 1 of the Verification Programme.

These competence requirements from 14066:2012 / ISO14066:2011 and ISO 14065:2013 are broadly summarised below:

A verification team collectively shall have **GHG programme knowledge**, including the following:

i) Eligibility requirements;

ii) Applicable legal requirements;

iii) Verification and reporting requirements and guidelines; and

iv) Scope of the GHG emissions subject to reporting.

A verification team collectively shall have **technical knowledge**, including the following:

i) GHGs, global warming potentials, activity data and emission factors;
ii) Application of materiality and material discrepancy;
iii) Application of quantification and reporting principles (e.g. completeness, consistency, accuracy, transparency and relevance);
iv) Relevant sector GHG sources and carbon; and
v) Relevant sector quantification methodologies, monitoring techniques and calibration procedures and their Consequences for data quality.

A verification team collectively shall have **data and information verification knowledge**, including the following:

i) Data and information verification methodologies;
ii) Risk assessment methodologies;
iii) Data and information sampling techniques;
iv) GHG data and information control systems; and
v) Typical internal control systems.

A verification team collectively shall have the necessary **skills** to perform verification activities. Examples of applicable skills include the ability to:

i) Retrieve relevant information and apply the knowledge in a manner appropriate for the work;
ii) Understand the meaning, translation, and interpretation of information;
iii) Think critically and analyse multiple inputs;
iv) Distinguish between facts and inferences and exercise professional scepticism;
v) Carry out independent research to challenge assumptions and evidence asserted by a responsible party or client;
vi) Strike a balance between attention to detail and a high-level assessment of the anticipated outcome during the verification process;
vii) Manage detail, particularly at the level of ensuring that required checks are performed;
viii) Evaluate the information, data, and assumptions and make professional judgements;
ix) Apply verification methods in expected and unanticipated situations; and
x) Communicate the verification process and results.

4.2.3 INDEPENDENT VERIFIER NON-CONFORMANCE

Should the Competent Authority find or suspect inaccuracies in a Verification Report, a serious risk to the independence of the verification engagement, or any other non-compliance with this Verification Guideline and/or the NGERs by the Independent Verifier, the Competent Authority is authorised to investigate the matter further. Depending on the results of the investigation, the Competent Authority may require the relevant Emissions Report to be re-verified or the Verification Report to be rectified at the cost of the Independent Verifier. Any unresolved disputes will follow the dispute resolution process as outlined by the National Environmental Management Act 107 of 1998 ("NEMA").

The above prescription on non-conformance is relevant during Phase 1 of the verification programme. In Phase 2, non-conformance will be dealt with using SANAS non-conformance measures.

GLOSSARY

Term	Definition
Accreditation	Accreditation involves an independent assessment of whether an Independent Verifier has the competence to carry out the verification of GHG emissions reporting in line with a specific standard.
Activity data	Means data on the magnitude of a human activity resulting in emissions or removals taking place during a given period of time. Data on energy use, metal production, land areas, management systems, lime and fertiliser use and waste arising are examples of activity data.
Carbon Budget	An amount of greenhouse gas emissions permitted, against which direct emissions arising from the operations of a person during a defined time period will be accounted for.
Competent Authority	The National Inventory Unit based at the National Department of Environmental Affairs, Forestry and Fisheries (DEFF)
Control activity	Control activity means any act or measure that mitigates any inherent risk.
Control risk	Control Risk is the risk that any QMF provided for in an approved Monitoring Plan may be applied incorrectly or may fail.
Conversion factors	A conversion quantity, conversion ratio or conversion fraction used to compute direct GHG emissions from activity data.
Data Provider	"data provider" means any natural or juristic person conducting any activity listed in Annexure 1 to the NGERs, including— (a) its holding company or corporation or legal entity, registered in South Africa in accordance with the legislation of the Republic of South Africa; (b) all its subsidiaries and legally held operations, including joint ventures and partnerships where it has a controlling interest, or is nominated as the responsible entity for the purpose of reporting under the NGERs; and (c) all facilities generally over which it has operational control, which are not part of another data provider for the NGERs.
Detection risk	Detection risk in relation to an Emissions Report, means the risk of a verification team not detecting a misstatement in the Emissions Report, assessed based on the control risks and inherent risks relating to the Emissions Report.
NAEIS (national atmospheric emissions inventory system)	The online reporting system for registration, submission and verification matters under the NGERs.
Emissions	The release of greenhouse gases/and/or their precursors into the atmosphere over a specified area and period of time.
Emissions factor	A coefficient that quantifies the emissions or removals of a gas per unit of activity. Emission factors are often based on a sample of measurement data, averaged to develop a representative rate of emission for a given activity level under a given set of operating conditions.
Emissions Report	The Emissions Report is a summary report submitted to the Competent Authority detailing the GHG emissions of the facility within the reporting year, containing information on the facility's activity data, computation for each direct GHG emission source, and the total direct GHG emissions. The Emissions Report is submitted by 31 March of the year following the end of each reporting period.
Facility	A premises, where activities identified in Annexure 1 of the NGERs are being undertaken.

Greenhouse gases (GHG)	For the purposes of the Verification Guideline, GHG refers to the greenhouse gases covered in the NGERs: • Carbon dioxide (CO2); • Methane (CH4); • Nitrous oxide (N2O); • Sulphur hexafluoride (SF6); • Nitrogen trifluoride (NF3); • Hydrofluorocarbons (HFCs); and • Perfluorocarbons (PFCs).
Independence framework	The independence framework is the summary of internal policies, activities and systems in place for the Independent Verifier to assess its independence with respect to a facility and Data Provider, and conflicts of interest of any personnel in order to maintain its objectivity.
Independent Reviewer	A competent person who is not a member of the verification team, who reviews the competency of the verification team and the verification activities and conclusions.
Independent verification	Verification involves an independent and objective assessment of the accuracy of the Emissions Report based on the data sources that have been used to collect and collate the data in the Emissions Report.
Independent Verifier	A registered legal entity acting as an independent verification body or institution with responsibility to perform and report on the third-party verification of GHG emissions.
Inherent risk	Inherent Risk in relation to an Emissions Report, means the risk of a misstatement in the Emissions Report arising from the collection, computation and management of data, in the absence of quality control over the collection, computation and management of the data.
Materiality	Materiality is a concept used in assurance to evaluate the importance of an identified misstatement and its effect on the overall data being verified. A materiality limit will be stated, setting the maximum magnitude or contribution of any errors to the total before the misstatement becomes significant in issuing the Verification Opinion statement. The materiality limit for the NGERs is 5%.
Monitoring Plan	A Monitoring Plan is a document which identifies and describes the facility's GHG emission sources and emission streams, emissions quantification methods, alternative methods, quality management procedures and uncertainty. It is used as a blueprint to prepare the annual Emissions Report.
Misstatement	A misstatement means any error or omission made in an Emissions Report.
Non-compliance	A non-compliance occurs where the actions of a facility or of an Independent Verifier are not in line with the NGERs.
Non-conformity	A non-conformity means where the actions of a facility, the contents or preparation of an Emissions Report, or the activities of an Independent Verifier are not consistent with the NGERs and this Verification Guideline.
Population	Population refers to the entirety of the data within a data set. The population size is the number of individual pieces of information or data points within the population. The population size will depend on the frequency of a measurement or activity and the number of separate data points or pieces of documentation (items) produced as a result of the measurement.
Reasonable level of assurance	Reasonable level of assurance means a level of verification where a verification team has accumulated sufficient evidence to substantiate a positive Verification Opinion statement in its Verification Report.
Reporting period	One calendar year.
Sampling	Sampling is an analytical procedure used to infer characteristics of a population using a specified subset of the data within that population.

Strategic assessment	Strategic assessment means an analysis to determine the nature, scale and complexity of verification activities to be performed in order to verify an Emissions Report.
Verification activities	Verification activities are the activities carried out to verify, to a reasonable level of assurance, an Emissions Report, including the planning of the activities and the issuing of the Verification Report.
Verification engagement	A verification engagement means an undertaking to verify, to a reasonable level of assurance, an Emissions Report for each reporting period.
Verification opinion statement	The Verification Opinion statement is the conclusion of the verification process expressing whether the information in an Emissions Report has been verified to a reasonable level of assurance, given the verification activities performed.
Verification risk	Verification risk is the risk of an inaccurate Verification Opinion statement being issued.
Verification report	The Verification Report is the output of the verification process to be submitted to the Competent Authority. It is a summary of the activities and findings of the verification.
Verification team	The verification team consists of the lead verifier, and if applicable, other verifiers and the technical experts who perform the verification activities.
Verifier	Any person conducting verification activities used to determine the verification of data or assertions in a verification engagement.

ANNEXURES

Annexure A Emissions Report Template

Name of Data Provider														
Data Provider ID														
Company Registration number														
Date of Submission:														
Year of data:														
Comments:														
Facility 1: Name and ID														
IPCC Code (see Annexure 1)	Sub category[8] (disaggregated by fuel / product type / production process)	Activity data[5]			Emissions (tonnes/year)									
		Name of activity data	Value of activity data[9]	Units of activity data[10]	GHG-1[11]			GHG-2			GHG-3			
					Value	Tier	Ref	Value	Tier[12]	Ref	Value	Tier	Ref	
Facility 2: Name and ID														
IPCC Code (see Annexure 1)	Sub category[13] (disaggregated by fuel / product type / production process)	Activity data[5]			Emissions (tonnes/year)									
		Name of activity data	Value of activity data	Units of activity data	GHG-1			GHG-2			GHG-3			
					Value	Tier	Ref	Value	Tier	Ref	Value	Tier	Ref	

Annexure B Verification Report and Verification Opinion Template

1. Details of the facility and reporting period

Name of Data Provider:

Data Provider ID:

Facility Registration ID:

Facility Name:

Reporting Period Covered:

2. Details of the Independent Verifier and list of key personnel involved in conducting verification activities

Verification Company Name:

Name of lead verifier:

Name of independent reviewer:

3. Scope of the independent verification, as outlined in the notification from the competent authority for independent verification

Please outline the scope of independent verification, particularly outlining any exclusions of scope from the Emissions Report:

4. Verification opinion statement

This verification statement attests that the Emissions Report submitted is (check one)

☐ Reasonably assured of being free of material misstatement

☐ NOT reasonably assured of being free of material misstatement

This verification statement attests that the submitted data are (check one)

☐ Reasonably assured of being in conformance with the NGERs

☐ NOT reasonably assured of being in conformance with the NGERs

As a result of the selections above, the final Verification Opinion statement is (check one)

☐ Positive: reasonably assured of no material misstatement and in conformance with the NGERs

☐ Negative: not in conformance with the NGERs and/or not reasonably assured of no material misstatement

5. Date of site visit(s) and summary of activities conducted during site visit

Date/s the site visit occurred:

Summary of activities conducted during the site visit:

6. Approach and verification activities conducted

Please provide a summary of the approach and types of verification activities conducted to reach the Verification Opinion statement, highlighting significant matters arising where professional judgment was required:

7. Sign off by the lead verifier and independent reviewer

Verification Company Name:

Signature of lead verifier:

Printed name:

Date:

Signature of independent reviewer:

Printed name:

Date:

8. Summary of verification misstatements and observations identified

a. Issues log detailing any corrected misstatement and non-conformities with the NGERs identified during the verification engagement, and all uncorrected misstatements and non-conformities at the time of issuing the Verification Report with the estimated magnitude of any misstatement and their materiality

IPCC Code (per Annexure 1 of the NGERs)	**Subcategory** (Disaggregated by fuel/ product type/ production process)	**Activity data**			**Emissions (tonnes/year)**								
		Name of activity data	Value of activity data	Unit of activity data	GHG-1			GHG-2			GHG-3		
					Value	Tier	Ref	Value	Tier	Ref	Value	Tier	Ref
Corrected Misstatements Identified													
Total corrected Misstatements Identified													
Corrected Misstatements Identified													

Total un-corrected Misstatements Identified													

b. Any misstatements or non-conformities identified in previous verification engagements that have not been rectified in the reporting year, where applicable

IPCC Code (per Annexure 1 of the NGERs)	**Subcategory** (Disaggregated by fuel/ product type/ production process)	**Activity data**			**Emissions (tonnes/year)**								
		Name of activity data	Value of activity data	Unit of activity data	GHG-1			GHG-2			GHG-3		
					Value	Tier	Ref	Value	Tier	Ref	Value	Tier	Ref
Previous reporting year misstatements identified													

c. Description of significant observations and findings relating to insufficient controls, evidence storage, data quality and non-compliances with the NGERs

Observations noted					
No	Severity of observation	Emissions stream	Observation type	Observation	Recommendation

Example of a Verification Opinion statement for an organisation's Emissions Report

To the Competent Authority.

We have verified the onsite GHG emissions, removals and storage in ABC's Emissions Report for Facility with Registration ID ######, for the 20## calendar year, which comprise the following:

— stationary combustion emissions;

— process emissions; and

— waste-related emissions.

The verification included all emissions in ABC's emissions report to the Competent Authority.

Management is responsible for the preparation and fair presentation of the Emissions Report in accordance with the National Greenhouse Gas Reporting Regulations (NGERs). This responsibility includes designing, implementing and maintaining a data management system relevant to the preparation and fair presentation of an Emissions Report that is free from material misstatement.

Our responsibility is to express an opinion on the Emissions Report based on our verification. We conduct our verification in accordance with the Guideline for Verification of Greenhouse Gas Emissions by Industry (Verification Guideline) and the ISO specification with guidance for the verification and validation of greenhouse gas statements, i.e. ISO 14064-3. The Verification Guideline requires that we comply with ethical requirements and plan and perform the verification to obtain reasonable assurance that the onsite GHG emissions, removals and storage in the Emissions Report are free from material misstatement.

Our verification strategy used a combined data and controls testing approach. Evidence-gathering procedures included but were not limited to:

— a site visit to:

— inspect the completeness of the inventory;

— interview site personnel to confirm operational behaviour and standard operating procedures;

— re-perform access controls to onsite records;

— sampling of records to confirm accuracy of source data into calculations;

— recalculation of emissions; and

— analytical procedures between production and energy consumption.

The data examined during the verification were historical in nature.

In our opinion, the onsite GHG inventory in ABC's Emissions Report positively presents, in all material respects, the GHG emissions, removals and storage of ABC's facility in accordance with the NGERs for the 20## calendar year.

_____	_____
Lead verifier Signature:	Independent reviewer Signature:
Lead verifier name:	Independent reviewer name:
Date:	Date:

Annexure C Application to conduct third party verification under the NGERs

Instructions

1. In order to complete this form, you are expected to have read and understood the application requirements in the Verification Guideline and the NGERs.
2. Supporting documents to be submitted (where applicable) are in the supporting documents checklist in this form.
3. Supporting documents (in pdf) shall be sent in zip-file format and in one zip-folder. The zip-folder must not be password protected.

Verification Company Details

1. Full name of the company

2. Company registration number

3. Organisation structure

Give a summary of your organisation size and structure in the box below, identifying lines of authority and those with overall responsibility for quality of verification activities and verification statements. Submit supporting documents with detailed description of organisation structure, including owners or those with controlling interest, identifying lines of authority and those with overall responsibility for:

1. Development and implementation of policies
2. Finances
3. Quality of verification activities and verification statements
4. Contractual arrangements
5. Process for resolving/ dealing with appeals, complaints and disputes from corporations including the resolution procedures.

4. Internal quality controls

Give a summary of the organisation's quality control policy in the box below (e.g. appointment of independent quality control officers, direct observation, annual audit etc.).

5. Document control

Give a summary of your document retention/ retrieval system in the box below.

6. Independence framework

Give a summary of how the organisation ensures independence at the organisational level to safeguard its objectivity when performing verification in the box below.

7. Have there been any judicial proceedings, enforcement actions, or non-compliance filed against the organisation in the past five years?

Yes/No

8. Has the organisation been accredited as a third-party verifier for GHG emissions by an overseas accreditation body for another carbon pricing or regulatory greenhouse gas measurement and reporting scheme?

Yes/No

Verification team

Fill in the names and identification number of the applicants in the boxes below. Submit supporting documents for each applicant, that shall include: (i) Employment history and current role within the verification company e.g. CV (ii) Educational/ professional qualification certificates e.g. degree (iii) Evidence of verification/industrial experience and previous verification engagements e.g. Verification Reports signed off by applicant, references etc.

9. Full name(s) of applicant(s) seeking to be lead verifier(s)

Fill in the name(s) as in ID/passport.

10. Full name(s) of applicant(s) seeking to be independent reviewer(s)

Fill in the name(s) as in ID/passport.

Supporting documents submission

11. Supporting documents checklist

Please check off the documents that you have prepared to be submitted, and make sure that they are numbered and named as follows.

-Company registration certificate
-Supporting documents for organisation structure
-Supporting documents for lead verifier(s)
-Supporting documents for independent reviewer(s)

12. Upload of supporting documents

Please attach one single zip-folder containing all the applicable supporting documents (in pdf) as described above. The zip-folder must not be password protected.

Designated Contact Person

Competent Authority may contact the designated contact person for any clarification or to request for additional documentation as required.

13. Full name

14. Email

15. Job title

16. Contact number

Self-declaration

17. Declaration

I confirm that the information provided within this application is complete and accurate.

Annexure D Monitoring Plan Template

Data providers can draft a monitoring plan which is a detailed, complete and transparent document outlining the monitoring methodology of the facility. The monitoring plan should contain, but not be limited to, the following information:

- Description of the facility, its activities, emission sources and reporting boundaries.
- Description of the responsible people for the monitoring and reporting of emissions as well as the management processes in place to ensure the quality of the data.
- Description of the process for regular evaluation of the monitoring plan to ensure completeness of the emission sources and to allow for continuous improvement of the monitoring plan.
- A description of the data flow activities.
- A description of the control activities in place to manage the risk of misreporting the emissions.
- A list of all relevant GHG emissions sources, fossil fuels and intermediate products that are monitored to calculate emissions.
- A description of the monitoring methodology (approach) per emission source:
    - the calculation methodology applied,
    - a list of input / activity data,
    - calculation formulae used,
    - measurement (determination) of activity data, and
    - all relevant calculation factors.
- A description of the measurement systems used, their measurement range, quality assurance (calibration) and the location of the measuring instruments.
- The values used for calculation factors indicating the source of the factor, or the relevant source, from which the default factor will be retrieved periodically, for each of the emissions sources.
- Description of the data management processes, storage of data and information, location of where the data is stored and how it can be retrieved (if required).