



EU Emissions Trading Scheme Annual Verification Guidance Note

Version 1

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This document does not purport to be and should not be considered a legal interpretation of the provisions and requirements of the Directive 2003/87/EC of the European Parliament and of the Council.

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The first phase of the EU ETS is a “learning by doing” phase. As experience is gained in the process of annual verification the guidance contained in this note may be amended or expanded. The EPA welcomes comments on the content of this guidance note.

Comments should be sent to ghgpermit@epa.ie. Please mark your email ‘EU ETS Annual Verification Guidance’

Please note that hyperlinks contained in this document are correct at the time of issuing of the Guidance Note and are subject to change.

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1 Introduction

1.1 Purpose

This document sets out the Environmental Protection Agency's (henceforth the EPA) guidance on the requirements for annual verification for the EU Emissions Trading Scheme (EU ETS), in accordance with the European Communities (Greenhouse Gas Emissions Trading) Regulations 2004, S.I. No. 437 of 2004 (hereafter referred to as "the Regulations").

The above regulations require verification of the data and information in the Annual Installation Emissions Report for Emissions Trading (hereafter referred to as the Annual Installation Emissions Report), prior to the surrendering of allowances by each installation every year (commencing with verification of 2005 emissions). Annual Installation Emissions Reports specify the quantity of total carbon dioxide (CO₂) emitted from sources in an installation's Greenhouse Gas (GHG) Permit from 01 January (or for new sources from the date approved under the permit) through to 31 December each year. This number is referred to as the annual reportable emissions.

The purpose of verification is to ensure that the emission data in the Annual Installation Emissions Report prepared by operators are an accurate representation of carbon dioxide emissions monitored and reported in accordance with the approved monitoring and reporting proposals. Verification is an independent assessment of the monitoring and the calculations performed by operators to confirm that the data in Annual Installation Emissions Reports are reliable, free from material errors and can be used as the basis for the surrender of the correct number of allowances at the end of each reporting year.

Verification bodies are also required to ensure that monitoring has been performed in accordance with the installation's approved Monitoring and Reporting Proposal (M&R Proposal), the Commission Decision 2004/156/EC of January 29, 2004 establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council (M&R Decision) and any relevant conditions of the GHG Permit. Improvements in monitoring methods required to meet the M&R Proposal must be stated in verification opinion statements, and verification bodies are also required to recommend any improvements to achieve more accurate reporting in line with the M&R Decision (see further details in section 4.9.3).

The annual verification must be completed within sufficient time after 31 December each year to allow the operator to submit

- (i) *the verified Annual Installation Emissions Report,*
- (ii) *a signed copy of the verifier's recommendations for improvements in the M&R Proposal*

and

- (iii) *the verifier's final conclusions (i.e. the verification opinion statement),*

to the EPA by **31 March each year**, beginning in **March 2006**. The operator is required to enter the verified annual reportable emissions figure for the previous year into the Registry no later than 31 March. The operator must also ensure that the verifier has subsequently electronically approved this figure, again no later than 31 March. The operator then has until the 30 April each year to surrender allowances equal to the verified reported emissions.

1.2 Aim of this Guidance Note

This Guidance Note has been prepared to assist operators, verification bodies and verifiers responsible for preparing for and undertaking verifications for the EU ETS.

It contains useful advice for operators about:

- what annual verification entails;
- the EPA's interpretation of the requirements for annual verification as set down in S.I. No. 437 of 2004 and the M&R Decision;
- the roles and responsibilities of verifiers, the EPA and operators;
- where to find a list of accredited verifiers;

and

- the data and records that must be compiled and made available to the verifier in order for the verification to run smoothly.

For verification bodies and verifiers, it contains:

- the EPA's interpretation of the requirements for annual verification as set down in S.I. No. 437 of 2004 and the M&R Decision;
- guidance on the assessments and checks that verification bodies should undertake when performing verifications (in addition to Irish National Accreditation Board (INAB) requirements);
- reference to a verification opinion template that must be completed for each verification;

and

- advice on the matters that must be considered when developing and implementing a verification plan and performing annual verifications.

If you have any queries about this Guidance Note, please contact the Environmental Protection Agency by email at GHGPermit@epa.ie. Please mark your email 'EU ETS Annual Verification Guidance' and provide a brief description of your query.

1.3 Status

This Guidance Note provides guidance and interpretation of the legislation regarding verification for the EU ETS. Where appropriate, the guidance quotes the legal requirements in italics and then interprets the text, providing guidance to operators and verification bodies. This guidance note should be read in conjunction with the legal documents discussed in Section 2 and should not be seen as a substitute for them. In the event of any inconsistency the legal document will take precedence.

This Guidance Note focuses on the requirements for verification in the Irish context and what operators need to do to prepare for verification, and not on the accreditation process for verification bodies. Information on the accreditation process is available from INAB (www.inab.ie)

2 Background

2.1 The EU ETS Directive

The Directive establishes a scheme for greenhouse gas emissions allowance trading within the European Community (EC). The aim of the Scheme is to reduce greenhouse gas emissions ‘in a cost-effective and economically-efficient manner’. The main mechanism for doing this is through the allocation and trading of greenhouse gas emissions allowances¹ throughout the EC. Member states are required to develop and obtain Commission approval for national allocation plans. These plans set out how free allowances will be issued to installations during Phase 1 of the Scheme, and how the total number of allowances issued contributes to meeting the Kyoto Protocol and other reduction targets.

Installations are required to monitor and report greenhouse gas emissions during the year, commencing 01 January 2005 for existing installations, through to 31 December each year. The total emissions monitored in accordance with the rules of the Scheme for one calendar year are referred to as the annual reportable emissions. The annual reportable emissions figure must then be verified by an accredited verification body and the verified report submitted by 31 March of the following year. Once verified, the equivalent number of allowances must then be surrendered by 30 April each year, commencing in 2006.

The term “annual reportable emissions” refers to tonnes of carbon dioxide (CO₂) emitted from an installation during an annual period (from activities listed in Schedule 1 to the Regulations). Under Phase I of the EU ETS (from 2005 to 2007), annual reportable emissions do not yet refer to the other five greenhouse gases identified in Schedule 2 to the Regulations.

2.2 Ireland’s National Allocation Plan

Under the European Communities (Greenhouse Gas Emissions Trading) Regulations 2004 (S.I. 437 of 2004) the Board of the EPA has now adopted the National Allocation Methodology 2005–2007 (document IE-NAM-Final) which defines the basis on which allocations of greenhouse gas emission allowances to individual entities pursuant to S.I. 437 of 2004 must be made. This methodology has been accepted by the Commission as being in accordance with their Decision of 07 July 2004. For the period 2005-2007 the EPA has released a Final Allocation Decision based on the above methodology, which allocates the available allowances to qualifying installations.

2.3 Legislative requirements for verification

Requirements and guidance on annual verifications for the EU ETS are contained within:

- EU ETS Directive (2003/87/EC), Annex V.
- European Commission’s Guidelines for the Monitoring and Reporting of Greenhouse Gas Emissions (CEC Decision 2004/156/EC)² (M&R Decision) (see Appendix 4 of this guidance note for Section 7.4 of Annex 1 of the Decision).

¹ Allowance: Permission to emit to the atmosphere one tonne of carbon dioxide equivalent during a specified period issued for the purposes of Directive 2003/87/EC by the EPA or by a designated national competent authority of a Member State of the European Union.

² See: europa.eu.int/comm/environment/climat/emission.htm

- European Communities (Greenhouse Gas Emissions Trading) Regulations (2004) (see Appendix 3 of this guidance note for an extract of the Regulations relating to verification).
- Greenhouse Gas Emissions (GHG) Permit conditions.
- *EA Guidance For Recognition of Verification Bodies under EU ETS Directive (EA-6/03).*

This guidance note aims to collate these requirements and summarise them for ease of use, however if in doubt the relevant legislation should be consulted.

2.3.1 European Communities (Greenhouse Gas Emissions Trading) Regulations 2004

The European Communities (Greenhouse Gas Emissions Trading) Regulations (the Regulations) translate the EU ETS Directive requirements into Irish legislation. The Regulations are available at <http://www.epa.ie/Licensing/EmissionsTrading/UsefulLinks/>.

Regulations (6), (14), (15) and Schedule 5 relate to verification. Schedule 5 is contained in full in Appendix 3 of this Guidance Note.

Regulation 6(3)(f) states that a greenhouse gas emissions permit must contain an obligation to surrender allowances equal to the total emissions of the installation in each calendar year, commencing 01 January 2005, as verified in accordance with Article 15, within four months following the end of that year.

Regulation 14(1) requires the operator to monitor emissions in accordance with the principles set out in Schedule 4 to the Regulations and the requirements of the M&R Decision.

Regulation 14(3) requires the operator to ensure that the emissions report is verified in accordance with the criteria set out in Schedule 5, to the satisfaction of the EPA, and to provide a copy of the verification report to the EPA when submitting the emissions report.

Regulation 15 states that an operator whose report has not been verified or who has not submitted a verification report to the satisfaction of the EPA by 31 March each year, for emissions during the preceding year, cannot make further transfers of allowances until a report from that operator has been verified as satisfactory.

In summary, the verification criteria stated in Schedule 5 to the Regulations include

- general principles *viz*:
 - (i) that emissions are subject to verification;
 - (ii) that verification must address reliability, credibility and accuracy of monitoring systems and reported data and information relating to emissions (including activity data and related measurements and calculations, choice and employment of emission factors, calculations leading to determination of emissions and appropriateness of choice and employment of measuring methods);
 - (iii) that emissions may only be validated if reliable and credible data and information allow the emissions to be determined with a high degree of certainty (the operator shows that the reported data is free of inconsistencies, the collection of data is in accordance with the applicable scientific standards, and the relevant records are complete and consistent);
- and

- methodology, viz.:
 - (iv) strategic analysis;
 - (v) process analysis;
 - (vi) risk analysis;
 - (vii) reporting;and
 - (viii) minimum competency requirements for the verifier.

Appendix 3 of this guidance note contains the full text of Schedule 5 to the Regulations. Relevant parts of Schedule 5 are reproduced and then explained throughout this document.

2.3.2 Monitoring and Reporting Decision

The Commission's M&R Decision and GHG permit conditions provide further details about how annual verifications are to be performed. They also require verification bodies to be 'accredited'.

Accreditation of verification bodies for the EU ETS is carried out in Ireland by INAB in accordance with EN45011 and associated European co-operation for Accreditation (EA) Guidance documents EA-6/01 and EA-6/03. EA-6/03 (available from www.european-accreditation.org) provides guidance for recognition of Verification Bodies under the EU ETS. All verifiers working in Ireland must be accredited by INAB or another EA member accreditation body in accordance with EN45011 and the associated guidance documents. If an EA member other than INAB accredits a verifier, the verifier should contact INAB before completing work in Ireland to ensure knowledge of Ireland's interpretation of the Directive and the M&R Decision. For 2005 at least, INAB will witness one or more verifications by each verifier accredited by another EA member accreditation body, working in Ireland. (See also www.inab.ie).

2.3.3 GHG Permit Conditions

The Greenhouse Gas Emissions Permit authorises the holder to undertake named activities resulting in emissions of specified greenhouse gases from listed emission points. It also contains requirements that must be met in respect of such emissions, including monitoring, annual verification and reporting requirements.

The GHG Permit obliges the operator:

- To appoint an independent accredited verifier to verify annual emissions (Condition 3).
- To report verified emissions annually and enter this figure into the Registry no later than 31 March each year commencing 2006. To ensure that this figure is electronically approved by the verifier by the above date (Condition 3).
- To surrender allowances equal to the annual reportable emissions (Condition 4).
- To notify the EPA in writing of any amendments to the number and capacity of minor emission points listed in the Permit (Condition 1). Minor emissions, if present in the permit, will be detailed in Table 3 "Minor emission points". Minor emissions typically include fire pumps, canteen emissions, laboratory emissions and some emergency generators. The inclusion of an emission point in Table 3 does not necessarily have the same meaning as "minor sources" as defined in Annex 1, Section 4.2.2.1.4 of the Commission Decision 2004/156/EC. In all cases the monitoring and reporting tiers should be approved in writing with the EPA in accordance with Condition 3 of the permit.

- To notify the EPA of changes (alterations in the nature, function, capacity, fuels, range of activities) which may require updating of the GHG Permit (Condition 2).
- To notify the EPA of any of the following (see Condition 2 and Condition 3):
 - Any variation to the commencement date or capacities for New Entrants and Known Planned Developments;
 - cessation of all or part of the activity;
 - factors that may prevent compliance with the GHG Permit and
 - breakdown/malfunction of monitoring and recording equipment.
- To submit a M&R Proposal and updates as required (Condition 3).
- To put in place a Public Information Programme (Condition 3).
- To pay the appropriate excess penalty if sufficient allowances are not surrendered (Condition 5)
- In the event of the breakdown or malfunction of the equipment used to monitor or record the emissions of greenhouse gases or any other failure to comply with the monitoring and reporting methodology as approved under Condition 3.1, to put into place an interim monitoring and reporting methodology (to the highest tier achievable) and to inform the EPA in writing if a return to normal operations is not achieved within 24 hours.

The verifier is defined in the GHG Permit as; “A competent, independent, accredited verification body with responsibility for performing and reporting on the verification process, in accordance with detailed requirements established by the EPA pursuant to Schedule 5 to the Regulations and contracted by the operator for this purpose.”

Copies of all current GHG Permits issued are available at:
<http://www.epa.ie/Licensing/EmissionsTrading/ViewCurrentPermits/>.

3 Roles and responsibilities

3.1 General

The M&R Decision, in Section 7.4 of Annex 1, briefly outlines the roles and responsibilities of the operator, competent authority and verifier in the process of verification. It states:

‘The operator shall submit the emissions report, a copy of its permit for each of its installations, plus any other relevant information to the verifier. The verifier shall assess whether the monitoring methodology applied by the operator complies with the installation’s monitoring methodology as approved by the competent authority, the principles for monitoring and reporting presented in Section 3, and the guidelines laid down in this and subsequent Annexes. On the basis of this assessment the verifier shall conclude as to whether the data within the emissions report contains omissions, misrepresentations or errors that lead to material misstatement of the reported information.’

3.2 Operator responsibilities

Operators of installations in the EU ETS, in accordance with the requirements of the GHG Permit, have the following responsibilities with respect to annual verification:

- To monitor and report emissions in accordance with the M&R Proposal (and any amendments) approved by the EPA, the conditions in the GHG permit and any subsequent updates to the GHG Permit agreed with the EPA.
- Without prejudice to the M&R Proposal approved by the EPA, operators must comply with on-going obligations imposed by the M&R Decision, including (see Annex 1 - Section 4.2 of the M&R Decision) the obligation to propose changes to the M&R Proposal, when:
 - *Data availability has changed, allowing for higher accuracy in determination of emissions;*
 - *A previously non-existent emission is to be commenced;*
 - *The range of fuels detailed in the approved monitoring and reporting proposal has changed;*
 - *Errors have been detected in data resulting from the monitoring methodology; and,*
 - *The competent authority [the EPA] has requested a change.*
- To submit to the EPA a verified Annual Installation Emissions Report, in respect of each calendar year, no later than **31 March** of the following year, commencing with 31 March 2006 (a template for the Annual Installation Emissions Report will be made available on the EPA website). This should also include a signed copy of the verifier’s recommendations for improvements in the monitoring and reporting proposal and final conclusions (see also Section 3.3 of this document).
- To contract an **accredited** verification body to perform an annual verification. Where the verifier is accredited by an organisation other than INAB, the operator must ensure that the verifier is accredited to EN45011 and Guidance Document EA 6/03 with a European Accreditation (EA) member and has notified INAB that they wish to work in Ireland. The verifier must demonstrate to INAB that they are familiar with specific requirements in

Ireland. The verifier chosen by the facility must have the appropriate accreditation scope for annual verification of the type of activities at the site.

- **To commence the process early** to ensure that any errors can be corrected and monitoring methods amended where required.
- To provide all relevant documents and information to the verification body and the EPA where required (see Appendix 2 for suggested list of documents).
- To demonstrate QA and QC processes required under Annex 1 - Sections 7.1, 7.2 and 7.3 of the M&R Decision.
- To correct any errors, omissions or misstatements identified by the verifiers and produce a revised Annual Installation Emissions Report.
- To notify or apply to the EPA to make any changes to the M&R Proposal, in accordance with the requirements of Condition 3.2 of the GHG Permit, without undue delay, particularly if prompted to do so during verification.
- To notify the EPA of any non-compliance with the GHG Permit, identified by the verifier during the verification process.
- On submitting the Verification Opinion Statement and Annual Installation Emissions Report to the EPA, the operator may wish to comment on the recommended improvements (either to meet the M&R Proposal or to improve the accuracy of the monitoring) by the verifier.
- To make changes to the monitoring where it is not in compliance with the M&R Proposal.
- To make improvements to monitoring as required by the EPA through approved changes to the M&R Proposal.
- To enter the verified annual reportable emissions figure into the registry holding account for that installation, by 31 March and to ensure that this figure has been electronically approved by the verifier by 31 March.
- To surrender allowances, from each installation's Registry holding account, equal to the verified annual emissions figure.

3.3 Verification body responsibilities

The M&R Decision states that a 'verifier' means a *competent, independent, accredited verification body with responsibility for performing and reporting on the verification process, in accordance with the detailed requirements established by the Member State pursuant to Annex V of the Directive*.

The accredited verification body is typically made up of individual 'verifiers' and 'technical reviewers'. Verifiers range from 'lead verifiers' who plan, supervise and conduct verification work, to 'verifiers' who support verification activities at the site and assist with data/compliance checking. Technical reviewers check work papers and evidence to concur with the opinion reached by the verification team and sign off verification opinions as having been prepared in accordance with internal procedures and quality assurance measures. The size of the verification team depends on the size and complexity of the installation.

Verifiers working in Ireland must be accredited as described under Section 2.3.2 above.

Verification bodies and verifiers have the following responsibilities:

- To obtain accreditation, for the scope of activity required, from INAB or another accreditation service operating in accordance with the European Co-operation for Accreditation. Verifiers not accredited by INAB will need to notify INAB that they wish to work in Ireland and to satisfy INAB that they have adequate knowledge of specific requirements in Ireland. This approach will be reviewed at the end of 2005.
- To ensure that the verification is conducted by properly trained and competent staff.
- To perform the verification in accordance with the legislation and this Guidance Note.
- To prepare a Verification Opinion Statement, using the template from the EPA website, which:
 - Verifies that monitoring and reporting has been performed in accordance with the approved M&R Proposal, conditions of the GHG Permit and the M&R Decision.
 - Gives details of the annual emissions as verified including the verified annual emissions total and the combustion versus process emissions breakdown where required.
 - Verifies that the emissions report data, supporting calculations and relevant records etc. are free from material errors and misstatements.
 - Where appropriate, recommends improvements that are required for the installation to comply with the approved M&R Proposal and quality assurance requirements.
 - Where appropriate, recommends improvements that can be undertaken to improve the accuracy of the monitoring and reporting to enable the operator to move to a more accurate tier.
 - Where appropriate, makes recommendations for any other improvements such as reporting transparency, information system robustness, etc.
- To inform the operator and on-site personnel as soon as possible of any non-compliance with the GHG Permit detected during verification.
- To resolve any errors omissions or misstatements in consultation with the operator, where possible, prior to completing the verification opinion.
- To submit a Verification Opinion Statement to the operator and where the opinion statement is a qualified one, stating the reasons for this decision.
- To electronically approve the verified annual emissions total as entered by the operator in the installation's registry holding account provided that the verifier agrees with the annual emissions total reported.
- To provide such identification and accreditation documents as may be required to the Registry Administrator in order to allow them access as verifiers to the National Registry.
- To undertake any other roles and responsibilities required by accreditation.

Verification bodies are also reminded that they are liable for the opinions they issue and that in the event of an error, their clients may decide to take legal action.

Verification bodies are required to demonstrate that they are competent to perform verifications as described in Annex V of the Directive:

‘The verifier shall be independent of the operator, carry out his activities in a sound and objective professional manner, and understand:

- (a) the provisions of this directive, as well as relevant standards and guidance adopted by the Commission pursuant to Article 14(3);*
- (b) the legislative, regulatory, and administrative requirements relevant to the activities being verified; and*
- (c) the generation of all information related to each source of emissions in the installation, in particular relating to the collection, measurement, calculation and reporting of data’.*

The EPA has determined that competence can be demonstrated by verification bodies through the gaining of accreditation from INAB in accordance with EN45011 and associated European co-operation for Accreditation (EA) Guidance documents EA-6/01 and EA-6/03. (See also Section 2.3.2 above.)

3.4 EPA responsibilities

The M&R Decision states that *‘The total emissions figure for an installation in an emissions report that has been verified as satisfactory shall be used by the competent authority to check whether a sufficient number of allowances have been surrendered by the operator in respect of that same installation.’*

The EPA is responsible for checking that the verified annual reportable emissions figure is the same as the number of allowances surrendered each year by the operator of the installation. Any discrepancies will be handled in accordance with the provisions of Article 16 of the Regulations, including, but not limited to, the payment of penalties.

The EPA is also responsible for determining whether the M&R Proposals should be amended based on proposed changes submitted by the operator and/or based on recommendations for improvements in the Verification Opinion Statement from the verifier. In doing so they will consider any operator comments on the verifier’s recommendations, particularly those relating to technical feasibility and costs.

The EPA has powers to prosecute operators that do not comply with the requirements of the GHG permit conditions and the Regulations. The EPA also has other responsibilities under the Regulations such as the issuing and updating of GHG Permits and the enforcement of GHG Permit conditions.

Once accredited by INAB, verifier details will be placed on the INAB directory available from www.inab.ie. The EPA through the registry will maintain a list of verification bodies that are accredited by INAB and a list of verification bodies accredited by other EA members who have been recognized by INAB to undertake EU ETS annual verification work in Ireland. (EA members and contact details are available from www.european-accreditation.org.)

3.5 Irish National Accreditation Board (INAB) responsibilities

INAB is responsible for accrediting verification bodies to carry out verifications for the EU Emissions Trading Scheme.

INAB reviews the verification body's organisation structure and independence, procedures and practices. Once the body can satisfy the INAB requirements and has performed satisfactorily in accordance with the EA Guidance Document (EA-6/03) as a supplement to EN45011 the verification body will be granted accreditation. The assessment process for verification bodies includes a documentation review, pre-assessment, witnessed audits, assessment and an accreditation decision. INAB carry out surveillance checks on a yearly basis.

INAB also deals with any complaints relating to verification bodies and their operation. They have the power to require corrective action in the event of non-compliance and to withdraw accreditation if non-conformities are not resolved.

3.6 Commission responsibilities

The Commission leads the process to make changes to the EU ETS Directive and the M&R Decision. Further details about reviews of the M&R Decision and useful Question and Answer documents on monitoring and reporting are available from their website³.

³ See: http://europa.eu.int/comm/environment/climat/emission/mrg_en.htm

4 Annual verification requirements

4.1 Process

Detailed requirements for the verification process are provided in Annex V of the Directive, Schedule 5 to the Regulations, and the M&R Decision (especially in Annex 1 - Section 7.4). Annex 1 - Section 7.4 states as follows:

The verifier shall assess whether the monitoring methodology applied by the operator complies with the installation's monitoring methodology as approved by the competent authority, the principles for monitoring and reporting presented in Section 3, and the guidelines laid down in this and subsequent Annexes. On the basis of this assessment the verifier shall conclude as to whether the data within the emissions report contains omissions, misrepresentations or errors that lead to material misstatement of the reported information.

As part of the verification process, the verifier shall in particular:

- ***understand each activity** undertaken at the installation, the sources of emissions within the installation, the metering equipment used to monitor or measure activity data, the origin and application of emission factors and oxidation/conversion factors, and the environment in which the installation operates,*
- *understand the operator's data management system and overall organisation with respect to monitoring and reporting, and **obtain, analyse and check the data** contained within the data management system,*
- *establish an **acceptable materiality level** in the context of the nature and complexity of the installation's activities and sources,*
- ***analyse the data risks** which could lead to a material misstatement within the emissions report, based on the verifier's professional knowledge and the information submitted by the operator,*
- *draw up a **verification plan** which is **commensurate with this risk analysis and the scope and complexity** of the operator's activities and sources, and which defines the sampling methods to be used with respect to that operator's installations,*
- *carry out the **verification plan** by gathering data in accordance with the defined sampling methods, plus all relevant additional evidence, upon which the verifier's verification conclusion will be based,*
- *check that the application of the monitoring methodology specified in the permit has delivered **an accuracy level consistent with the defined tiers**,*
- *request the operator to provide any missing data or complete missing sections of audit trails, explain variations in the emissions data, or revise calculations, **before reaching a final verification conclusion.***

Throughout the verification process, the verifier shall determine misstatements by assessing whether:

- *the quality assurance and control processes described in 7.1, 7.2 and 7.3 of the M&R Decision have been implemented,*

- *there is clear and objective evidence obtained through the gathering of data to support the determination of misstatements.*

4.2 Timelines

Preparing for, and completing, the annual verification process involves several stages as outlined in Figure 1 below.

It is essential that the process is started early to ensure that the verified Annual Installation Emissions Report is submitted by the operator to the EPA, by 31 March of the following year.

The verification process must start during the year being assessed, rather than after that year has ended. Sufficient data must be available to initiate the process.

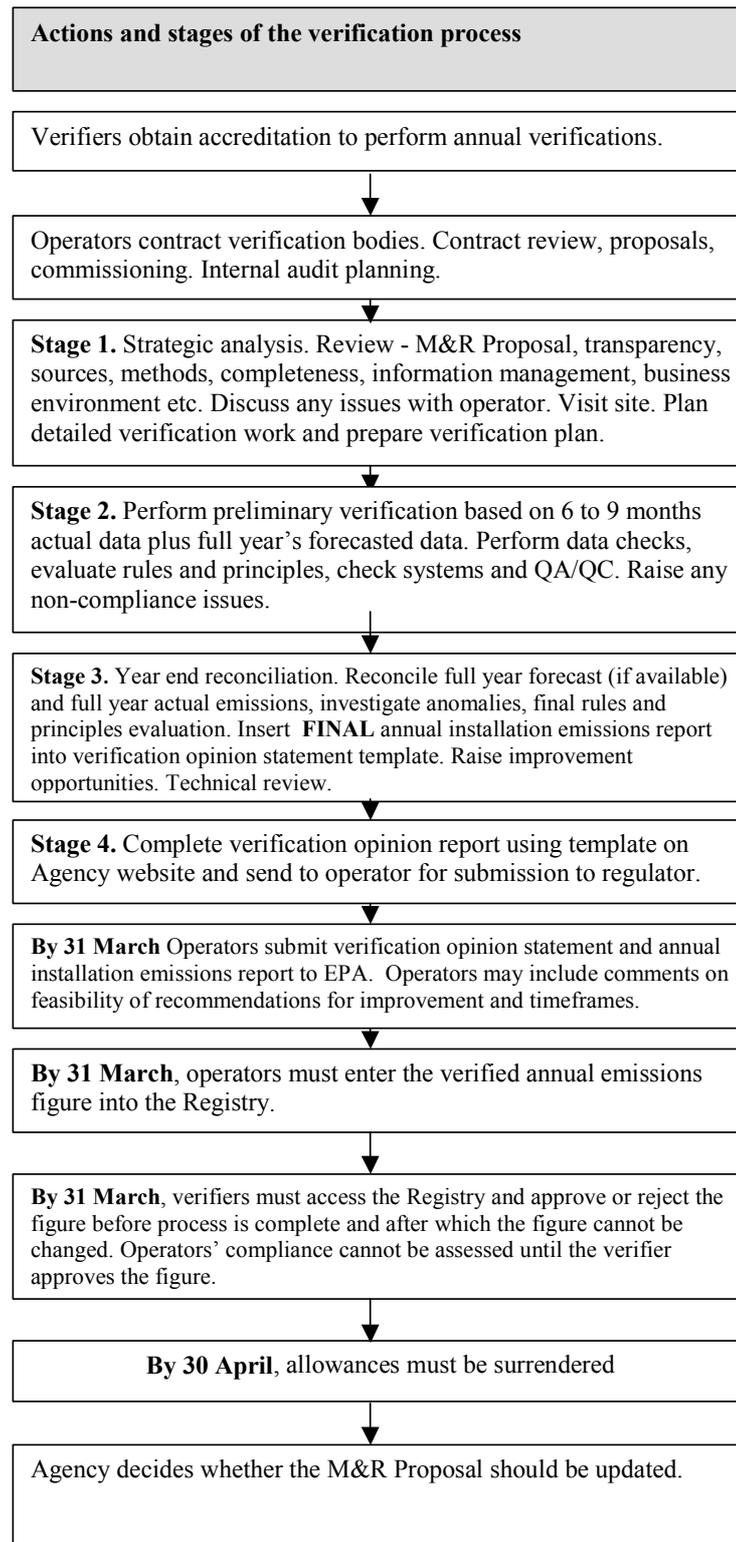
From the outset of the process where the verifier identifies any non-compliance with GHG Permit conditions or the Regulations, the operator must be informed immediately. It is the operator's responsibility to notify the EPA and obtain any necessary GHG Permit updates.

Once the verifier has been contracted by the installation, the formal verification process begins. Stage 1 involves the strategic review, site visit and development of the verification plan by the verifier. Stage 2 involves performing a preliminary verification of available data (6 to 9 months worth) to determine any potential issues of concern that may need to be resolved between the operator and the EPA. Stage 3 then involves checking the rest of the year's data and developing recommended improvement opportunities. A thorough technical review is also required before the Verification Opinion Statement is finalised. Stage 4 requires the verifier to submit the final Verification Opinion Statement to the operator.

This staged (or split) verification approach is endorsed by INAB as being the most practical methodology.

The operator must then send the verified Annual Installation Emissions Report (which comprises the Verification Opinion Statement and the Annual Installation Emissions Report) to the EPA by **31 March** each year. The operator must also submit comments relating to recommendations for improvements, or any qualifications on the opinion report to the EPA at the same time.

Figure 1: Flow chart showing the verification process.



4.3 Understanding activities

4.3.1 Scope of an installation

An installation as defined in the Regulations ‘means a stationary technical unit where one or more of the activities listed in Schedule 1 may be carried out on or after January 1, 2005 and any other directly associated activities which have a technical connection with the said activities on that site and which could have an effect on emissions and pollution, and references to an installation include references to part of an installation.’

Ireland uses the broadest definition for combustion installation in common with some other EU Member States. Combustion installation includes calciners, direct heaters, dryers, flares, thermal oxidisers, burners, ovens, furnaces and fire pumps.

The definition of combustion installation excludes hazardous or municipal waste incineration. On-site hazardous waste incinerators are therefore excluded from the scope of the installation. In some cases these incinerators are used for thermal oxidation of vapours but in order to avoid complicated tracking of when they are “hazardous waste incinerators” and when they rely on the support of fossil fuels for vapour incineration, the EPA decided they should be entirely excluded. However “incinerators” dedicated to vapour oxidation (thermal oxidisers) are included. Emissions from fossil fuels used in thermal oxidisers must be included in the annual reportable emissions figure for the installation.

The EPA’s interpretation of the capacity of an installation is the aggregate capacity of all individual technical units at a site which fall under the same sub-heading in Schedule 1 to the Emissions Trading Regulations (e.g. the sum of the capacity of all combustion units). In relation to combustion, if this aggregated sum exceeds 20 MW (including stand-by generation capacity), then the installation is subject to the requirements of the Emissions Trading Regulations (S.I. No. 437 of 2004).

The EPA has applied an aggregation rule for combustion installations on large, partly fragmented sites. Firstly an operators ‘main site’ is identified. This is a single site with one or more combustion units, which when added together exceed 20 MW thermal input capacity, and thus cause the installation to require a Greenhouse Gas Emissions Permit. In addition the following combustion sources are then also included as part of the permit:

- Any additional combustion plant within 100 meters closest proximity of the boundary of the main site under the same operator;
- and/or
- Any additional combustion plant with an aggregated rated thermal input capacity of 2 MW or greater which is within 500 meters closest proximity of the boundary of the main site under the same operator.

The Operator is responsible for correctly determining the scope of the installation and identifying the emission points and plant items that are required to be included within the GHG Permit.

Verifiers must check annually that the scope of the installation is in accordance with the Regulations and that monitoring and reporting on-site covers the emission sources specified in the GHG Permit and the M&R Proposal. Any discrepancies should be raised with the operator as soon as possible and the operator must notify the EPA in accordance with the requirements of the GHG Permit.

4.3.2 Other aspects of implementation:

Pooling is not allowed for in the Regulations. Article 4 of the Regulations also does not allow for the temporary exclusion of installations from the scheme pursuant to Article 27 of the Directive. In addition the Regulations do not allow for the inclusion of activities listed in Schedule 1 that are below the capacity limits.

A Known Planned Development (KPD) is an installation (or part of an installation) which has not commenced operations before 1 January 2004 but which has been granted a Greenhouse Gas Emissions Permit by 31 March 2004. The proposed date of commencement of a KPD is specified in Table 2 of the GHG Permit. Any variation in the date of commencement must be notified to the EPA in advance of the date specified in Table 2 of the GHG Permit. The operator is authorised to emit CO₂ from the KPD emission point(s) only from the date specified in the permit or from an alternative date agreed in writing with the EPA. Monitoring and reporting of emissions must start on the date of commencement of the KPD as specified in the permit or as agreed in writing with the EPA.

The commencement date of a KPD or of any other future emissions is the date when the permitted activity associated with the permitted emission point commences. There must be documented evidence, made available on-site to the EPA, to verify this date. For example in the case of a CHP plant the permitted activity is combustion. The date of commencement of a KPD associated with a CHP plant is the date from which combustion of fuel occurs in the boiler. Verifiers must check that the date of commencement is as outlined in the GHG Permit or a subsequent date as agreed with the EPA in written correspondence. Monitoring and reporting of emissions from that emission point must begin from the date of commencement.

4.3.3 Cessation of a permitted activity

In accordance with the requirements of Condition 2 of the GHG permit the operator should notify the EPA in writing of the cessation of all or part of the permitted activity within one month from the date of cessation. The operator will be required to comply with permit conditions and submit a verified Annual Installation Emissions Report no later than 31 March of the following year and surrender allowances equal to verified emissions and any additional allowances to cover any earlier calendar years, which remain outstanding.

4.3.4 Site visits

Schedule 5 to the Regulations states that, with respect to process analysis, the *'verification of the information submitted shall, where appropriate, be carried out on the site of the installation. The verifier shall use spot-checks to determine the reliability of the reported data and information'*.

Therefore verifiers will be required to visit each installation as part of the annual verification process and in order to prepare a verification opinion statement. For offshore installations this requirement may be reconsidered by the EPA after submission of their first verified Annual Installation Emissions Report.

Visiting a sample of installations within a company, within the same industrial sector, or for another reason is not adequate to ensure the accurate verification of emissions data.

Site visits are assumed to mean:

- sampling at the site of an installation to audit compliance with the approved monitoring and reporting proposal and with the M&R decision and to verify the scope of the installation;

- sampling at an installation's head or regional office may be required in addition to the above if this is where the emissions data is held or processed; and
- sampling at any other location (e.g. suppliers' facilities) where data verification work may be necessary.

It is not adequate to visit only an installation's head or regional office.

4.3.5 Calibration and Assessment of Meters

Annex 1 - Section 7.2 of the M&R Decision states that *'the operator shall ensure that relevant metering equipment is calibrated, adjusted and checked at regular intervals including prior to use, and checked against measurement standards traceable to international measurement standards. In addition the operator shall assess and record the validity of the previous measuring results when the equipment is found not to conform to requirements. When the equipment is found not to conform to requirements the operator shall promptly take necessary remedial action. Records of the results of calibration and authentication shall be retained.'*

All meters must be installed, operated, calibrated and maintained in accordance with manufacturers' guidance and relevant ISO or National Standards where available. Operators must ensure that relevant meters are calibrated, adjusted and checked at regular intervals including prior to use, and checked against measurement standards traceable to international measurement standards. Copies of calibration and maintenance records for all meters used in the measurement of CO₂ emissions on-site, including third party meters are required to be maintained on-site for checking by the EPA and the verifier. A copy of the manufacturers' guidance on the meter and relevant standards must also be made available on-site to the EPA and the verifier. Ancillary equipment, such as temperature and pressure sensors have also to be installed, operated, calibrated and maintained in accordance with the manufacturer's guidance and relevant standards. Necessary documentation must be available on-site to verify this. Verifiers must also check that the correct factors have been used by operators to perform checks and adjustments. For example, they must check that consistent standard temperature and pressure factors have been used and are consistent with any calculations for adjustments.

A record should be completed by a competent person (a member of staff or an outside contractor) and signed off by the operator for each meter (and associated ancillary equipment) listed in the agreed M&R proposal. This record should be made available to the verifier and the EPA. The record, as a minimum should include the following detail for each meter (and associated ancillary equipment):

- (a) Type of meter;
- (b) Unique identification of the metering device;
- (c) Location of the meter;
- (d) Range and units;
- (e) Date last calibrated;
- (f) Details of calibration, to what standard and by whom;
- (g) Maintenance details and frequency of maintenance;
- (h) Details of replacement of the meter or any of its component parts.

- (i) Confirmation that the meter was installed in accordance with the manufacturer's guidelines (e.g. adequate straight pipe work upstream and downstream of the meter, meter in the appropriate plane (horizontal or vertical), etc.)
- (j) Confirmation that the meter is being operated in the appropriate environment for that meter (temperature, pressure, moisture, gas/liquid quality);
- (k) Confirmation that the flow measured by the meter is within the design range and calibration range for the meter.

Where a verifier determines that the meters are not installed, operated, calibrated or maintained in accordance with the manufacturer's guidance, relevant standards and the M&R Decision requirements this should be noted in the verification report, with details on recommendations for improvements. The verifier should consider whether an unverified opinion should be issued if the lack of meter assessment and calibration or inadequate installation and maintenance is likely to lead to material misstatement.

4.3.6 Non-Compliance with the M&R Proposal

Note: *This section also covers equipment failure.*

The following conditions of the permit deal with non-compliance with the M&R proposal:

- *The Operator shall notify the EPA in writing within three days of becoming aware of any factors which may prevent compliance with the conditions of this permit.*
- *In the event of the breakdown or malfunction of the equipment used to monitor or record the emissions of greenhouse gases or any other failure to comply with the monitoring and reporting methodology as approved under Condition 3.1, the Operator shall put into place an interim monitoring and reporting methodology (to the highest tier achievable) and inform the EPA in writing if a return to normal operations is not achieved within 24 hours. This notification shall be made within three days of commencement of the breakdown or malfunction or failure to comply with the monitoring and reporting methodology and shall include details of the interim monitoring and reporting methodology and shall explain the measures which have been or which will be taken to enable a prompt restoration of compliance. Any use of alternative equipment, other than in emergency situations, shall be agreed in writing with the EPA prior to use.*
- *A record of all non-compliances with the approved monitoring and reporting proposal, including non-compliances lasting less than 24 hours, shall be maintained on-site and shall be available on-site for inspection by authorised persons of the EPA and/or by the Verifier at all reasonable times.*

The operator must comply with the above requirements in relation to failure of equipment used to monitor and record emissions and other non-compliances with the M&R proposal.

The verifier must check for any relevant equipment failures or other non-compliances with the approved M&R proposal when on site and assess whether or not the operator complied with the requirements of the above conditions. Where the EPA has not been notified of any of the above and/or has not approved changes to the M&R proposal and/or the changes would lead to a material misstatement, then an unverified opinion report should be issued with a clear description of the reasons, unless the change can be approved by the EPA prior to the issuing of the verification report.

4.3.7 Metering point locations

Where metering points, agreed by the EPA in an installation's M&R Proposal, are not in full compliance with the details supplied in the M&R Proposal (e.g. for intermediate fuel storage, discrepancies between purchase and consumption meters), the verification body must request that the operator reconciles such issues with the EPA in writing.

The location of metering points may influence the emissions reported. Where any discrepancy with the M&R Proposal, relating to metering point location, has not been agreed with the EPA and it leads to a material misstatement, an unverified opinion report should be issued. If such a discrepancy is unlikely to lead to a material misstatement, then a verified opinion report can be issued with comments clearly explaining the discrepancies.

4.3.8 Use of gas invoices

When a Class A or B⁴ installation, burning natural gas, uses invoice data (fuel volume and energy content), there should be relatively high confidence in the emissions data. Typically bills are in gross calorific value (GCV) and must be converted to net calorific value (NCV) prior to calculation of CO₂ emissions. The invoices should refer to a meter number. The verifier must check meter tag identification and location. Copies of calibration and maintenance records for such meters must be maintained on site by the operator and should be checked by the verifier. The maximum permissible uncertainty of the metering process, as supplied by Bord Gáis, should be stated in the monitoring and reporting proposal. Verifiers must also check that the accuracy of the metering equipment is numerically smaller than the uncertainty thresholds of the M&R Decision tiers that an installation is permitted against. This has been reviewed by the EPA and verifiers are expected to audit calibration records etc. to confirm that the stated accuracies are valid.

4.3.9 Emission factors, net calorific values, oxidation factors and conversions

The type of emission factors, calorific values and oxidation factors used to calculate CO₂ emissions are specified in the installation's M&R Proposal. They range from the more accurate factors (site specific factors obtained through relevant fuel and/or material analysis in accredited laboratories) to default factors such as those in the latest National GHG Inventory submitted to the UNFCCC or those in the IPCC *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*⁵. Verifiers must check that the emission factors used in the calculations are the ones specified in the M&R Proposal and any subsequent discussions or clarification between the operator and the EPA, including any GHG Permit or monitoring and reporting proposal updates.

Where default country specific emission factors and calorific values are required to be used (typically tier 2 or tier 2a) these should be consistent with the emission factors and calorific values in the latest National GHG Inventory submitted to the Secretariat of the United Nations Framework Convention on Climate Change. A table of emission factors and calorific values, relevant for EU ETS reporting, will be available on the EPA website:

<http://www.epa.ie/Licensing/EmissionsTrading/>

Emission factors and calorific values will be periodically updated as new GHG Inventories are submitted to the UNFCCC every year and corresponding changes will need to be implemented in the annual reporting cycle. Operators should be aware that national average default factors are subject to these annual changes and regularly check the EPA website for updates.

⁴ Class A installation: total annual emissions ≤ 50 ktonnes

Class B installation: 50 ktonnes < total annual emissions ≤ 500 ktonnes

⁵ See: www.ipcc.ch/pub/guide.htm

Details on oxidation factors are also required in the M&R proposal. The oxidation factor will be either a default factor as contained in the M&R Guidelines or a site-specific oxidation factor calculated through accredited analysis of carbon in ash. Again, verifiers must check that the right oxidation factor has been used in accordance with the M&R Proposal.

Operators must ensure that appropriate conversion factors (e.g. kWh to MJ) are used to allow data reporting in accordance with the M&R Decision. Fuel and material volumes, where reported, must be normalised to standard temperature and pressure (273 degrees Kelvin, 101.3 kPa.) Verifiers must check that conversion factors and normalisation factors have been correctly employed.

Where a verifier considers that more accurate emission factors, calorific values, conversion factors, and oxidation factors could technically be used by the installation to move to a higher monitoring tier, these should be recommended as potential improvements in the Verification Opinion Statement (see Section 4.9.2).

4.4 Data management systems

Verifiers should check that the operator's data management system enables transparent reporting and ensures ease of verification. Effective data management with accessible data and records will streamline the process, reduce verification time and minimise costs. Good data management means that the verifier can be more confident in the quality of the data being checked, and this may influence the data sampling strategies and the verification plan.

4.4.1 Quality Assurance

Verification bodies must check that installations are maintaining adequate quality assurance systems to comply with the M&R Decision (Annex 1 - Sections 6 and 7). It is a requirement of the M&R Decision to establish, document, implement and maintain an effective data management system. Data management quality assurance and quality control procedures must be implemented. As part of the M&R Proposals outline details on data management systems and procedures were submitted and agreed with the EPA. The verification bodies are required to check the implementation of such systems and procedures.

4.4.2 Data Retention

Operators need to be aware that the M&R Decision (Annex 1 - Section 6) requires operators to retain data, calculations, and related specified information for at least ten years after the submission of emission reports. This is also a requirement of the GHG Permit.

Verification bodies should also retain parallel documentation records for ten years (including working papers).

Similar requirements apply to documentation and results of laboratory determinations used by installations to determine emissions data and factors (such as net calorific values and emission factors for fuels, activity specific oxidation factors, process emission factors and composition data, calibration procedures (reporting dates, certificates and data), and the biomass fraction).

4.5 Materiality

Materiality is defined as follows in the M&R Decision: *'means the professional judgement of the verifier as to whether an individual or aggregation of omissions, misrepresentations or errors that affects the information reported for an installation will reasonably influence the intended users' decision. As a broad guide, a verifier will tend to class a misstatement in the total emissions figure as being material if it leads to aggregate omissions, misrepresentations or errors in the total emissions figure being greater than 5%'*. The Commission's document "Questions and Answers on

Monitoring and Reporting for the EU ETS” states that *‘the level of materiality has to be established by the verifier on a case-by-case basis. Depending on the circumstances, a level of misstatement above 1% of annual emissions of an installation could qualify as material’*.

The M&R Decision states that: *‘The verifier shall assess the materiality both of any individual misstatement and of the aggregate of uncorrected misstatements, taking into account any omission, misrepresentation or error that that could lead to misstatement, for example a data management system that produces non-transparent, biased or inconsistent figures. The level of assurance shall be commensurate with the materiality threshold determined for that installation’*.

Materiality is a monitoring and reporting principle: *‘An emission report and related disclosures shall be free from material misstatement, avoid bias in the selection and presentation of information, and provide a credible and balanced account of an installations emissions’*.

Further guidance on materiality is available in the EA Guidance Note EA 6/03.

4.6 Developing and implementing a verification plan

In accordance with the M&R Decision (Annex 1 - Section 7.4) Verification bodies are required to *draw up a **verification plan** which is **commensurate with this risk analysis and the scope and complexity** of the operator's activities and sources, and which **defines the sampling methods** to be used with respect to that operator's installations.*

More detailed information about how verification plans should be developed by verifiers is contained within the EA Guidance (EA-6/03). However some of the issues that the EPA considers must be taken into account in developing the verification plan are outlined below.

4.6.1 Scope and complexity

The verifier must take into account the scale, number and complexity of the emissions from the site when determining the checks that need to be performed for the verification.

In smaller installations with fewer emissions, the verifier may need to check fewer records, and provided all the records have been presented to the verifier, the process should be faster than for larger, more complex installations. However, where records are not available or are incomplete, verification for small installations may be more time consuming than it otherwise needs to be. This emphasises the need for operators to have all the relevant documents and data ready for the verification (see Appendix 3).

Any material errors or misstatements in the emissions data submitted by Class C⁶ installations (emitting > 500,000 tonnes CO₂ per annum) potentially have very significant impacts on the number of allowances they surrender each year. Therefore verifiers should tailor their plans to ensure errors or omissions in data from such installations are discovered and corrected where possible. Material misstatements in data for smaller installations could have a significant impact on a small business itself where any errors may increase the number of allowances they need to purchase, or incorrectly provide them with more allowances to trade. Therefore an appropriate degree of rigour is required for both small and large installations, taking into account their scope and complexity.

The scope, depth and breadth of verification work undertaken should be planned to reduce risk and uncertainty arising in the emissions data. It must be recognised that ‘reasonable’ level assurance requires significant effort (efficient, effective processes) in order to demonstrate that the emissions have been determined with a high degree of certainty (as required in Schedule 5 to the Regulations).

⁶ Class C installation: total annual emissions > 500 ktonnes

4.6.2 Sampling

Grouping of installations and then sampling the records from some of them in order to verify the emissions data for all of the installations is **not allowed** for annual verifications in the M&R Decision. Each installation's Annual Installation Emissions Report and Monitoring and Reporting Proposal compliance must be verified on its own merits.

There are two main types of sampling that are allowed, and these are discussed below.

Sampling of data within an installation

Data sampling strategies may be used to reduce the resources required for verification at an installation provided that the sample is representative and conforms to all legislative requirements, including the principles of verification of the EU ETS Directive and M&R Decision.

The adoption of any data sampling strategy to verify the accuracy of the emissions data for that installation requires prior assessment of the evidence as a whole to ensure that the data sampling will meet the principles of the M&R Decision for 'completeness', 'consistency' and 'transparency'. This will also allow an assessment of 'faithfulness'. Assessments should be made at the contract review stage (stage 1 in Figure 1), and again at the strategic review and subsequent verification stages (stages 2, 3 and 4 in Figure 1) as necessary.

Where a data sampling strategy has been adopted (in the course of verifying accuracy and materiality) and problems are revealed with the other monitoring and reporting principles within the sample selected, then the whole data set must be re-examined to ensure that the sample is properly representative of the requirements.

Fuel, ash and process material sampling

Annex 1 - Section 10 of the M&R Decision specifies general requirements for representative sampling of process materials, fuels and ash for the calculation of CO₂ emissions. Where the M&R proposal details sampling requirements the verifier should check that these have been followed correctly. In some circumstances, the M&R Proposals agreed by the EPA may not fully specify the requirements for representative sampling. The operator is required to provide evidence to the verifier and the EPA that representative data sampling is carried out (e.g. correctly defining a batch of the material in question and sampling in accordance with relevant ISO standards). If the verifier believes that the above process has not been adequate an installation may need to obtain written clarification from the EPA with respect to representative sampling requirements, or if less urgent, the matter may be raised by the verifier in an improvement plan relating to the monitoring methodology adopted.

In the second and subsequent verifications, the findings from previous verifications may be taken into consideration in order to increase or decrease the level of verification effort afforded to individual sources or data or the system.

4.7 Application of the monitoring methodology

4.7.1 Monitoring methodologies

Verifiers should note that the monitoring methodology for an installation, for all emission sources including *de-minimis* sources, is detailed in the M&R Proposal and subject to approval by the EPA. The methodology in the approved proposal must be used for verification purposes, whether or not it is the same as for a similar installation. The verifier must also refer to all correspondence between the EPA and the operator relating to the M&R Proposal. The operator has to ensure that the most recent version of the M&R Proposal, as approved by the EPA, is available on-site for verification.

The verifier should confirm with the operator that the most recent version of the M&R Proposal, as approved by the EPA, has been made available.

Process emissions data calculations and measurements vary by industrial sector. Specific requirements for each installation will be included in the M&R Proposal based on the Annexes in the M&R Decision.

The M&R Proposal is required to identify all relevant CO₂ emission sources, in addition to the location and identity of relevant measuring equipment, reporting tiers etc. The verifier must check that all emission sources included in the permit are included in the M&R Proposal. If additional sources are identified that are not in the permit the verifier should inform the operator upon discovery. It is the operator's responsibility to notify the EPA of such emission sources.

If the verifier considers that monitoring has not been undertaken in accordance with the M&R proposal then they should raise this with the operator as soon as the non-compliance is identified. The operator must then either change the monitoring to come into line with the M&R Proposal requirements, or seek approval from the EPA for changes through Condition 3 of the GHG Permit.

The verifier must check on-site for any relevant equipment failures or other non-compliances with the M&R proposal and assess whether or not the operator complied with the requirements of Condition 3 of the permit. Where the EPA has not been notified of any of the above and/or has not approved changes to the M&R proposal and/or the changes would lead to a material misstatement, then an unverified opinion Statement should be issued with a clear description of the reasons, unless the change can be approved by the EPA prior to the issuing of the verification Statement.

If the verifier believes that an approved M&R Proposal is incorrect or inadequate in terms of the requirements of the M&R Decision (e.g. emission sources or fuels omitted), the operator should be advised. This should also be reported in the Verification Opinion Statement under recommendations for improvements. It is the operator's responsibility to then inform the EPA on such matters (in accordance with the GHG Permit conditions) and for the EPA to decide whether to then require the improvement through an updated M&R Proposal.

4.7.2 Laboratory accreditation

Top tier monitoring by Class C installations and Class B installations for solid fuels requires analysis of samples, to determine emission factor, carbon content, calorific value and oxidation factor in some cases, by EN ISO 17025 accredited laboratories. Where the analysis is carried out by accredited laboratories, the verifiers will need to check that accreditation has been granted for the specific methods used and that the analytical methods are in accordance with the M&R Proposal and Decision.

Where Class C installations were not able to fulfil the top tier requirements, due to the need to have accredited analysis carried out, the EPA may have approved use of a lower tier on a temporary basis. In such cases the operators have been required to ensure all the criteria of Annex 1 - Section 10 of the M&R Decision are met including accredited analysis by the fourth quarter of 2005 or the first quarter of 2006 depending on the size and complexity of the installation. As soon as ISO 17025 accredited data is available this should be used in the calculation of emissions. Prior to that date the lower tier methodology agreed with the EPA is to be applied.

The following applies to natural gas on-line systems supplying continuously monitored data on calorific value and carbon content for top tier sites: Performance evaluation of Natural Gas on-line systems must be evaluated in accordance with ISO 10723 (Natural gas-Performance evaluation for on-line analytical systems). A laboratory accredited to EN ISO 17025 should conduct performance evaluation. Certified reference materials, supplied by an EN ISO 17025 accredited laboratory must be used for calibration. Where on-line systems do not generate data on the carbon content of the gas, batch sampling and analysis of gas in accordance with all of the requirements of Annex 1 -

Section 10 of the M&R Decision must be conducted, from a future date to be agreed with the EPA, in order to determine the emission factor.

Where a verifier considers that an installation can and should move to a higher tier, such as obtaining ISO accreditation for its laboratories and using more accurate on-site analysis, this should be listed in the Verification Opinion Statement as a 'recommended improvement'.

4.7.3 Uncertainty

The M&R Decision requires only that the operator demonstrate that the accuracy of his calculation or measurement of the annual emission value is better than what is prescribed by the applicable tier level. This can usually be done on the basis of conservative estimates rather than through a full uncertainty calculation. Annex 1 - Section 4.3.1 of the M&R Decision states that '*further to uncertainties being covered by approval of the monitoring methodology (the M&R Plan) the operator via the quality assurance and control process, shall manage and reduce the remaining uncertainties of the emissions data in his emissions report. During the verification process, the verifier shall check the correct application of the approved monitoring methodology and shall assess management and reduction of remaining uncertainties via the operators quality assurance and control procedures.*'

Uncertainty in the monitoring methods has largely been taken into account when the EPA accepts the monitoring tier into which the installation falls. For Class C installations, which use non-fiscal meters to determine annual fuel or material consumption, the EPA has requested an uncertainty assessment. Some studies have been completed and submitted to the EPA, others are due to be completed in 2005. The aim of the assessment is to demonstrate compliance with top tier maximum permissible uncertainty values for the metering process (including stocktaking) for fuel purchase metering.

All sites must ensure that metering equipment is installed, operated, calibrated and maintained in accordance with the manufacturer's guidance and relevant standards where available. This must be demonstrated to, and assessed by, the verifier. However, as a minimum requirement for all sites, operators must specify, and verifiers must check, that the accuracy of their metering equipment is numerically smaller than the uncertainty thresholds of the M&R Decision tiers applied in the M&R proposal. Where fuel or material purchase metering is applied, procedures should be in place on-site to determine opening and closing stocks each year. Where the stock take does not take place on the 01 January a procedure should be in place to record stock movement from the date of stock take to the 01 January. Where stock takes are done in-house an independent competent person must witness them. A competent person must complete stock takes performed by an external company. The verifier should check that stock takes are done in accordance with relevant procedures and recommend improvements in procedures where necessary.

4.8 Revising calculations

The M&R Decision states as follows: *At the end of the verification process, the verifier shall make a judgment with respect to whether the emissions report contains any material misstatement. If the verifier concludes that the emissions report does not contain any material misstatement, the operator can submit the emissions report to the competent authority in accordance with Article 14 (3) of the Directive. If the verifier concludes that the emissions report contains a material misstatement, the operator's report has not been verified as satisfactory. In accordance with Article 15 of the Directive, Member States shall ensure that an operator whose report has not been verified as satisfactory by 31 March each year for emissions during the preceding year cannot make further transfers of allowances until a report from that operator has been verified as satisfactory. Member States shall lay down applicable penalties in accordance with Article 16 of the Directive.*

4.8.1 Errors

Verifiers should follow the following stages when checking for and dealing with errors:

- a. Verify data sets and raw data as determined by the verification sampling plan.
- b. If errors, omissions or misstatements are found, the operator should correct them.
- c. When errors, omissions and misstatements are found and have been corrected, take another set of data samples (normally bigger than the previous data sampling set) to see if errors, omissions and misstatements re-occur or may be deemed, based on data sampling, not to re-occur in the rest of the data set.
- d. If errors, misstatements or omissions re-occur, the operator should check the whole data set and provide evidence of checking and any corrections made to the verifier. When the operator's checking is complete and confirmed by the verifier, the verifier should take another set of data samples to check and see if the errors, omissions and misstatements re-occur or may be deemed (based on sampling) not to re-occur in the rest of the data set.
- e. Verifiers must then make a decision about what they believe is the potential for unidentified material misstatement throughout the data stream being tested.
- f. Steps a. to e. should then be repeated for all data streams.

If the verifier identifies errors, they should be corrected by the operator and recorded in the verifier's issues log/audit findings. If the verifier detects an error in the reported data, but cannot determine whether it results in an over- or under-declaration of emissions, the verifier should consider whether it constitutes or contributes to a material error for (a) that source and (b) the Annual Installation Emissions Report. This should be commented on in the Verification Opinion Statement.

4.8.2 Missing data

Where data is missing, the operator should seek approval from the EPA on alternative methods of monitoring emissions (e.g. when a fiscal gas meter fails for a period). Any agreements on the use of alternative methods of monitoring data must then be checked by the verifier as having been followed correctly.

If the EPA has accepted that a certain element of the monitoring proposal could not be met during the year, then this can be taken into account in the verification, and a 'Verified Opinion Statement' issued, noting as a comment that while the monitoring is not in accordance with the M&R Proposal this has been accepted by the EPA.

4.8.3 Unverifiable annual emissions figure

If an installation's annual emissions figure cannot be verified, the verification body should inform the operator as soon as possible, with reasons why. If the reasons are because of errors in the data, the verifier should work with the operator to correct them where possible. If the reason is because of non-compliance with the M&R Proposal or M&R Decision the operator should make the necessary changes to the monitoring methodology and seek approval for changes from the EPA, prior to finalising the revised Annual Installation Emissions Report and having it verified.

If, despite the actions of the operator to correct any errors or monitoring methods, the emissions figure is still unverifiable (for example the data contains material misstatement because errors could

not be properly corrected), or there is significant non-compliance with the M&R Plan, or there is missing data that could not be accurately estimated, then it must be reported as ‘not verified’ see Section 4.9 below and an ‘unverified’ or ‘not verified’ opinion statement must be issued.

4.9 Reporting

The following 2 sub-conditions, of Condition 3 of the permit, deal with the requirements for annual reporting:

- *The operator shall appoint a Verifier to ensure that, before their submission, the reports required by condition 3.5 below are verified in accordance with the criteria set out in Schedule 5 of the Regulations and any more detailed requirements of the Agency.*
- *The verified annual reportable emissions in respect of each calendar year, commencing 2005 shall be reported to the Agency by the operator no later than 31 March of the following year. The report shall be in the format required by the Agency. The operator shall submit a signed copy of the Verifier’s recommendations for improvement in the monitoring and reporting plan and the Verifier’s final conclusions at the same time as submitting the verified report.*

The report described above in the permit conditions will be referred to as the Annual Installation Emissions Report. This report must be prepared by the operator as provided for in Schedule 4 to the Regulations, Annex 1 - Section 5 of the Commission Decision on Monitoring and Reporting and Condition 3 of the GHG Permit. The EPA intends to develop a template for this report which will be available on the EPA’s website. As required by the permit conditions above, the Annual Installation Emissions Report must be verified by the verification body and attached to the verification Statement for submission to the EPA.

According to the EA Guidance 6/03, there are three types of ‘reports’ prepared by the verifier.

- The internal verification process report from the verification GHG lead auditor,
- The verification report as provided for in Schedule 5 (11) to the Regulations, and
- The Verification Opinion Statement as provided for in Schedule 5 (11) to the Regulations.

The EPA will also make available on the website a template for the Verification Opinion Statement which incorporates the verification report and verification opinion statement detailed above and the verifiers recommendations for improvements in the monitoring and reporting plan and final conclusions. This is deemed to constitute the verification report required under the Regulations and by the permit and will incorporate all of the above requirements.

4.9.1 Annual Installation Emissions Report

Details of the information to be reported by the operator and the specified report format are provided in the M&R Decision. A template for the Annual Installation Emissions Report will be developed by the EPA and placed on the EPA web site. Once the Annual Installation Emissions Report (AIER) is final and has been verified, the verifier must copy the Verification Opinion Statement (VOS) into the AIER at the indicated worksheet tab. The complete workbook file must then be provided to the operator in a ‘read-only’ electronic format (Microsoft Excel file). The operator should then forward the verified Annual Installation Emissions Report complete with the Verification Opinion Statement to the EPA as one electronic file. The verifier must print off a copy of the entire workbook and stamp and sign each page of the VOS including the recommendations for improvement. This hard copy must be forwarded to the operator. The operator must complete the Declaration in Section A3.5 prior to submitting the **original** and **two copies** to the EPA. Hard

copies and electronic copies of the combined AIER and VOS must be received by the EPA in Dublin no later than **31 March**, commencing 31 March 2006.

4.9.2 Verification Opinion Statement

Schedule 5 to the Regulations states: *The verifier shall prepare a report on the validation process stating whether the report pursuant to Article 14(2) is satisfactory. This report shall specify all issues relevant to the work carried out. A statement that the report pursuant to Article 14(2) is satisfactory may be made if, in the opinion of the verifier, the total emissions are not materially misstated.*

The M&R Decision states ‘*At the end of the verification process, the verifier shall make a judgment with respect to **whether the emissions report contains any material misstatement.** If the verifier concludes that the emissions report **does not** contain any material misstatement, **the operator can submit the emissions report to the competent authority** in accordance with Article 14 (3) of the Directive. If the verifier concludes that the emissions report **contains a material misstatement**, the operator's report **has not been verified as satisfactory**’.*

The EPA will develop, as a template, a list of matters that must be included in a verification opinion as a minimum. This will be available to download from the EPA web site. All verifiers preparing verification opinions for Irish operator clients must use this standard format.

The template will indicate that a verifier must specifically note if;

- (a) the operator is in compliance with the rules of the Scheme and GHG permit conditions;
- (b) the emissions data has been reported in compliance with the general reporting principles and the M&R Proposal; and
- (c) the emissions’ data has been satisfactorily verified.

The wording of the Directive and the Regulations require a positive opinion i.e. “*emissions are not materially misstated*”. Therefore the verifier must put significant effort into ensuring that nothing has come to the verifier’s attention that would indicate that data is misstated and that adequate checks have been conducted by the verifier to reach a positive conclusion.

There are potentially three types of Verification Opinion Statement that may be issued. These are described as follows:

- A **Verified Opinion Statement** is issued. The verifier is satisfied that there are no material errors in the annual reportable emissions figure and that monitoring and reporting has been carried out in accordance with the M&R Proposal, the M&R Decision and the GHG Permit.
- A **Verified Opinion Statement with comments** is issued. The verifier considers that there are some minor non-compliances, with the M&R Proposal, or inconsistencies with the reporting principles or the M&R Decision that should be addressed by the operator as soon as possible. The minor non-compliances or inconsistencies, however, have not caused a material error and therefore the annual emissions data can be verified. For example change out of a fiscal meter, additional biomass fuels not reported to the EPA, or a lack of transparency may cause difficulty with the verification process, but with greater effort, the verifier may still be able to determine the emissions within adequate materiality thresholds. Improvements to comply with the M&R Proposal and M&R Decision must be noted in the Verification Opinion Statement and should then be implemented by the operator within a timeframe to be agreed with the EPA.

- The annual emissions data cannot be verified and an **‘unverified’ or ‘not verified’ opinion statement** is issued. The verifier considers that there are material errors or misstatements in the data and emissions’ report, or major non-compliances with the M&R Proposal and M&R Decision, which have not been, or could not be, corrected or amended. The Verification Opinion Statement must clearly state why the data could not be verified in the relevant sections of the Verification Opinion Statement template. The verifier should also indicate the likely materiality of the potential misstatement. This situation is to be avoided wherever possible, through good communication between the verifier and operator, correction of errors and by starting the process early. **The verifier must not approve any figure inserted by the operator into the registry.** This situation will be followed up by the EPA and the operator’s account will be frozen until such time as the relevant annual reportable emissions figure can be confirmed as satisfactory. Appropriate enforcement action will be taken by the EPA.

When a legal non-compliance is found during the verification process, operators must inform the EPA as soon as possible (in accordance with the requirements of the GHG Permit). It is the responsibility of the verifier to discharge their duty of care to the EPA in auditing compliance with the rules and principles of the EU ETS to notify such matters to the operator as soon as possible in writing. It is then the operator’s responsibility, not the verifiers, to notify the EPA and obtain any necessary approvals.

4.9.3 Recommendations for improvements

The operator is required to report all recommendations for improvement, which have not already been implemented on-site during the verification process, to the EPA. Recommended improvements may include improvements required to meet the M&R Proposal and conditions of the GHG Permit and/or improvements to meet greater accuracy of monitoring and reporting. The operator may comment on the recommendations indicating whether or not they are technically feasible for that site, including details of likely additional costs, justifying any statements made and including suggested timeframes for implementation of any improvements which are considered feasible. Where approved by the EPA these changes must be implemented within a timeframe agreed by the EPA. The monitoring and reporting principle “Cost Effectiveness” is defined as follows: *In selecting a monitoring methodology, the improvements from greater accuracy shall be balanced against the additional costs. Hence, monitoring and reporting of emissions shall aim for the highest achievable accuracy, unless this is technically not feasible or will lead to unreasonably high costs. The monitoring methodology itself shall describe the instructions to the operator in a logical and simple manner, avoiding duplication of effort and taking into account the existing systems in place at the installation.* The EPA must have regard to this principle when assessing recommendations for improvement.

4.10 Registry interaction

Currently the list of INAB accredited verifiers and verifiers from other Member States that have been accepted by INAB is available at

<http://www.epa.ie/Licensing/EmissionsTrading/MonitoringReportingVerification/>.

The EPA intends to put the approved list of verifiers on the Registry so that the operator can nominate a verifier on the Registry system. Verifiers will have to submit documentary evidence identifying the verification body and individuals who will access the Registry on its behalf to the Registry Administrator in order to be given access to the Registry. Verifiers should contact ETAdmin@epa.ie to obtain further details.

Annex 1 - Section 7.4 of the M&R Decision states that: *‘The total emissions figure for an installation in an emissions report that has been verified as satisfactory shall be used **by the***

competent authority to check whether a sufficient number of allowances have been surrendered by the operator in respect of that same installation.

This process will be achieved through the operation of the Emissions Trading Registry.

Once the verified Annual Installation Emissions Report and Verification Opinion Statement has been submitted to the EPA, the primary authorised representative (PAR) or the secondary authorised representative (SAR) is required to enter the emissions data for the installation into the Registry. The verifier will then be required to log on to the Registry and confirm that the figure entered is correct. **In all cases where an “unverified” or “not verified” opinion statement is issued to the operator the verifier must not log onto the Registry and confirm that the figure entered is correct.** After the verifier logs onto the Registry and confirms that the figure is correct, no changes can be made to the figure without Registry Administrator intervention. The Registry will only process the data after the verifier has given his approval. In accordance with the requirements of the permit the operator must enter the verified annual emissions figure for the preceding year into the registry no later than 31 March of the following year (commencing in March 2006). This figure has to be electronically approved by the verifier no later than 31 March of each year commencing in March 2006.

Allowances, equal to the total of verified emissions for the installation (for that year) and in addition any excess emissions in preceding years which still fall due, must then be surrendered by the PAR or SAR (approved where appropriate by the AAR) from the installation’s account by 30 April of each year.

The M&R Decision states that: *‘In accordance with Article 15 of the Directive, Member States shall ensure that an operator whose report **has not been verified** as satisfactory by March 31 each year for emissions during the preceding year **cannot make further transfers of allowances** until a report from that operator has been verified as satisfactory. Member States shall lay down applicable penalties in accordance with Article 16 of the Directive.’*

Therefore, if the verifier rejects the figure entered by the PAR or SAR, the operator of the installation is informed by the Registry Administrator and is required to resolve any issues concerning the emissions’ data with the verifier, and if necessary, with the EPA. Any issues requiring resolution may result in a revised Verification Opinion Statement being issued by the verifier and submitted to the EPA by the operator. In the meantime, the installation will be prevented from making further transfers of allowances (excluding the surrender of allowances) until the Annual Installation Emissions Report has been satisfactorily verified and sufficient allowances have been surrendered. The operator will also be subject to the provisions of Article 16 of the Regulations, including, but not limited to the payment of penalties.

Where an ‘unverified’ opinion statement is issued, and the EPA is unable to determine the annual emissions figure by 30 April, the operator should surrender the number of allowances that they estimate to be correct, which may be the ‘unverified’ annual emissions figure. If the subsequent determination by the EPA finds that the actual annual emissions figure is higher and that more allowances should have been surrendered, then the operator may be liable for penalties on these additional allowances, as well as having to surrender them.

Ongoing modifications and improvements will be made to the Registry over time. Verifiers and operators should check the Registry website for more information about these improvements and how they affect any processes.

Further information about the registry and how to apply for access is available on the EPA web site: www.epa.ie/licensing/emissionstrading/.

Appendix 1: References

International

UN Framework Convention on Climate Change (including the Common Reporting Format).
<http://unfccc.int/2860.php>

EU – Legislation and Guidance

European Commission (2003) Directive Of the European Parliament and of the Council. Establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, 2003. Official Journal of the European Union.
http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_275/l_27520031025en00320046.pdf

European Commission (2004) Commission Decision of 29 January 2004 establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council [including all references in this e.g. to ISO and CEN standards]. http://europa.eu.int/comm/environment/climat/pdf/c2004_130_en.pdf

European Commission (2004) Council Decision 280/2004/EC concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol.
<http://europa.eu.int/scadplus/leg/en/lvb/l28044.htm>

European Commission (2004) Linking Directive 2004/101/EC of the European Parliament and of the Council. http://europa.eu.int/comm/environment/climat/emission/pdf/dir_2004_101_en.pdf

European Commission (2003) Council Directive 2003/4/EC of the European Parliament and of the Council, 2003. Public Access to Environmental Information and Repealing Council Directive 90/313/EEC http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_041/l_04120030214en00260032.pdf

Council Directive 96/61/EC concerning integrated pollution prevention and control (IPPC)

European Commission (2000) Establishing a list of Wastes http://europa.eu.int/eur-lex/en/consleg/pdf/2000/en_2000D0532_do_001.pdf

European Commission (1994) Establishing a list of hazardous waste pursuant to Article 1 (4) of Council Directive 91/689/EEC on hazardous waste
<http://www.sheilapantry.com/fulltext/samples/evpd/20010119.asp>

European Commission (2001) European Pollutant Emission Register (EPER) (including the reporting format) <http://europa.eu.int/comm/environment/ippc/eper/>

European Commission (2001) Eco-Management and Audit Scheme (EMAS)
http://europa.eu.int/comm/environment/emas/index_en.htm

European Co-operation for Accreditation (2005) Guidance for Recognition of Verification Bodies Under EU ETS Directive <http://www.mikes.fi/documents/upload/euetsguidancefinal.pdf>

International Emissions Trading Association's Verification Protocol – Verification of Annual Emission Reports of Installations Engaged in EU Emissions Trading
www.ieta.org/ieta/www/pages/index.php?sfgdata=4⁷.

National

⁷ Please note that membership of IETA may be required in order to download the document from their website.

S.I. No. 437 of 2004. European Communities (Greenhouse Gas Emissions Trading) Regulations 2004

Environmental Protection Agency (2004) National Allocation Methodology 2005-2007

Environmental Protection Agency (2005) Emissions Trading Final Allocation Decision pursuant to Article 11.1 of S. I. No. 437 of 2004

Irish country specific emission factors (available in the operator area of the emissions trading pages of www.epa.ie)

Verification Opinion Statement template (Will be available in the operator area of the emissions trading pages of www.epa.ie)

Annual Installation Emissions Report template (Will be available in the operator area of the emissions trading pages of www.epa.ie)

Further information regarding the EU ETS and how Ireland implements its requirements is available at:

<http://www.epa.ie>

Other sources of information:

<http://europa.eu.int/comm/environment/climat/emission.htm>

<http://www.ieta.org>

ISO Guide 65 <http://www.ams.usda.gov/lsg/arc/iso65.htm>

Appendix 2: Summary advice for operators

This is a quick reference guide only. The full Guidance and legislation should be read for complete information.

A-1 - Start early

Operators must focus on annual verification requirements once monitoring and reporting of CO₂ emissions in accordance with the M&R Proposal has begun. The verification process must start as early as possible during the year being assessed, rather than after that year has ended. This will avoid verifiers and operators being overloaded during January/February each year, potentially causing delays in completing the verification process by 31 March.

A-2 - Select and contract a verification body

The first step in choosing a verification body is to check which ones are accredited to perform annual verifications for the EU ETS. A list of accredited verification bodies and their contact details will be available from the INAB website⁸. Please also refer to the EPA website⁹.

The following should be considered when selecting a verification body and drawing up a contract:

- The verification body must be accredited to perform the verification for the activity or activities permitted at the installation e.g. both combustion and process emissions if relevant.
- Discuss and agree what happens if errors are found and need to be resolved through the process.
- Discuss the nature of the verification plan that will be developed by the verification body and the specific checks that the verifier will undertake, including compliance with this Guidance Note.
- Agree what happens if the EPA seeks clarification or further details about the Verification Opinion Statement.
- Determine if any downtime is required for the verification body to perform specific checks.
- Agree timing of the site visit(s) and the checks to be performed.
- Be clear on roles and responsibilities, and discuss where potential liabilities fall.
- Agree a date on which the verifier will supply the final Verification Opinion Statement (depending on any issues that arise during the process).
- You may wish to seek legal advice if you are unsure about any matters.
- Recognise that verification bodies are independently accredited organisations that are expected to work in an independent and professional manner at all times. They are not 'consultants' working on behalf of operators.

Operators who have concerns over the performance of a particular verification body should discuss their concerns with INAB. INAB deals with any complaints relating to verification bodies and their operation. They have the power to require corrective action in the event of non-compliance and to withdraw accreditation if non-conformities are not resolved.

⁸ <http://www.inab.ie>

⁹ <http://www.epa.ie/Licensing/EmissionsTrading>

B – The verification process

This section covers the type of information that operators must collate and submit to the verifier during the year.

Collating and maintaining records

All relevant records and data must be collated and kept readily accessible for the verifier to check. This is the principle of transparency referred to in the M&R Decision. Annex 1 - Section 6 of the M&R Decision requires all information relevant to the Annual Installation Emissions Report to be kept for at least 10 years, starting from the date of submission of the report to the EPA.

By having everything ready for the verifier's site visit the operator will save time and possibly reduce the need for any follow-up questions. The list below, which is not exhaustive, contains a checklist of documents and records that should be prepared for the verifier. Where possible documents should be provided to the verifier in electronic form.

Documents and Records

1. GHG Permit application.
2. GHG permit and updates.
3. Baseline data verification report.
4. Agreed M&R Proposal (including a detailed site map) and any updates. The site map should detail the unique identification number for all GHG emission points, metering points, emission sources and fuel storage locations and highlight the direction of fuel flow. Emission points, sources, metering points and fuel storage locations should be labelled as per the reference number outlined in the permit and/or monitoring and reporting proposal.
5. The Annual Installation Emissions Report.
6. All correspondence between the EPA and the operator in relation to the GHG Permit.
7. The activity data used for any calculation of the emissions for each source of greenhouse gas categorised by process and fuel type (such as fuel and materials invoices, independently witnessed stock takes etc).
8. Full details of the metering devices used to meter fuel purchase and/or consumption. Details include type of fuel meter, its range and units, accuracy of the meter and details of installation, operation, calibration and maintenance (refer to Section 4.3.3 of the main document for a more comprehensive record that should be maintained for each meter and associated ancillary equipment). Where an uncertainty assessment was conducted the results of this assessment should be made available. Detailed stocktaking procedures for purchase metering.
9. The relevant metering standards and manufacturer's guidance on the installation, operation, calibration and maintenance for all relevant meters.
10. Detailed calculation spreadsheets for total CO₂ emissions.
11. Operation procedures for all spreadsheets and/or databases used to collate and or calculate emissions data. All formulas used must be clearly explained.
12. The source and basis for carbon emission factors and net calorific values used in the calculation sheets.
13. Where fuel densities, ash, carbon content, moisture content, net calorific values and carbon in ash values are based on fuel analysis either in-house or by a contract laboratory, details of the results of analysis, methods used for sampling and analysis and accreditation status of the labs should be available on-site.
14. Documentation which demonstrates compliance with Annex 1 - Section 10 of the M & R Decision, in relation to representative sampling, batch sampling, accreditation of laboratories and the use of standard methods.
15. Written procedures for data collection, handling, transfer and error checking.

16. Where fuel is split between processes included and those not included in the GHG permit (e.g. natural gas used in hazardous waste incineration and in natural gas boilers), then a description of the apportionment method should be available.
17. Copies of annual energy and production spreadsheets used in data gathering.
18. Written evidence of data checking, fuel audits, etc. and any follow-up as a result of errors.
19. Quality Assurance and Quality Control procedures in relations to greenhouse gas emissions monitoring and reporting.
20. Where relevant to the site, current Environmental Management Standard accreditation certificates.
21. Documentation of the responsibilities of staff on-site in connection with greenhouse gas emissions monitoring and reporting.
22. Evidence of notification and agreement of any adjustments to data due, for example, to malfunction of metering equipment etc.
23. Any other relevant material.

For Annex 1 activities other than combustion the following additional information is required where relevant:

24. Production records to confirm relevant process outputs for calculation of activity data for other Annex 1 activities.
25. Input material specification sheets which detail components (e.g. amount of carbonates, CaCO₃, MgCO₃ or other carbonate) in raw material input.

Changes that occur during the year being assessed

Verifiers will check that the scope of the GHG Permit matches the emissions at the site and that emissions are monitored and reported in accordance with the approved M&R Proposal.

The operator is responsible for ensuring that any changes made to the monitoring and reporting that would require a change to the M&R Proposal are notified to, and agreed with, the EPA. Records of all correspondence with the EPA in relation to the GHG permit must be maintained on-site and made available to the verifier.

If the verifier notices a change to the monitoring or GHG Permit scope that has not been approved or notified to the EPA they will cease the verification process with respect to that issue, until the change/s have been notified and agreed with the EPA. Ensuring that all correct approvals have been obtained by the operator will speed up the verifier's activities and help to ensure that a verified opinion statement is issued.

Preliminary verification after 6 to 9 months

Verification bodies may wish to perform the bulk of the rules/principles compliance checks and detailed data checks on records for errors, omissions, misrepresentations and other checks once six to nine months' data and records are available. If most of the checks are performed at this time, the final few months of data may not take long to verify and confirm prior to completion of the final Annual Installation Emissions Report and final Verification Opinion Statement. However should there be changes at the installation, or in the rules, permit, guidance etc., after the initial work has been undertaken it may be necessary for the verifier to re-perform checks on earlier data and re-confirm compliance with rules and principles.

C – Submitting the Annual Installation Emissions Report and Verification Opinion Statement

Once the verification process is complete and the verifier has prepared a final Verification Opinion Statement, the operator must submit the Verification Opinion Statement and the Annual Installation Emissions Report in **both** electronic format and as two signed hard copies to the EPA by **31**

March, commencing with March 2006. The operator must insert the annual emissions figure into the correct field in the registry and the verifier must check it and confirm it on the relevant registry page by **31 March**, before it is accepted by the Registry. Where possible, the reports should be submitted and the figure entered into the Registry and confirmed well in advance of the **31 March** deadline.

The operator must surrender an equivalent number of allowances from their account by **30 April** each year. The registry administrator will check this.

Where the operator fails to comply with this requirement an excess emissions penalty, in accordance with the penalties prescribed in Article 16 of the Regulations, should be paid to the EPA by **30 April**. In addition the operator should also surrender an amount of allowances equal to those excess emissions.

If there are outstanding issues with the Verification Opinion Statement that have not been resolved by **31 March** the operator account will be frozen until such time as an acceptable verification is completed or any issues are resolved between the operator, the verifier and the EPA.

D– Improvements

Throughout the verification process verifiers will discuss three main types of improvements with operators:

- Improvements to ensure compliance with the M&R Proposal.
- Improvements to improve the accuracy of the monitoring methods.
- General improvements (to data management systems, quality assurance procedures etc).

The first set of improvements must be implemented as soon as possible, unless changes to the M&R Proposal are agreed with the EPA. The operator may comment on the recommendations for improvements indicating whether or not they are technically feasible for that site, including details on likely additional costs, justifying any statements made and including suggested timeframes for implementation of any improvements, which are considered feasible. Where approved by the EPA these changes should be implemented within a timeframe agreed by the EPA. The Monitoring and Reporting principle ‘Cost Effectiveness’ is defined as follows: *In selecting a monitoring methodology, the improvements from greater accuracy shall be balanced against the additional costs. Hence, monitoring and reporting of emissions should aim for the highest achievable accuracy, unless this is technically not feasible or will lead to unreasonably high costs. The monitoring methodology itself shall describe the instructions to the operator in a logical and simple manner, avoiding duplication of effort and taking into account the existing systems in place at the installation.* The EPA should have regard to this principle when assessing recommendations for improvement.

Appendix 3: Schedule 5 to the Regulations

Criteria for verification referred to in articles 14 and 15

General Principles

1. *Emissions from each activity listed in Schedule 1 shall be subject to verification.*
2. *The verification process shall include consideration of the report pursuant to Article 14(3) and of monitoring during the preceding year. It shall address the reliability, credibility and accuracy of monitoring systems and the reported data and information relating to emissions, in particular:*
 - (a) the reported activity data and related measurements and calculations;*
 - (b) the choice and the employment of emission factors;*
 - (c) the calculations leading to the determination of the overall emissions; and*
 - (d) if measurement is used, the appropriateness of the choice and the employment of measuring methods.*
3. *Reported emissions may only be validated if reliable and credible data and information allow the emissions to be determined with a high degree of certainty. A high degree of certainty requires the operator to show that:*
 - (a) the reported data is free of inconsistencies;*
 - (b) the collection of the data has been carried out in accordance with the applicable scientific standards; and*
 - (c) the relevant records of the installation are complete and consistent.*
4. *The verifier shall be given access to all sites and information in relation to the subject of the verification.*
5. *The verifier shall take into account whether the installation is registered under the Community eco-management and audit scheme provided for in Regulation (EC) No 761/2001 of the European Parliament and of the Council of 19th March 2001 allowing voluntary participation by organizations in a Community eco-management and audit scheme (EMAS). (OJ L 114/1 of 24.4.2001)*

Methodology

Strategic analysis

6. *The verification shall be based on a strategic analysis of all the activities carried out in the installation. This requires the verifier to have an overview of all the activities and their significance for emissions.*

Process analysis

7. *The verification of the information submitted shall, where appropriate, be carried out on the site of the installation. The verifier shall use spot-checks to determine the reliability of the reported data and information.*

Risk analysis

8. *The verifier shall submit all the sources of emissions in the installation to an evaluation with regard to the reliability of the data of each source contributing to the overall emissions of the installation.*

9. *On the basis of this analysis the verifier shall explicitly identify those sources with a high risk of error and other aspects of the monitoring and reporting procedure which are likely to contribute to errors in the determination of the overall emissions. This especially involves the choice of the emission factors and the calculations necessary to determine the level of the emissions from individual sources. Particular attention shall be given to those sources with a high risk of error and the abovementioned aspects of the monitoring procedure.*

10. *The verifier shall take into consideration any effective risk control methods applied by the operator with a view to minimising the degree of uncertainty.*

Report

11. *The verifier shall prepare a report on the validation process stating whether the report pursuant to Article 14(2) is satisfactory. This report shall specify all issues relevant to the work carried out. A statement that the report pursuant to Article 14(2) is satisfactory may be made if, in the opinion of the verifier, the total emissions are not materially misstated.*

Minimum competency requirements for the verifier

12. *The verifier shall be independent of the operator, carry out his activities in a sound and objective professional manner, and understand:*

- (a) the provisions of this Directive, as well as relevant standards and guidance in the Commission's M&R Decision;*
- (b) the legislative, regulatory, and administrative requirements relevant to the activities being verified; and*
- (c) the generation of all information related to each source of emissions in the installation, in particular, relating to the collection, measurement, calculation and reporting of data.*

Appendix 4: Annex 1 - Section 7.4 of M&R Decision

The operator shall submit the emissions report, a copy of its GHG Permit for each of its installations, plus any other relevant information to the verifier. The verifier shall assess whether the monitoring methodology applied by the operator complies with the installation's monitoring methodology as approved by the competent authority, the principles for monitoring and reporting presented in section 3, and the guidelines laid down in this and subsequent Annexes. On the basis of this assessment the verifier shall conclude as to whether the data within the emissions report contains omissions, misrepresentations or errors that lead to material misstatement of the reported information.

As part of the verification process, the verifier shall in particular:

- understand each activity undertaken by the installation, the sources of emissions within the installation, the metering equipment used to monitor or measure activity data, the origin and application of emission factors and oxidation/conversion factors, and the environment in which the installation operates,*
- understand the operator's data management system and overall organisation with respect to monitoring and reporting, and obtain, analyse and check the data contained within the data management system,*
- establish an acceptable materiality level in the context of the nature and complexity of the installation's activities and sources,*
- analyse the data risks which could lead to a material misstatement within the emissions report, based on the verifier's professional knowledge and the information submitted by the operator,*
- draw up a verification plan which is commensurate with this risk analysis and the scope and complexity of the operator's activities and sources, and which defines the sampling methods to be used with respect to that operator's installations,*
- carry out the verification plan by gathering data in accordance with the defined sampling methods, plus all relevant additional evidence, upon which the verifier's verification conclusion will be based,*
- check that the application of the monitoring methodology specified in the GHG Permit has delivered an accuracy level consistent with the defined tiers,*
- request the operator to provide any missing data or complete missing sections of audit trails, explain variations in the emissions data, or revise calculations, before reaching a final verification conclusion.*

Throughout the verification process, the verifier shall determine misstatements by assessing whether:

- the quality assurance and control processes described in 7.1, 7.2 and 7.3 have been implemented,*

- *there is clear and objective evidence obtained through the gathering of data to support the determination of misstatements.*

The verifier shall assess the materiality both of any individual misstatement and of the aggregate of uncorrected misstatements, taking into account any omission, misrepresentation or error that that could lead to misstatement, for example a data management system that produces non-transparent, biased or inconsistent figures. The level of assurance shall be commensurate with the materiality threshold determined for that installation.

At the end of the verification process, the verifier shall make a judgment with respect to whether the emissions report contains any material misstatement. If the verifier concludes that the emissions report does not contain any material misstatement, the operator can submit the emissions report to the competent authority in accordance with Article 14 (3) of the Directive. If the verifier concludes that the emissions report contains a material misstatement, the operator's report has not been verified as satisfactory.

In accordance with Article 15 of the Directive, Member States shall ensure that an operator whose report has not been verified as satisfactory by March 31 each year for emissions during the preceding year cannot make further transfers of allowances until a report from that operator has been verified as satisfactory. Member States shall lay down applicable penalties in accordance with Article 16 of the Directive.

The total emissions figure for an installation in an emissions report that has been verified as satisfactory shall be used by the competent authority to check whether a sufficient number of allowances have been surrendered by the operator in respect of that same installation. Member States shall ensure that divergences of opinion between operators, verifiers and competent authorities do not affect proper reporting and are settled in accordance with the Directive, these guidelines, the detailed requirements established by the Member States pursuant to Annex V to the Directive and relevant national procedures.