

Department of Energy and Climate Change

EU Emissions Trading Scheme

Guidance on Annual Verification

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1 Introduction

1.1 Purpose

1. This document sets out the UK Government's¹ guidance on requirements for annual verification within the EU Emissions Trading Scheme (EU ETS). It provides practical advice for operators and verifiers on verification requirements, and aims to promote a consistent verification process in accordance with relevant legislation.
2. 'Annual verification' involves an independent assessment, carried out by an accredited verifier, of the monitoring methods, information, data and calculations used to compile annual emissions reports² prepared by operators of installations within the EU ETS. Verification plays a crucial role in maintaining the integrity of the trading scheme and ensuring an even playing field for all EU ETS installations throughout the EU.
3. The verification process will ensure that the information and data in annual emissions reports are free from material omissions, misrepresentations and errors, are reliable, and can be used to surrender the correct number of allowances at the end of each reporting year. Essentially, the verification involves checks to ensure that the emissions data in annual emissions reports are an accurate representation of CO₂ emissions monitored and reported in accordance with the monitoring plans approved for the installations.
4. The process requires verifiers to verify that the monitoring at an installation has been performed in accordance with its monitoring plan, the Commission's Monitoring and Reporting Decision (M&R Decision) and any other relevant conditions of the GHG Permit. If verifiers identify changes in monitoring methods required to ensure compliance with the monitoring plan these must be raised with operators, who should resolve them with their regulators as soon as possible. Where necessary, verifiers must state any discrepancies in their final verification reports (the final verification opinion statements). Potential improvements to achieve more accurate reporting in line with the M&R Decision must also be recommended as part of the process.
5. The annual verification must be completed within sufficient time after 31 December each year for the operator to submit the final verification report and verified annual emissions report to the regulator by **31 March** each year. The operator also has until **31 March** to enter (propose) the

¹ UK Government means DECC (Department of Energy and Climate Change), the Scottish Executive, the National Assembly for Wales or the Department of the Environment (Northern Ireland).

² Annual emissions reports specify total carbon dioxide (CO₂) emissions from source streams in an installation's Greenhouse Gas (GHG) Permit from 1 January (or when the installation enters the Scheme) through to 31 December each year.

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emissions data for the installation into the Registry and for the verifier to confirm the entry, and then has until **30 April** each year to surrender allowances equivalent to the verified reported emissions.

6. Verification of new entrant, offshore tieback and platform modification, and rationalisation applications are covered in separate guidance which is available from the Department for Business Enterprise & Regulatory Reform (BERR) website³.

1.2 Intended audience and contents

7. This Guidance aims to assist operators, and verifiers responsible for preparing for and undertaking annual verifications for the EU ETS.

8. For operators it contains advice about:

- what annual verification entails;
- the UK Government's interpretation of the requirements for annual verification set down in the Directive and the M&R Decision;
- the roles and responsibilities of verifiers, regulators, operators and others involved in emissions trading;
- how to contact verifiers; and
- the data and records that should be compiled and made available to the verifier in order for the verification to run smoothly and as quickly as possible.

9. For verifiers it contains:

- the UK Government's interpretation of the requirements for annual verification set down in the Directive and the M&R Decision;
- guidance on the assessments and checks that verifiers should undertake when performing verifications (in addition to UK Accreditation Service (UKAS) requirements);
- reference to a template verification report that must be completed for each verification (by way of providing a final external verification opinion statement); and

³ See: <http://www.berr.gov.uk/whatwedo/energy/environment/euets/index.html>

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- advice on the matters that must be considered when developing and implementing a verification plan and performing annual verifications.
10. The Guidance has been developed through consultation with stakeholders, and has taken into account comments by operators, verifiers and other interested parties. The document has also taken account of discussions at meetings of the UK Emissions Trading Group WG3/7 (Permitting, Monitoring, Reporting and Verification).
 11. In this Guidance, reference to the ‘regulator’ shall mean the Environment Agency, the Scottish Environment Protection Agency (SEPA), the Northern Ireland Environment Agency (NIEA) and the Department for Business Enterprise and Regulatory Reform (BERR) for EU ETS installations in England and Wales, Scotland, Northern Ireland and offshore respectively.
 12. If you have any queries about this Guidance, please contact the Department of Energy and Climate Change (DECC) at eu.ets@defra.gsi.gov.uk (pending transfer to a DECC email address) placing ‘**EU ETS Annual Verification Guidance**’ in the title box and providing a brief description of your query. Please note that DECC has recently been formed from much of the Climate Change Group of the Department for Environment, Food and Rural Affairs (Defra) and the Energy Group from BERR. Although some of the EU ETS related documents referred to in this Guidance remain on Defra’s EU ETS web-pages⁴ for the time being, or are referred to as Defra documents, they are likely to transfer to a DECC address in due course. For installations located in Scotland, Wales and Northern Ireland or offshore, please copy your query to the Scottish Executive, the National Assembly for Wales, the Department of the Environment (Northern Ireland), or BERR, respectively⁵.

1.3 Status

13. This document provides guidance and interpretation of the legislation that requires verification of annual emission reports for the EU ETS. Where appropriate, legal requirements are quoted in italics and interpreted in the following text with useful guidance. To avoid doubt, legal documents discussed in Section 2 and contained in Figure 1 should also be reviewed. This Guidance should not be seen as a substitute for these legal documents. In the event of any inconsistency, the legal documents will take precedence.
14. This Guidance lies between the ‘higher level’ European publications on verification for the EU ETS⁶, and the ‘lower level’ UK Accreditation

⁴ See: www.defra.gov.uk/environment/climatechange/trading/eu/index.htm

⁵ See contact details in Appendix 2.

⁶ See: www.ieta.org/ieta/www/pages/index.php?IdSiteTree=1135

Service (UKAS) guidance⁷ used for accrediting verifiers to perform EU ETS verifications in accordance with the European Co-operation for Accreditation Guidance⁸ (see Figure 1). The Guidance focuses on verification requirements in the UK context and how operators should prepare for verification, rather than the accreditation process for verification bodies which is covered in UKAS Guidance. Other documents are referred to where they contain more comprehensive details or should be used in particular circumstances.

2 Background

2.1 Important documents

15. Requirements and guidance on annual verification for the EU ETS are contained within the following documents:
- Annex V of the EU Emissions Trading Scheme Directive (2003/87/EC) (Appendix 4 of this Guidance)
 - European Commission Decision of 18 July 2007 establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC (2007/589/EC)⁹ (Section 10.4 of the M&R Decision is copied into Appendix 5 of this Guidance)
 - Greenhouse Gas Emissions Trading Scheme Regulations 2005 (the Regulations) (see Appendix 6 for extract of regulations relating to verification)
 - Installations' Greenhouse Gas Emissions (GHG) Permits and their respective monitoring plans
 - Annex 3 of CIS5 UKAS Guidance for the Application of ISO/IEC Guide 65 (EN45011), EA-6/01 and EA-6/03, for Verification of Greenhouse Gas Emissions for the purpose of the UK's various emissions accounting and trading schemes. EU ETS Permitted Installations (November 2006)
 - European Co-operation for Accreditation Guidance For Recognition of Verifiers under the EU ETS Directive, Publication Reference EA-6/03

⁷ See: www.ukas.com/information_centre/publications.asp

⁸ EA Guidance For Recognition of Verifiers under EU ETS Directive. See: http://www.european-accreditation.org/n1/doc/EA6_03.pdf

⁹ See: http://ec.europa.eu/environment/climat/emission/mrg_en.htm

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- UK Government's Guidance on Annual Verification for the EU ETS (this document).
 - UK Regulator's Guide to the Revised Guidelines for Monitoring and Reporting (MRG 2007) in accordance with the EU Emissions trading Scheme (EU ETS)¹⁰.
 - UK Regulator's Guidance to Operators on the requirements for installations to achieve the highest applicable monitoring tiers (as defined within Commission Decision 2007/589/EC - Monitoring and Reporting Guidelines)¹¹.
16. The relationships between some of these documents are depicted in Figure 1 below. The first four are briefly discussed in sections 2.2 to 2.6 below and then covered more fully in section 4. Sections 2.7 and 2.8 then discuss the positions regarding temporarily excluded installations and other Member State approaches to verification.

2.2 The EU ETS Directive

17. The EU ETS 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 allowances (one allowance equals one tonne of CO₂ emissions) throughout the EC.
18. Member States are required to develop and obtain Commission approval for national allocation plans (NAPs). These plans set out how allowances are issued to installations during a phase of the Scheme (currently Phase II: 1 January 2008 to 31 December 2012), and how the total number of allowances issued contributes to meeting Kyoto Protocol and other reduction targets.
19. Installations are required to monitor and report emissions data during the year, commencing 1 January for existing installations, through to 31 December. These must then be verified by 31 March each year by accredited verifiers. Operators must also by 31 March enter (propose) the emissions data for the installation into the Registry and have their verifier confirm the entry. Operators must then surrender the equivalent number of allowances by **30 April each year**.
20. Emissions data refer to tonnes of carbon dioxide (CO₂) emissions from an installation during an annual period (from activities listed in Annex 1 of the Directive). Phase I of the EU ETS (from 2005 to 2007) and currently

¹⁰ See: http://www.environment-agency.gov.uk/static/documents/Business/mrg_07_guide_1339601.pdf

¹¹ See: http://www.environment-agency.gov.uk/static/documents/Business/guidance_1373049.pdf

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Phase II have not yet involved the other five greenhouse gases identified in Annex II of the Directive.

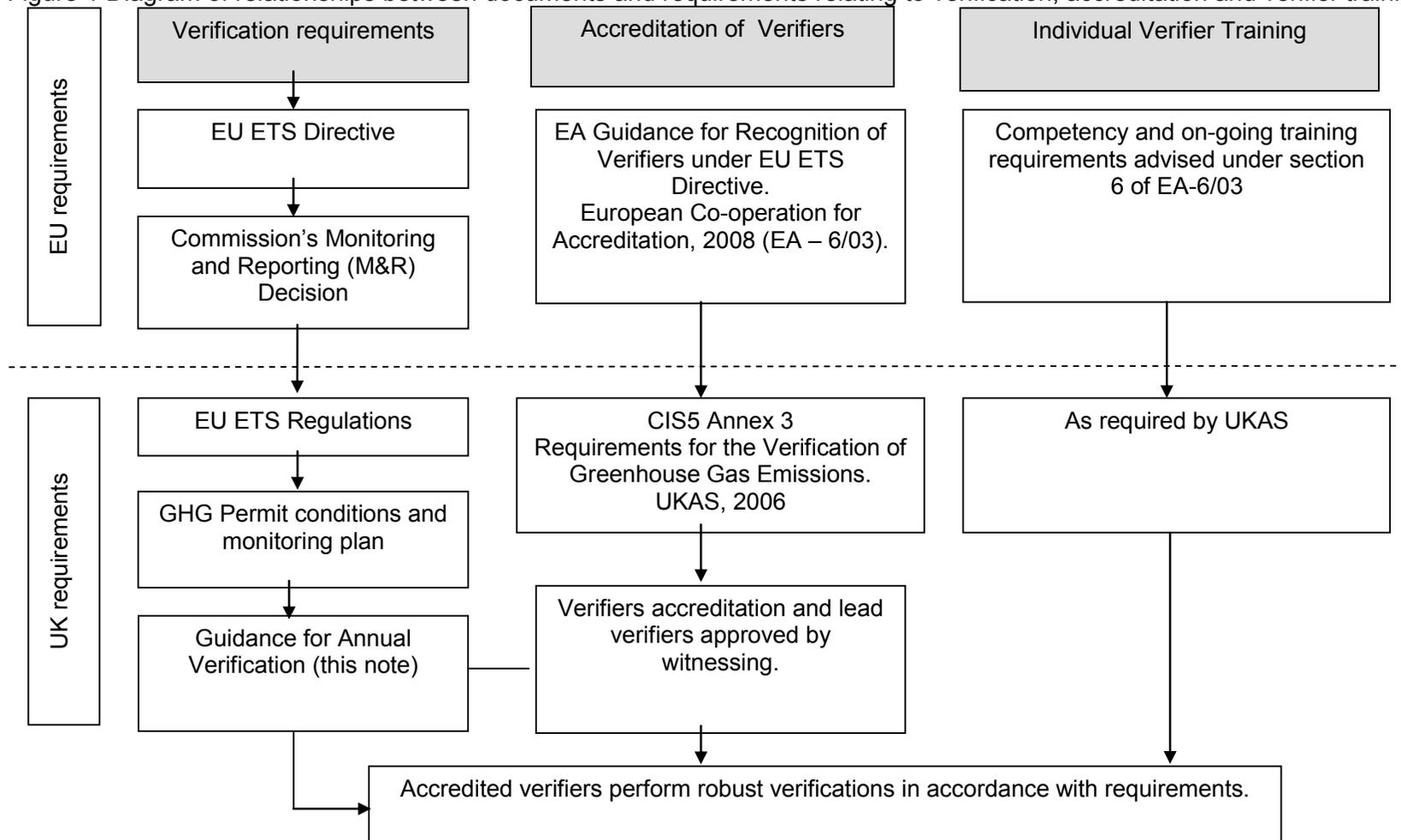
21. Article 15 of the Directive outlines the requirements for verification of annual emissions data reported by each installation. It states that:
22. *'Member States shall ensure that the reports submitted by operators pursuant to Article 14(3)' (regarding reporting of emissions from that installation in accordance with the M&R Decision) **'are verified in accordance with the criteria set out in Annex V, and that the competent authority is informed thereof.'***
23. *'Member States shall ensure that an operator whose report **has not been verified** as satisfactory in accordance with **the criteria** set out in Annex V 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.'*
24. In summary, the verification **criteria in Annex V** of the Directive include:
25. General principles:
 - that emissions are subject to verification;
 - that verification shall address reliability, credibility and accuracy of monitoring systems and reported data and information (including activity data and related measurements and calculations, choice of emission factors, calculations leading to determination of emissions and appropriateness of measuring methods);
 - 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 standards, and the records are complete and consistent);
26. and methodology:
 - strategic analysis
 - process analysis
 - risk analysis
 - reporting; and
 - minimum competency requirements for the verifier.
27. Appendix 4 of this Guidance contains the full text of Annex V. Relevant parts of Annex V are also reproduced and explained in sections 3 and 4.

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28. To meet the general principle '*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*', and for a verifier to issue a positive statement affirming such, the verifiers need to provide a '**reasonable**' level assurance when performing verifications. This is discussed further in section 4.10.2.

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Figure 1 Diagram of relationships between documents and requirements relating to verification, accreditation and verifier training.



2.3 UK Greenhouse Gas Emissions Trading Regulations 2005

29. The UK Greenhouse Gas Emissions Trading Regulations 2005 (the Regulations) transpose the EU ETS Directive requirements into UK legislation¹². Regulation 10 sets out verification requirements and Regulation 38 contains offences which may also be applicable to verifiers. These particular regulations are contained in full in Appendix 6.
30. Regulation 10(2)(b) states that a GHG Permit shall include conditions concerning the monitoring and reporting of specified emissions from the installation to which it relates and, in particular; ***‘a requirement that all reports submitted are verified in accordance with the criteria set out in Annex V of the Directive and that the regulator is informed of the results of any such verification’***.
31. Regulation 38(1)(f)(v) makes it an **offence** to make a statement which a person knows to be **‘false or misleading in a material particular’**, or recklessly to make a statement which is false or misleading in a material particular, where the statement is made as part of the verification of a report required under a monitoring and reporting condition. This offence relates to false or misleading statements made by both operators and verifiers.
32. Under Regulations 32, 33 and 34, operators can appeal certain decisions made by the regulators such as the conditions applied to permits and any variations to those conditions. Operators wishing to appeal decisions specified in the regulations should review the relevant legislation and may wish to seek legal advice.

2.4 UK’s National Allocation Plan

33. The UK submitted its National Allocation Plan (NAP) for Phase II to the Commission in August 2006 and had the plan accepted in November 2006. The approved plan and the Final Allocation Decision which includes the list of installation level allocations for Phase II was published on 16 March 2007.
34. Full details of the allocation methodology and actual allocations are contained in the consolidated NAP¹³. Some further allocations may be made to new entrants to the EU ETS or to late entrants from the Contingency Fund (as outlined in Appendix D of the NAP).

¹² See: <http://www.opsi.gov.uk/si/si2005/20050925.htm>

¹³ See: <http://www.defra.gov.uk/environment/climatechange/trading/eu/operators/phase-2.htm>

2.5 Monitoring and Reporting Decision

35. The Commission's M&R Decision provides further details about the requirements for annual verifications and how they should be performed. The requirements are more fully discussed in sections 3 and 4 with guidance on how to meet them.

2.6 Conditions of GHG Permit

36. GHG Permits contain conditions relating to annual verification and reporting to the regulators. In general, the conditions reiterate the requirements of the Regulations and M&R Decision and are discussed in section 4. Regulation 38 makes it an offence to fail to comply with or to contravene a condition of a GHG Permit.

37. The main conditions relevant to verification (at the time of preparing this guidance) for England and Wales are as follows:

1. The Operator shall monitor Reportable Emissions in accordance with the Monitoring Plan and the M&R Guidelines.

3. The Operator shall, by 31 March in every year, submit to the regulator a written report of the Annual Reportable Emissions made in the previous year. The report shall be in accordance with and in the format required by the M&R Guidelines.

4. The Operator shall ensure that the report required by condition 3 of this Permit is verified by a Verifier in accordance with the criteria set out in Annex V of the Directive and in accordance with the M&R Guidelines, before its submission. The Operator shall inform the Regulator in writing of the results of such verification, at the same time as submitting the report.

5. Where an Operator is applying the Fall-Back Approach to monitoring, the Operator shall submit to the Regulator a verified update of the overall uncertainty analysis in accordance with Section 5.3 of the M&R Guidelines by 31 March each year.

6. The Operator shall make available to its Verifier any information and data relating to greenhouse gas emissions which the Verifier requires in order to assess the report referred to in condition 3 of this Permit.

7. The Operator shall retain all information as specified in Section 9 of the M&R Guidelines for a period of at least 10 years after the submission of the relevant annual report.

8. The Operator shall ensure that the verified Annual Reportable Emissions figure for The Installation relating to emissions made in the previous year is entered and approved in the Registry by 31 March each year.

9 If:

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(a) The Installation is a Category B Installation or a Category C Installation; and

(b) condition 1 of this Permit does not require the Operator to use the highest tier approach given in the M&R Decision to determine all variables (except oxidation factors) for all Major Source Streams

the Operator shall submit to the Regulator by 30 June each year, a report justifying the use of each lower tier methodology applied. The report shall also include:

(i) proposals for improvements aimed at achieving use of the highest tier methodology as soon as reasonably practicable; or

(ii) justification to explain why it is either not technically feasible or would lead to unreasonably high costs if it is not proposed to make improvements to achieve the highest tier methodology.

10. The Operator shall submit a report to the Regulator, by 30 June each year, setting out their proposed improvements in monitoring at The Installation to address all the recommendations, Non-conformities and Mis-statements identified by a Verifier in relation to monitoring in the previous year. The Operator's proposals shall set out full details, including timescales, for implementing the improvements. If no improvement is proposed in response to a recommendation identified by the Verifier, the Operator shall justify why no action is to be taken.

11. The Operator shall implement the improvements specified by the Regulator in response to the report submitted in accordance with condition 10 in a reasonable timeframe set by the Regulator.

12. The Operator shall by 30 April in each year, surrender Allowances in the Registry equal to the Annual Reportable Emissions made in the previous year.

13. The Operator shall send written notification to the Regulator within 7 days of becoming aware of any factor that has prevented or may prevent compliance with any of the conditions 1-11 of this Permit. Such notification shall include details of the factor, and the reasons why compliance has been or may be prevented. Where the non-compliance is in respect of the required monitoring and reporting methodology, the notification shall include sufficient information, to the satisfaction of the Regulator, as follows:

(a) details of the interim monitoring and reporting methodology adopted by the Operator, which shall be the highest tier achievable;

(b) proof of the necessity for a change to the monitoring and reporting methodology; and

(c) details of the measures which have been or which will be taken to enable a prompt restoration of compliance.

38. The conditions for GHG Permits in Scotland, Northern Ireland and for offshore installations may be slightly different to those above and operators should check the specific conditions in their permits.

39. Operators therefore have two annual reporting commitments as regards submissions to the regulator.
40. First, by **31 March** each year the operator must submit the verified **annual emissions report** containing the annual emissions figure **and the verification report**.
41. Second, by **30 June** each year the operator must submit **an improvement report(s)** including proposals for improvements aimed at achieving the highest tiers or justifying why highest tiers cannot be met (assuming highest tiers are not met, and the installation is Category B or Category C), and describing the operators' proposals for implementing improvements to address all the recommendations, non-conformities and misstatements reported by the verifier in relation to monitoring in the previous year.
42. By submission of improvement reports, operators must explain proposals for meeting the identified requirements, or justifications for retaining the currently applied tiers or not pursuing recommendations that have been made. The regulators' websites have further information about this process and the templates to be completed¹⁴. These improvement reports from the operator do not require verification.
43. Further discussion on reporting and the types of improvements that should be recommended through verification is provided in section 4.10.3.
44. Operators should note that failure to make available information requested by its verifier may constitute a breach of a permit condition (permit condition 6).

2.7 Temporarily excluded installations

45. In the UK, two temporary exclusion applications were granted by the Commission. Firstly, 59 installations in the UK Emissions Trading Scheme (UK ETS) were granted approval to temporarily opt out of the EU ETS until 1 January 2007, after which they re-entered the Scheme. Secondly, around 330 installations with Climate Change Agreements were granted Commission approval to be opted out of the Scheme for the whole of Phase I. These have returned to the EU ETS from the start of Phase II, 1 January 2008.
46. **Temporary exclusions are not allowed under the EU ETS Directive from 1 January 2008.**

¹⁴ See Appendix 2 for regulator websites and contact details.

2.8 Other Member State approaches

47. Other Member States have also set up processes and procedures for monitoring and reporting, and for verification of annual emissions reports. Requirements in other countries may differ to those in this Guidance for various reasons, such as existing legislation and administrative arrangements. Operators and verifiers should bear in mind that there may be differences and ensure that they adhere to the requirements of the Member States in which they are preparing for, or performing, verifications.
48. The UK Government is currently working with the Commission and other Member States to improve the consistent application of the Directive and the M&R Decision in terms of verification. This Guidance will continue to serve as the UK's requirements for all verifications performed for UK installations. Any agreements will be reflected in updated versions or addendums as required.

3 Roles and responsibilities

3.1 General

49. The roles and responsibilities of individuals and organisations for annual reporting and verification are set out in the M&R Decision, GHG Permit conditions and the Regulations.
50. In particular, the roles and responsibilities of the operator, regulator and verifier in the process of verification can be summed up from section 10.4 of the M&R Decision as follows:
51. *'The operator shall submit the emissions report, a copy of its approved monitoring plan for each of its installations, and any other relevant information to the verifier'. The verifier 'shall come to a verification opinion that states with reasonable assurance whether the data in the emissions report is free from material misstatements and whether there are no material non-conformities'. As part of the verification process, the verifier shall carry out a strategic analysis, a risk analysis, the actual verification, produce an internal verification report and issue an external verification report (see sections 10.4.2(a) to 10.4.2(e) of the M&R Decision). As part of the strategic analysis, 'The verifier shall verify whether the monitoring plan has been approved by the competent authority and whether it is the right version'. Ultimately, 'The verifier shall present the verification methodology, his findings and verification opinion in a verification report, addressed to the operator, to be submitted by the operator with the annual emission report to the competent authority'.*
52. Guidance on these responsibilities and others are presented in sections 3.2 to 3.7 below.

3.2 Operator responsibilities

53. Operators of installations in the EU ETS have the following responsibilities with respect to annual verification:
- To monitor and report emissions in accordance with the monitoring plan approved by the regulator, conditions in the GHG Permit and any subsequent permit variations.
 - Without prejudice to the monitoring plan approved by the regulator, operators must comply with on-going obligations imposed by the M&R Decision including section 4.3 and section 5.2 of the M&R Decision.

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- Under section 4.3 of the M&R Decision, the monitoring methodology shall be changed if this improves the accuracy of the reported data (unless this is technically not feasible or would lead to unreasonably high costs). *A substantial change to the monitoring methodology as part of the monitoring plan shall be subject to approval by the regulator if it concerns:*
 - *a change of the categorisation of the installation as laid down in Table 1 [Table 1 of the M&R Decision];*
 - *a change between the calculation-based or the measurement-based methodology used to determine emissions; or*
 - *an increase of the uncertainty of the activity data or other parameters (where applicable) which implies a different tier level.*
- Section 4.3 of the M&R Decision also requires that ‘*All other changes and proposed changes in monitoring methodology or the underlying data sets shall be notified to the competent authority without undue delay after the operator has become aware of it or could in all reasonableness have become aware of it, unless otherwise specified in the monitoring plan*’, and that ‘**Changes to the monitoring plan shall be clearly stated, justified and fully documented in internal records of the operator**’.
- Under section 5.2 of the M&R Decision, the operator shall without undue delay propose changes to the tiers applied (under the approved monitoring plan), when:
 - accessible data has changed, allowing for higher accuracy in the determination of emissions;
 - previously non-existent emission has started;
 - the range of fuels or relevant raw materials has substantially changed;
 - errors have been detected in data resulting from the monitoring methodology; or
 - the competent authority has requested a change.
- To contract an appropriately **accredited** verifier to perform an annual verification. Where the verifier is accredited by an accreditation organisation other than UKAS, the operator must ensure that UKAS has received the accreditation details of that verifier and has assessed its

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suitability for work in the UK. The verifier must have applied to and been accepted by the UK Registry to enter and/or approve the verified annual emissions figure by 31 March (see section 4.11).

- To commence the process as **early as possible** in case errors or monitoring methods need correcting, and to avoid delays in producing reports.
- To provide all relevant documents and information to the verifier.
- To demonstrate quality assurance and controls required under sections 10.1, 10.2 and 10.3 of the M&R Decision (see section 4.4.1 of this guidance for more detail).
- To correct any errors, omissions or misrepresentations identified by the verifiers and where necessary produce a revised annual emissions report.
- To propose or apply to the regulator to make any changes to the monitoring plan or information in the permit (regulations 12 and 14) as soon as possible (this should be before changes are implemented), particularly if prompted to do so during the verification process.
- To make changes to the monitoring where it does not comply with the monitoring plan.
- To submit the verifier's verification report and the verified annual emission report (the verified ETS¹⁵) to the regulator by 31 March each year.
- To enter (propose) the verified annual emissions figure into the Registry by 31 March each year (or arrange for their verifier to do so); and ensure that their verifier approves the entered figure in the Registry, also by 31 March each year.
- To surrender allowances from each installation's Registry account equal to the annual reportable emissions made in the previous year.
- To prepare and submit improvement reports (as necessary) to the regulator by 30 June each year outlining a timetable for implementing improvements or reasons why the improvements are not feasible. This must include a report on the verifier's recommendations, and reported

¹⁵ <http://www.environment-agency.gov.uk/business/topics/pollution/32244.aspx> (regarding the version for returns to the Environment Agency)

misstatements and non-conformities, and take account of the regulator's guidance on expected improvements for different EU ETS activities. Standard UK templates are available for this from regulator websites (ETS 5 and ETS6¹⁶).

- To improve monitoring methods as required by the regulator through amendments to the monitoring plan.
54. Where an operator notifies the regulator of a proposed change under Regulation 12, the regulator will decide whether to simply note and acknowledge the change, or request the operator to submit an application for a formal variation. Records of all correspondence about changes should be kept and made available to the verifier.

3.3 Verifier responsibilities

55. The M&R Decision states that *'a 'verifier' means a competent, independent, accredited verification body or person 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 2003/87/EC'*.
56. The GHG Permit definition of 'Verifier' is *'a verification body or person accredited (and, if required, endorsed by UKAS) to carry out the verification requirements of Article 15 of the Directive. In this context, "accredited" means accredited by a member of the 'European Co-operation for Accreditation' having regard to the latter's greenhouse gas verification guidance. Verification bodies accredited by organisations other than UKAS must also be endorsed by UKAS'*.
57. Verification bodies accredited by a member of the European Co-operation for Accreditation are typically made up of individual 'verifiers', ranging from lead verifiers who plan, supervise and conduct verification work; to verifiers who support 'on the ground' verification activities on the site and data/compliance checking. They also include independent technical reviewers who 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.
58. According to the above definitions, a 'verifier' can also be a single person provided the individual satisfies all the requirements of accreditation and EA-6/03, including all the required roles and competencies. A single person verifier must also have arrangements in place for independent technical review of the verification process and report before the verification report is issued.

¹⁶ <http://www.environment-agency.gov.uk/business/topics/pollution/32244.aspx> (regarding the versions for return to the Environment Agency)

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59. Further insight on expectations regarding independent technical review (including need for the reviewer to be fully competent and not somebody who has taken part in the actual verification process itself) is provided by section 5.5 of EA-6/03¹⁷. A single person verifier may be able to satisfy the independent technical review requirement by hire of their own specialist for the role or by suitable procurement of the service from another verifier.
60. As discussed above, ‘verifiers’ must be accredited by UKAS or any other Member State’s accreditation service that is a member of the European Co-operation for Accreditation. They must be accredited in accordance with the *EA Guidance For Recognition of Verifiers under EU ETS Directive* (EA Guidance 6/03) or an approach derived from the EA Guidance. All of the verifiers operating in the UK are required to implement this Guidance.
61. Verifiers have the following responsibilities:
- To obtain accreditation from UKAS or a member of the European Co-operation for Accreditation (EA), having regard to the EA’s greenhouse gas verification guidance.
 - To ensure that the verification is carried out by properly trained and competent staff (see below).
 - To perform the verification in accordance with legislation, section 10.4 of the M&R Decision (see Appendix 5 of this guidance) and this Guidance Note.
 - To prepare a verification report using the template available from Defra’s website that:
 - Verifies that monitoring and reporting has been performed in accordance with the approved monitoring plan, other conditions of the Greenhouse Gas Permit and the M& R Decision;
 - Verifies that the emissions report data, supporting calculations, and relevant records are free from material misstatements (errors, omissions and misrepresentations);
 - Recommends improvements required for the installation to comply with the approved monitoring plan; and

¹⁷ http://www.european-accreditation.org/n1/doc/EA6_03.pdf

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- Recommends improvements by which the operator could enhance monitoring and reporting performance.
 - To resolve errors, omissions or misrepresentations in the data/records/calculations in consultation with the operator prior to completing the verification report.
 - To submit a verification report to the operator, or to inform the operator that a verification report cannot be issued with reasons why.
 - To access the Registry and confirm the verified annual emissions figure entered by the operator (this figure may have been entered by the verifier at the operator's request, but confirmation of the figure by the verifier is still required).
 - Any other roles and responsibilities required by UKAS through the accreditation process.
62. Verifiers 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 sue for damages. Verifiers will also be committing an offence under Regulation 38, if they knowingly or recklessly make a statement which is false or misleading.
63. Verifiers 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'.*
64. Verifiers can demonstrate competence by gaining accreditation from UKAS or another accreditation service that is part of the European Co-operation for Accreditation.
65. Verifiers accredited by accreditation agencies other than UKAS will need to provide details of their accreditation to UKAS when they are first contracted by an operator in the UK. If UKAS has any concerns about the accreditation and/or the verifier they will contact the operator who intends to use the verifier, the verifier themselves and/or the relevant accreditation agency for further details.

3.4 Regulator responsibilities

66. Regulators are responsible for approving the contents of an operator's monitoring plan, as well as ensuring that non-conformities, misstatements and possible improvements are addressed by the operator as soon as possible.
67. Regulators are responsible for checking that the 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 Regulation 39. Operators are liable to pay penalties for failing to surrender sufficient allowances.
68. Regulators also have other responsibilities under the Regulations such as those relating to enforcement (Regulations 28 to 31), permitting (Regulations 7 to 9), determining conditions of permits (10), revocation of permits (17), charging subsistence and other fees (18 and 19), and dealing with notifications of proposed changes in operation (12) and applications for variations (14), transfers (15) and surrenders (16).
69. The regulators have published guidance on their expectations for improvements in monitoring methods for different EU ETS activities. This guidance should be taken into account by verifiers to recommend improvements (section 4.10.3) and by operators to develop their improvement reports.
70. Regulators are responsible for varying permits in response to applications by operators or according to their own volition, including to incorporate the verifier's recommended improvements to the installation's monitoring plan. In doing so, regulators will take into account their own guidance, operator comments on the verifier's recommendations, technical feasibility and potential cost implications. Permit condition 11 is placed on operators to fulfil the requirement set by section 10.4.2(e) of the M&R Decision, namely *'Member States shall ensure that the operator addresses non-conformities and misstatements after consultation of the competent authority in a timeframe set by the competent authority'*.
71. In exceptional circumstances as set out in Regulation 30, regulators may calculate emissions on behalf of an installation. In such cases, regulators may seek verification of their assessment and calculations, the costs of which would be passed on to the operator. Where the regulator is required to determine emissions on, or close to, the operator's report deadline, regulators cannot guarantee to complete the determination and obtain the verification before the surrender date of the 30 April. In such cases, there is a possibility that the operator may still incur a civil penalty. It is the operator's responsibility to comply with the permit conditions and therefore regulators cannot be held liable for any losses, costs or civil penalties incurred by the operator in these circumstances. Regulators will aim to carry out the determination as quickly as possible, but their ability to do this will depend on the number of determinations they may be

required to perform and verifier availability. These circumstances are outside of the regulators' control.

72. Regulators are also responsible for approving situations where both the verifier and operator agree that a site visit is not necessary (see section 4.3.2).
73. The Environment Agency as the registry administrator also needs to approve verifiers for access to the Registry. Verifiers from overseas need to seek the relevant authorisations and endorsements.
74. Regulators also need to consider situations where verifiers are unable to verify the data and monitoring, despite attempts to resolve errors or inconsistencies. Regulators will then determine emissions in accordance with Regulation 30 (see three paragraphs above). To avoid this situation, verifiers and operators need to try to resolve issues as they arise and if issues continue to be a problem, operators must inform regulators as soon as possible.

3.5 UKAS responsibilities

75. The UK Accreditation Service (UKAS) develops accreditation requirements and accredits verifiers to perform verifications for the EU ETS in accordance with *UKAS Guidance for the Application of ISO/IEC Guide 65 (EN45011), EA-6/01 and EA-6/03, for verification of greenhouse gas emissions for the purpose of the UK's various emissions accounting and trading schemes, Annex 3 EU ETS Permitted Installations, Edition 2* (UKAS, November 2006), and any updates. UKAS Guidance is derived from, and refers to, the *EA Guidance For Recognition of Verifiers under EU ETS Directive, EA 6/03* (EA Guidance EA-6/03)¹⁸.
76. 'Accreditation' is the process that the verifier must go through to become approved to perform verifications. As part of the accreditation process, UKAS reviews the verifier's organisation, procedures and practices. Once the body can satisfy UKAS's requirements and proves that it performs satisfactorily in accordance with UKAS Guidance (and any future international agreements) it is accredited and included in the UKAS list of accredited verifiers held on UKAS's and the Defra websites^{19, 20}.
77. UKAS also undertakes periodic monitoring and surveillance checks on accredited verifiers to ensure that they maintain a high standard and quality of verifications. UKAS has the power to require corrective action in the event of non-compliance and to withdraw accreditation if non-conformities are not resolved.

¹⁸ http://www.european-accreditation.org/n1/doc/EA6_03.pdf

¹⁹ <http://www.ukas.com/>

²⁰ <http://www.defra.gov.uk/environment/climatechange/trading/eu/operators/mon-rep-ver.htm>

78. UKAS also deals with any complaints relating to verifiers and their operation.
79. UKAS will perform a surveillance check on verifiers accredited by other Member States' accreditation agencies that intend to perform verifications in the UK. UKAS will witness their first verification and check that the body is operating in accordance with the UK Regulations and this Guidance. UKAS will maintain a list of checked and accepted verifiers from other Member States which will be used by the regulators and Registry Administrator.

3.6 Government responsibilities

80. The M&R Decision requires that Member States *'ensure all divergences of opinion between operators, verifiers and competent authorities shall not affect proper reporting and shall be settled in accordance with Directive 2003/87/EC, these guidelines, and the requirements established by the Member States pursuant to Annex V to that Directive, and relevant national procedures.'*
81. This Guidance aims to prevent 'divergences of opinion' and to ensure consistent interpretation of the Directive and M&R Decision. To maintain the integrity of the Scheme, Government will also aim to resolve any issues with annual verifications that may arise and will consider updating this Guidance and associated Q and A sheets as issues arise and are resolved. Defra has published a main Q and A sheet²¹.
82. Government publishes a list of UKAS accredited and approved verifiers on Defra's website.
83. BERR is the regulator for offshore installations and has published its own Q&A sheet related to annual verification of off-shore installations²².
84. Government is also responsible for dealing with some of the appeals to decisions, such as appeals by operators against conditions imposed in permits issued by the regulators.

3.7 Commission responsibilities

85. The Commission leads the development and review of Directives and the M&R Decision, and prepares useful Q and A documents on monitoring, reporting and verification that are available from their website²³. They also implement periodic reviews of the permitting, monitoring, reporting and verification carried out in different Member States to glean and share

²¹ <http://www.defra.gov.uk/environment/climatechange/trading/eu/pdf/faq-annualverify.pdf>

²² Annual Emissions Reporting Verification Q&A, <https://www.og.berr.gov.uk/environment/euetsr.htm>

²³ See: http://europa.eu.int/comm/environment/climat/emission/mrg_en.htm

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best practices. The Commission is currently running a project that is due to report best practice guidance on verification, accreditation and accreditation control, which is also likely to feed into development of the Verification and Accreditation Regulation proposed as part of the EU ETS Directive review.

4 Annual verification requirements

4.1 Process and timeline

86. *EA Guidance For Recognition of Verifiers under EU ETS Directive, EA-6/03* suggests nine interconnected steps to the verification process. In short:

- A pre-contract stage – where the verifier assesses whether it is feasible to undertake the verification activities for the specific installation (including evaluation of the risks, information provided by the operator, competency needs analysis, time required and contract arrangements).
- Strategic analysis (as required by section 10.4.2(a) of the M&R Decision) – where the verifier checks the monitoring plan is fully approved by the competent authority; seeks to understand each activity undertaken at the installation, the monitoring plan (including sources, source streams, metering equipment, origin and application of emission and other factors), data flow and the control system; and considers application of the appropriate materiality level according to Table 3 of the M&R Decision.
- Risk analysis (as required by section 10.4.2(b) of the M&R Decision) – where the verifier, primed by knowledge from the strategic analysis, analyses the risks associated with the scope and complexity of the operator's activities which could lead to material misstatements and material non-conformities arising in order to formulate a suitable verification plan.
- Verification plan (as also required by section 10.4.2(b) of the M&R Decision) – where, based on the risk analysis, the verifier formulates a verification plan consisting of a verification programme (verification activities, timings and scope) and a data sampling plan, proportionate with reaching a verification opinion with reasonable assurance that the emission report is free from material misstatements and that there are no material non-conformities.
- Process analysis (actual verification, as required by section 10.4.2(c) of the M&R Decision) – where the verifier implements the verification plan and gathers information to support the verification opinion, using standard auditing processes including defined sampling methods, walkthrough tests, document reviews, data

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reviews and interviews, observations and corroborative checks.

- Reporting (as required by sections 10.4.2(d) and 10.4.2(e) of the M&R Decision) – where at the end of the verification process, the verifier completes the preparation of an internal verification report (the internal log of various actions, decisions and findings) and the verification report that is to be addressed to the operator for onward submission to the competent authority.
 - Review of the verification process – where the draft verification report is subjected to a review prior to a decision being made to issue the verification report. The reviewer needs to be a competent person who does (or did) not take part in the actual verification (the verification process) and who possesses or has access to an appropriate level of knowledge and experience that is sufficient to evaluate the verification processes and justifications affecting the verification decision.
 - Issuing a verification report – where the verifier issues the verification report to the operator for them to submit to the competent authority along with their verified annual emissions report.
 - Entry of an emission figure in the Registry – where, according to Article 51 of the Registries Regulation, the verifier has to input or approve the relevant entries into the EU ETS Registry, as related to the final verified annual emissions for the reporting period in question.
87. More detailed explanation of the above steps can be found in sections 5.1 – 5.8 of EA-6/03.
88. It is important to start the process early to avoid last minute changes and report writing during February and March when significant demands on operators, verifiers and regulators could delay production of final annual emissions and verification reports, and consequently the surrender of allowances.
89. The verification process should start during the year being assessed, rather than after that year has ended. However, sufficient data is needed to initiate the process, and any subsequent changes to an installation's systems must be considered in time for the report to be completed by **31 March**.
90. From the outset of the process, it is important to note that if verifiers identify any non-compliance with legislative requirements and/or GHG Permit conditions (including the monitoring plan) during the verification process, they must inform the operator of the installation as soon as

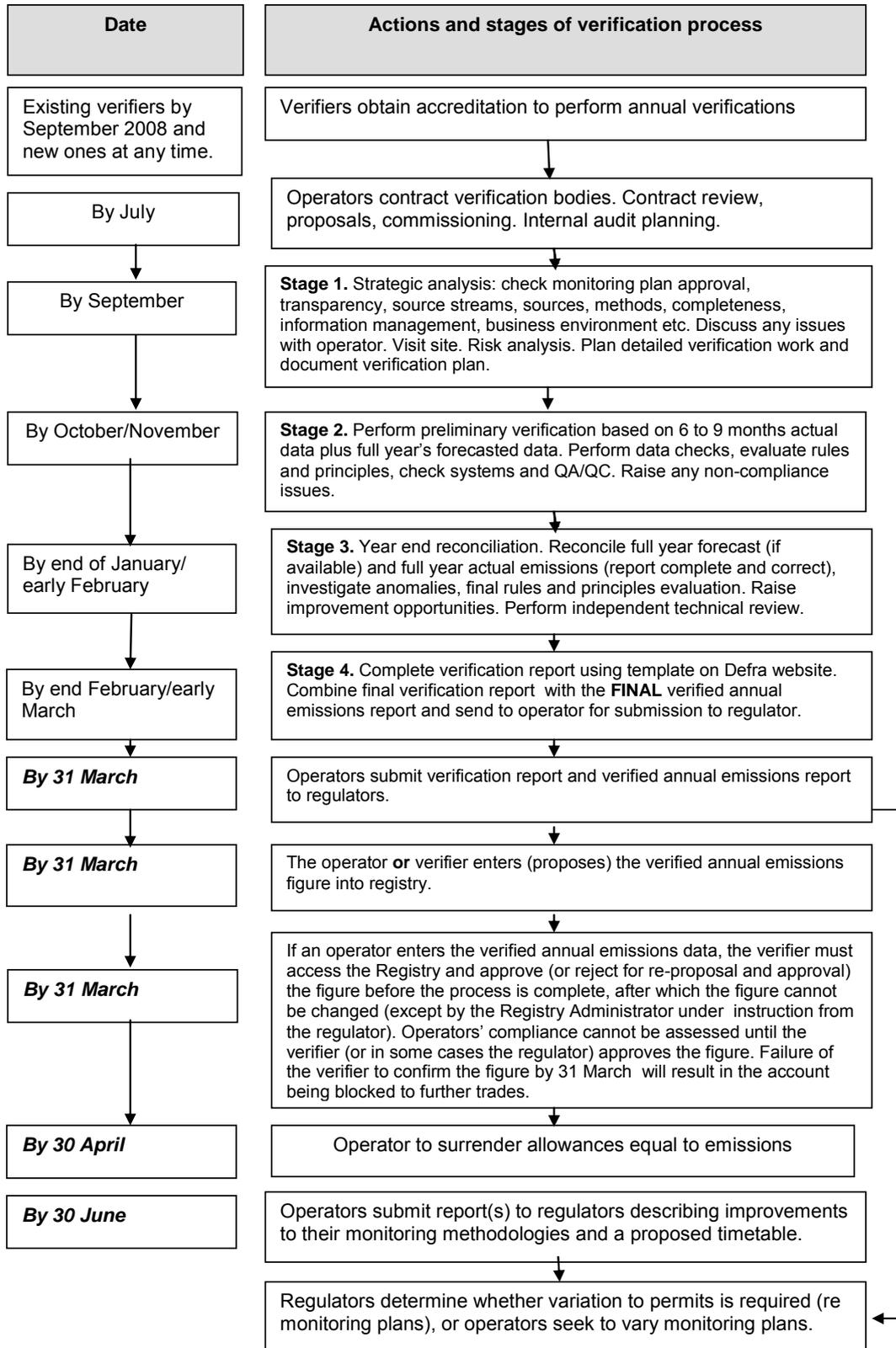
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possible. It is then the operator's responsibility, not the verifier's, to notify the regulators and obtain any necessary approvals for changes.

91. Figure 2 provides a flow diagram of the stages and actions involved in verification against a time line. Dates in ***bold italics*** are compulsory and set by legislation. Dates in normal text are suggested to keep the process on track and ensure verifications are completed on time and within the available verifier resources.
92. Once the verifier has been contracted by the installation, the formal verification process begins.
93. Stage 1 involves the strategic analysis, site visit, risk analysis and development of the verification plan by the verifier as discussed in section 4.6. Stage 2 involves performing a preliminary verification of available data (six to nine months worth) to determine any potential issues of concern that may need to be resolved between the operator and regulator. This important step aims to reduce the amount of work required towards the end of the year. Stage 3 involves the verifier checking the rest of the year's data and recommending improvement opportunities, and that the operator's annual emissions report is complete and correct. A thorough independent technical review is also required before the verification report is finalised. Stage 4 requires the verifier to submit the final verification report (incorporating the verified annual emissions report) to the operator.
94. This staged (or split) verification approach is endorsed by UKAS as being the most practical methodology.
95. Other documents referenced in Appendix 3 may also contain some useful information and guidance for verifiers about the process and actions involved in each stage.
96. The operator must then send the verification report (incorporating the verified annual emissions report) to the regulator by **31 March** each year. The operator can also submit comments relating to the verification report to the regulator at the same time if they wish. Also by **31 March**, the operator or verifier must enter (propose) the verified annual emissions into the Registry; and the verifier access the Registry to endorse/confirm the figure. The operator must surrender the allowances to match the annual reportable emissions by **30 April** (see section 4.11).
97. Operators then have until **30 June** to report to the regulators why they do not meet top tier M&R Decision requirements (in the case of Category B and Category C installations), and how they intend to address misstatements, non-conformities and improvements recommended by the verifier in the verification report.

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Figure 2: Flow chart showing verification process and due dates. Legally required dates are in ***bold italics***.



4.2 M&R Decision requirements

98. Detailed requirements for the verification process are provided in Annex V in the Directive and section 10.4 of the M&R Decision.

99. Section 10.4.1 of the M&R Decision includes statement that:

- *'The **objective of the verification** is to ensure that emissions have been monitored in accordance with the guidelines and that reliable and correct emissions data will be reported pursuant to Article 14(3) of Directive 2003/87/EC. Member States shall consider respective guidance issued by the European Cooperation for Accreditation (EA).'*
- *'a verification shall come to a verification opinion that states with **reasonable assurance** whether the data in the emissions report is free from material misstatements and whether there are no material non-conformities'.*
- *'The **scope of the verification** is defined by the tasks the verifier needs to perform to achieve the above objective. As a minimum the verifier shall perform the activities in accordance with the subsequent Section 10.4.2'.*

100. Section 10.4.2 of the M&R Decision states:

'As part of the verification process, the verifier shall carry out the following steps:

(a) strategic analysis

The verifier shall

- *verify whether the monitoring plan has been approved by the competent authority and whether it is the right version. If this is not the case, the verifier should not continue the verification except for elements that are obviously not affected by the non-approval;*
- *understand each activity undertaken by the installation, the sources, source streams within the installation, the metering equipment used to monitor or measure activity data, the origin and application of emission factors and oxidation/conversion factors, any other data used to calculate or measure the emissions, and the environment in which the installation operates;*
- *understand the operator's monitoring plan, data flow, as well as its control system, including the overall organisation with respect to monitoring and reporting;*
- *apply the materiality level defined in Table 3 below.*

Table 3

Materiality levels

	<i>Materiality level</i>
<i>Category A and B installations</i>	5 %
<i>Category C installations</i>	2 %

*The verifier shall perform the strategic analysis in such a way that the verifier is able to conduct the risk analysis as set out below. **When necessary this shall include a site visit.***

(b) risk analysis

The verifier shall:

- *analyse the inherent risks and control risks related to the scope and complexity of the operator's activities and emission sources and source streams, and which could lead to a material misstatements and non-conformities;*
- *draw up a verification plan which is commensurate with this risk analysis. The verification plan describes the way in which the verification activities are to be carried out. It contains a verification programme and a data sampling plan. The verification programme describes the nature of the activities, at what times they must be carried out and their scope in order for the verification plan to be completed. The data sampling plan sets out what data is to be tested in order to reach a verification opinion.*

(c) verification

*In carrying out the verification, **the verifier shall conduct a site visit, when appropriate**, to inspect the operation of meters and monitoring systems, conduct interviews, and collect sufficient information and evidence.*

Moreover, the verifier shall:

- *carry out the verification plan by gathering data in accordance with the defined sampling methods, walkthrough tests, document reviews, analytical procedures and data review procedures, including any relevant additional evidence, upon which the verifier's verification opinion will be based;*
- *confirm the validity of the information used to calculate the uncertainty level as set in the approved monitoring plan;*
- *verify that the approved monitoring plan is implemented and seek understanding whether the monitoring plan is up to date;*

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- *request the operator to provide any missing data or complete missing sections of audit trails, explain variations in the emissions data, or revise calculations, or adjust reported data, before reaching a final verification opinion. The verifier should, in any form, report all non-conformities and misstatements identified to the operator.*

The operator shall correct any reported misstatements. The entire population from which a sample was taken shall be corrected.

Throughout the verification process, the verifier shall determine misstatements and non-conformities by assessing whether:

- *the monitoring plan has been implemented to support the determination of non-conformities;*
- *there is clear and objective evidence obtained through the gathering of data to support the determination of misstatements.*

(d) internal verification report

At the end of the verification process, the verifier shall prepare an internal verification report. The verification report shall record evidence showing that the strategic analysis, the risk analysis and the verification plan has been performed in full, and provide sufficient information to support verification opinions. The internal verification report should as well facilitate a potential evaluation of the audit by the competent authority, and accreditation body.

Based on the findings contained in the internal verification report, the verifier shall make a judgment with respect to whether the annual emissions report contains any material misstatement as compared to the materiality threshold, and whether there are material non-conformities or other issues relevant for the verification opinion.

(e) verification report

The verifier shall present the verification methodology, his findings and verification opinion in a verification report, addressed to the operator, to be submitted by the operator with the annual emission report to the competent authority. An annual emissions report is verified as satisfactory if the total emissions are not materially misstated, and if, in the opinion of the verifier, there are no material non-conformities. In the case of non-material non-conformities or non-material misstatements, the verifier may include these in the verification report ("verified as satisfactory with non-material non-conformities or non-material misstatements"). The verifier may also report these in a separate management letter.

The verifier may conclude an annual emissions report is not verified as satisfactory, if the verifier finds material non-conformities or material misstatements (with or without material non-conformities). The verifier may conclude an annual emissions report is not verified

when there was a limitation of scope (when circumstances prevent, or a restriction was imposed that prevents, the verifier from obtaining evidence required to reduce the verification risk to the reasonable level) and/or material uncertainties.

Member States shall ensure that the operator addresses non-conformities and misstatements after consultation of the competent authority in a timeframe set by the competent authority. In addition, all divergences of opinion between operators, verifiers and competent authorities shall not affect proper reporting and shall be settled in accordance with Directive 2003/87/EC, these guidelines, and the requirements established by the Member States pursuant to Annex V to that Directive, and relevant national procedures’.

101. The remainder of this section provides guidance on specific elements of these requirements and, where appropriate, discusses particular UK regulatory requirements.

4.3 Understanding activities

4.3.1 Scope of an installation

102. In January 2004, the Government published *Guidance Note 1 – Guidance on Inclusion* (Guidance Note 1, revised March 2006 and updated for Phase 2 November 2007²⁴). Guidance Note 1 interprets the Directive’s requirements regarding installation activities covered by the EU ETS, and the meanings of ‘installation’, ‘site’, ‘expansion activity’ and the ‘aggregation’ principle.
103. Guidance Note 1 also explains how CO₂ emissions from certain technical units are excluded as they are not classed as part of a ‘combustion installation’. With the exception of expansion activities (see below), excluded units include ovens; reactors; dryers; non-ferrous metal production (e.g. aluminium); incineration (where the primary purpose is the disposal of municipal or hazardous waste); fryers, flares, thermal oxidisers used for abatement; and direct-fired air heaters.
104. ‘Expansion activities’ are a number of activities that involve a change of scope for Phase 2. The activities concerned are confirmed in Annex B of Guidance Note 1. In short, they are glass, mineral wool, gypsum, flaring from offshore oil and gas production, petrochemicals (crackers), integrated steelworks and carbon black. Guidance Note 1 confirms that ***where an expansion activity defined in Annex B is being carried out, all fixed sources and source streams of CO₂ on site are considered***

²⁴ See: <http://www.defra.gov.uk/environment/climatechange/trading/eu/pdf/guidance-note1.pdf>

*to fall within the scope of the Schedule 1 activity*²⁵ and should, therefore be included in the annual reporting of emissions.

105. The Government's interpretation of the capacity of an installation is the aggregate capacity of all individual technical units at a site (i.e. the sum of all boilers or CHP plant). If this aggregated sum exceeds 20MW (thermal input), including stand-by generation capacity, then the installation is subject to the EU ETS requirements. However, another change for the start of Phase 2 was a concession that individual combustion units below 3MW should be excluded from the calculation of the aggregation rule. This exclusion was only in relation to considering aggregation applicable to a combustion installation and a Schedule 1, 1.1 activity for eligibility purposes; **and where the 20MW 1.1 activity threshold was exceeded anyway, all units (above and below 3MW) should have been included in the permit and have their emissions reported.** The verifier should be vigilant that emissions from less than 3MW units have not been inadvertently omitted. (See section 12 of Guidance Note 1 Updated for Phase 2 for more detail²⁶. N.B. Although the 3MW concession still applies in relation to considering eligibility of new entrant applications, it was a 'one-off' consideration regarding existing installations and cannot now be applied to argue an activity has reduced below the 20MW threshold).
106. Operators are responsible for correctly determining the scope of their installation and identifying the units that should be included within the GHG Permit. Where unclear, operators were advised to obtain a written determination from the regulators about what sources should and should not be included. Through baseline verifications, the approval of the monitoring plans, and annual verifications to date, regulators and verifiers have picked up some inconsistencies that have required permit variations, however, verifiers may still come across some sources that should, or should not, be included during future annual verifications.
107. Verifiers must check that the scope of the permit complies with Annex I of the Directive and Guidance Note 1, and any determinations by the regulator. They must also check that all emission sources listed in the GHG Permit are included in the monitoring plan. Any discrepancies should be raised with the operator as soon as possible, and resolved with the regulator if necessary. Verifiers may ask operators to show evidence of why a permit scope does not meet with their expectations for compliance. Evidence could include details of correspondence with the regulator about which sources should and should not be in the permit, and any permit variation documents.
108. In the event that the verifier discovers discrepancies between the emissions sources covered in baseline verification opinions and the permit scope, which would have resulted in lower baseline emissions than those reported for the NAP (and are not changes such as new

²⁵ With the exception of flaring at chemicals installations due to the uncertainties involved in monitoring these emissions and the risk of incentivising venting given safety concerns

²⁶ <http://www.defra.gov.uk/environment/climatechange/trading/eu/pdf/guidance-note1.pdf>

technical units), these should be raised with the operator. The operator must then contact DECC (formerly Defra) with information relating to any mistakes that were made in the baseline data and how these would affect the emissions reported. DECC (formerly Defra) will then consider whether to reduce allocation of allowances, in future years, in accordance with Regulation 25. This process does not require the verifier to recheck or recalculate the baseline emissions calculations, but to raise with the operator any differences in the scope of emissions covered.

4.3.2 Site Visits

109. Annex V of the Directive 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'*.
110. Annex I, section 10.4.2(a) of the M&R Decision requires the verifier to perform the strategic analysis in such a way that it informs the risk analysis and, when necessary, includes a site visit.
111. According to Annex I, section 10.4.2 (c) of the M&R Decision, the verifier shall in carrying out the verification conduct a site visit, when appropriate, to inspect the operation of meters and monitoring systems, conduct interviews, and collect sufficient information and evidence.
112. In virtually all cases, therefore, verifiers shall visit the installation as part of annual verification. There may be a few situations when the operator and verifier can agree, and justify, why a site visit is not necessary or cannot be carried out. In such cases, the operator must obtain approval for this from the regulator each year. Applications must be made in writing to the regulator and must contain the operator's reasons why a site visit is not required and the verifier's views on these reasons. Applications must be made before the end of September each year.
113. In commenting on whether or not a site visit is required, the verifier will take into account the potential risks to the verification of not visiting the site. Potential risks for both the verifier and operator include:
 - The conclusions of the strategic and risk analyses being ill-informed and the verification plan being compromised as a result.
 - The verifier not being able to confirm the scope of the installation and the approved monitoring plan because they cannot view all the emission sources and source streams associated with the site.
 - Inability of the verifier to confirm tier requirements in relation to metering etc. since they will not be able confirm that the physical meters meet the description in the

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monitoring plan and their required maintenance. The verifier not being able to *'confirm the validity of the information used to calculate the uncertainty level as set in the approved monitoring plan'*.

- The verifier not being able to check whether changes have occurred which have not been approved by or notified to the regulator.
 - The verifier not being able to check the effectiveness and implementation of the data acquisition and handling activities, and the control system and associated control activities (as approved in the monitoring plan and required under sections 10.1 – 10.3 of the M&R Decision).
 - An incorrect verification opinion being based on an incorrect emission report resulting in an inaccurate number of allowances being surrendered in April.
 - Inability of verifier to check that the monitoring and reporting on site complies with the requirements of the monitoring plan and M&R Decision.
 - Overall, the verifier not being able to undertake adequate walkthrough tests, interviews, document and data reviews (including on traceability of emissions data to source, and horizontal and vertical corroborative checks of validity) to form a verification opinion that states with reasonable assurance whether the data in the emissions report is free from material misstatements and whether there are no material non-conformities.
114. If objectives set in accordance with the strategic and risk analysis are met during a verification or site visit, the verification plan will not usually require further modification and verification may proceed as planned. However, if the objectives are not met, for example, misstatements and non-conformities are identified, the verification plan will require modification. This may result in need for more walkthrough tests, interviews, sampling, and document reviews, and possibly further site visits; as well as more verifier time than originally quoted for.
115. Where the regulator agrees that a site visit is not required, the verifier shall check the approval before completing the verification. Agreed exemptions shall be justified and recorded in the verification report.
116. 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 annual emissions figures.
117. Site visits are assumed to mean:

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- sampling at the site of an installation to audit compliance with the rules and principles for monitoring and reporting;
 - sampling at an installation's head or regional office if this is where the emissions data are held or processed; and
 - sampling at any other location (e.g. suppliers' facilities) where data verification work may be necessary.
118. It is not generally adequate to visit only an installation's head office. Again, justification for such an approach (e.g. on grounds of central data management including calibration or if all data is based on fiscal metering and invoicing), requires written agreement from the regulator.
119. After initial 2008 data verification, situations in which a site visit may not be required could possibly include:
- Where there is an un-manned site with telemetered data sent to another location; and the same person is responsible for all the data management and recording for the site.
 - The site is in a remote or inaccessible location and there is high centralisation of the data collated from the site at another location with good quality assurance.
 - Meters have already been inspected on site and a signed document and/or photographic evidence from the operator demonstrates that no metering or operational changes have occurred at the installation.
120. In such cases, verifiers can consider whether site visits are required based on a risk assessment and consideration of whether any changes on site have occurred.

4.3.3 Meter checks and calibrations

121. Section 10.3.2 of the M&R Decision states that '*the operator shall ensure that relevant measuring equipment is calibrated, adjusted and checked at regular intervals including prior to use, and checked against measurement standards traceable to international measurement standards where available, in accordance with the risks identified according to 10.2. The operator shall identify in the monitoring plan if components of the measurement instrument cannot be calibrated, and propose alternative control activities, which need the approval of the competent authority. 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 for the period of 10 years.*'

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122. To comply with these requirements and ensure a level playing field in data reported from the most significant input to the emissions calculation – the metering equipment – checks of an installation’s approved measurement tier should be carried out against traceable international standards (where available) at ‘regular intervals’.
123. The required frequency and nature of checks and adjustments may be specified within the operator’s monitoring plan for the installation or within the internal written procedures. In such cases, the verifier shall confirm that the appropriate checks and adjustments have been carried out, and shall review documentation to ensure checks have been performed in accordance with the required standards and procedures. If the checks have not been carried out by the operator in accordance with monitoring plan or procedure, this should be noted in the verification report and the verifier will need to consider whether it constitutes a material non-conformity in which case a ‘not verified’ opinion should be issued.
124. Where the frequency and nature of the checks is not specified in the monitoring plan, or there are no specific appropriate international standards, the verifier should review documentation and records and consider whether the operator has demonstrated that the relevant metering equipment has been calibrated, adjusted and checked at regular intervals including prior to use, and checked against appropriate calibration standards traceable to international measurement standards (if available), and that the operator has promptly taken necessary remedial action when the equipment is found not to conform to requirements. If appropriate international standards are not available, the operator shall follow draft standards, industry best practice guidelines or onsite procedures, and provide evidence that the techniques used are appropriate. These will then be checked by the verifier.
125. If the verifier considers that the procedures are inadequate, improvements should be clearly described and noted in the verification report. The verifier will also need to consider whether a ‘not verified’ opinion should be issued if the lack of checking could lead to material misstatement in the emissions figure.
126. Differing tiers may require different calibration and adjustment regimes. Specific additional requirements should be noted where on-line gas analysers or gas chromatographs are included in the approved monitoring plan to deliver highest tier compliance. Under section 13.5.3 of the M&R Decision, such instruments require use of calibration services and calibration gases accredited against BS EN ISO 17025:2005, and also annual inter-comparisons that are also executed by a BS EN ISO 17025:2005 accredited laboratory. The operator should be applying conservative adjustments where an annual inter-comparison suggests that emissions may be being under-estimated, and statistically significant differences in results (2σ) notified to the regulator and resolved.
127. Monitoring plans with lower tier requirements may require less stringent calibration regimes. Further useful guidance on expected requirements may be found in the UK Competent Authority Interpretation of the Main

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Uncertainty Analysis Requirements resulting from the Revised Monitoring & Reporting Guidelines (MRG 2007)²⁷, especially Annex I: Standard Measurement Uncertainties for the Most Common Measurement Instruments, and also in guidance on UK supply of natural gas.

128. An installation may demonstrate compliance with the requirements, by providing the verifier with the following records, where appropriate:

- Age of meter
- Visual inspections
- Maintenance, according to manufacturer's recommendations
- Cleaning, calibration and adjustment
- Orifice plate/instrument sizing/isometrics
- Laboratory calibration, and regular on-site loop calibrations of:
 - Differential Pressure transmitters
 - Pressure transmitters
 - Temperature transmitters
 - Density transducers (densitometers)
- Flow (mass) calculation checks
- In use constant values
- Flow totalisation tests.

129. In addition to calibration and maintenance of meters, verifiers and operators are reminded to consider and to check the following :

- meter installation e.g. adequate straight pipework upstream and downstream of a meter (depending on the meter type);
- meters should be in the appropriate plane (vertical/horizontal pipework);
- flow volume being measured e.g. volumes and type still within the original design capacity of the meter; steady state flow etc. and;

²⁷ http://www.environment-agency.gov.uk/static/documents/Business/uncertainty_mrg_1807595.pdf

- the possible limitations of weighbridge calibration.
130. Where the monitoring plan specifies a checking and calibration regime, any changes to that regime should be approved by the regulator. Where the regulator has not approved a particular change, a 'not verified' verification report should be issued, with comments, unless the verifier considers that the lack of calibration is unlikely to lead to material misstatement or a material non-conformity.
131. Where the installation is in full compliance with the monitoring plan, changes that would improve the data through a revised calibration regime, can be recommended by the verifier in the verification report (see section 4.10.3 on improvements).
132. 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 within any calculations for adjustments.

4.3.4 Equipment failure

133. The M&R Decision states '*If the highest tier methodology or the variable-specific agreed tier is temporarily not feasible for technical reasons an operator may apply the highest achievable tier until such time as the conditions for application of the former tier have been restored. The operator shall, without undue delay, provide proof of the necessity for a change of tiers to the competent authority and details of the interim monitoring methodology. The operator shall take all necessary action to allow the prompt restoration of the original tier for monitoring and reporting purposes*'.
134. Operators must therefore notify the regulator of any pertinent equipment failure as soon as possible (or as required in the permit/monitoring plan) after the meter or equipment fails resulting in a drop to a lower tier monitoring method.
135. The M&R Decision also states that '*The treatment of minor data gaps which result from downtimes of measurement systems shall follow good professional practice ensuring a conservative estimation of emissions*'.
136. Therefore, operators should also ensure that procedures are in place to estimate CO₂ emissions in the event of meter failure, and that any failure is rectified as quickly as possible. CO₂ emissions during meter failure should be estimated using techniques such as the appropriate activity data and/or the worst case monthly average efficiency factor during the previous twelve months of operation. For example, the activity data might be 'run-time' or 'product output', and the efficiency factor might be the highest monthly 'gas usage per day' or the highest monthly 'gas usage per tonne of product' determined in the twelve months preceding the date that the meter became unavailable. The method used should give rise to the most representative set of data, avoiding under-reporting. The M&R

Decision defines *'conservative means that a set of assumptions is defined in order to ensure that no under-estimation of annual emissions occurs'*. The operator will also need to demonstrate that any estimates made were consistent with the underlying M&R principles such as faithfulness, trueness and transparency, and that prompt measures were taken to correct any failures.

137. The verifier must check that there is an adequate alternative emissions monitoring method in place in the event of equipment failure and that the emissions have been calculated correctly using the method in the monitoring plan or as agreed in writing with the regulator. If improvements are required to the method, these should be noted in the verification report. The verifier shall also check that operators have notified the regulators of any equipment failures or drops to lower tiers during the reporting period, and that efforts were made to correct the failures as promptly as possible.
138. As in other cases, failure to comply with any permit conditions relating to equipment failure and the M&R Decision (for temporary deviations), and any subsequent enforcement of non-compliance will be handled by the regulator.

4.3.5 Metering point locations

139. Where metering points are not in full compliance with the permit and monitoring plan approved by the regulator, verifiers should request the operator to reconcile such disagreements with the regulator, potentially through a permit variation.
140. The location of metering points may influence the emissions reported. Where any discrepancy with the permit's monitoring plan has not been agreed to by the regulator and leads to a material misstatement or a material non-conformity, a 'not verified' opinion should be issued with reasons clearly stated. If such a discrepancy is unlikely to lead to material misstatement or in the verifier's opinion to a material non-conformity, this should result in a 'verified with comments' opinion being issued explaining the discrepancies (see section 4.3.3 on metering instrumentation, section 4.5 on materiality, section 4.10.3 on improvements and section 4.10.2 on the types of verification opinion).

4.3.6 Use of supplier/invoice information and end of year reconciliations

141. The M&R Decision allows for the consumption of fuels and materials to be determined by either the operator or the supplier. Supplier determinations will often be presented in the form of invoiced data issued to the operator for the goods received, but an invoiced quantity may not always exactly tally with the start (1st January) or end (31st December) of the reporting period. For example, it may concern goods that are partly used in December of one year and January of the next. In these

circumstances, operators are expected to show reasonable discernment in deciding the part of a supply used in the current reporting period compared to the next. The verifier should ensure that the two parts (that allocated to the current reporting period, and that allocated to the next) add up to the total in the invoice affected; and that the quantity claimed for the start of the current reporting period agrees exactly with the numerical value recorded the year before at the time of the previous annual emission report and verification.

142. Similarly, there may be some difficulties in obtaining gas meter readings and carrying out other activities such as stockpile reconciliations at midnight on 31 December each year. If a reading cannot be done exactly at this time, then the verifier must consider the potential impacts of the meter reading being taken outside this time in determining data accuracy. If the entire plant has closed down for the Christmas break and no fuel is used once the installation is closed, then an earlier meter reading should be acceptable and should not affect the data. This also applies to the start of the next reporting year commencing 1 January if the invoice does not commence on this date. However, other circumstances will require more careful consideration of the robustness of any reconciliation involved.
143. Installations burning natural gas that have monitoring plans requiring the use of gas invoice data and default emission factors to calculate emissions, may be able to follow less rigorous management controls compared to installations where onsite gas analysis is required. However, verifiers should still check the meter tag identification and location and take into account the UK guidance on natural gas supply²⁸.

4.3.7 Emission factors, calorific values, and oxidation factors

144. The relevant emission factors, calorific values, composition data, oxidation and conversion factors used to calculate CO₂ emissions will be specified in the installation's monitoring plan along with the M&R Decision tier approved for their determination.

Emission factors

145. Emission factors required in monitoring plans range from default factors, such as those in the latest UK Greenhouse Gas National Inventory²⁹ (usually designated as Tier 2) or in the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (Tier 1 factors)³⁰ to more accurate, site specific factors obtained through analysis of samples in BS EN ISO 17025 accredited laboratories (Tier 3 factors).

²⁸ See: <http://www.defra.gov.uk/environment/climatechange/trading/eu/index.htm>

²⁹ The full report available at: <http://www.naei.org.uk/reports.php>

³⁰ See: <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>

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146. IPCC emission factors (Tier 1) are not usually found in the UK's monitoring plans, except possibly where there is no emission factor for the particular fuel in the UK GHG Inventory. Factors in the UK GHG inventory are considered to be more accurate for UK installations than the IPCC factors. For the majority of installations, particularly smaller installations, Tier 2 factors (the UK GHG inventory factors) are commonly applied.
147. If the monitoring plan does not specify a particular tier for an emission factor (or the tier specified is not actually available), the operator should contact the regulator to determine what factor to use. The monitoring plan should then be varied to incorporate it. Where a tier level is not given for an emission factor for a de minimis source stream/s and one is not available in the UK GHG Inventory or the IPCC list, the factor should be agreed with the regulator as a 'de minimis tier' method. Verifiers should check that the emission factors used by the operator are consistent with the monitoring plan and advise operators if there are discrepancies that need to be resolved with the regulator.
148. A user-friendly spreadsheet of the most up to date emission factors and calorific values from the UK GHG Inventory for use in EU ETS reporting is published on Defra's website³¹. The spreadsheet also provides additional data concerning oxidation factors and conversion factors (for converting gross to net energy consumption). The M&R Decision states clear preference for use of energy based emission factors in the case of fuels (tCO₂/TJ) *'to achieve highest transparency and widest possible consistency with national greenhouse gas inventories'*, but does allow for mass or volume based emission factors (tCO₂/t or tCO₂/Nm³ of fuel) to be used for EU ETS reporting in restricted cases where the operator would otherwise incur unreasonable costs. Alternatively, operators and verifiers can consult the full GHG Inventory Report³².
149. Emission factors in the national GHG Inventory published in April each year should be used for the full year's reporting to provide certainty for installations. The factor must not be changed mid-way through the year, unless ISO laboratory accreditation is an issue (see section 4.7.2 below).
150. The GHG Inventory published in April 2008 contains emission factors up to 2006. In practice therefore, the factors used in any particular year for EU ETS reporting will be two years out of date with the exception of natural gas. National emission factors for natural gas will be compiled in January/February each year and used in the subsequent GHG Inventory. The natural gas emission factors for Local Distribution Zones (LDZ) in the UK will therefore only be one year out of date i.e. the 2007 figure will be used for 2008 EU ETS monitoring and reporting. Installations can determine their LDZ using the tables of post codes in the spreadsheet, **and if in doubt they should contact their gas supplier to confirm their LDZ.**

³¹ See: <http://www.defra.gov.uk/environment/climatechange/trading/eu/operators/mon-rep-ver.htm>

³² See: www.naei.org.uk/reports.php

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151. Emission factors will be updated annually as new GHG Inventories are prepared and submitted to the UNFCCC, and corresponding changes will need to be implemented in the annual reporting cycle as advised by DECC/Defra.
152. Operators should be aware that national average default factors are likely to change with fluctuations in fuel and material quality, CVs and quantities. AEA who prepare the inventory on behalf of the UK Government, is keen to obtain up-to-date information on fuels and materials used in the UK, and process emissions each year³³. New emission factors should be taken into account as early as possible after April/May each year. This will enable operators to assess and plan for the impacts of any changes to emission factors.
153. Verifiers shall check that the emission factors used in the calculations are the ones specified in the monitoring plan and, if default factors are used, verifiers should check that they are consistent with the ones contained within the spreadsheet provided.

Calorific values

154. Calorific values used to prepare the UK's GHG Inventory are typically derived from BERR's Digest of UK Energy Statistics (DUKES)³⁴. These have been used to convert the mass emission factors in the Inventory to energy based factors in the spreadsheet for EU ETS reporting. The spreadsheet also contains net and gross calorific values for most fuels and the conversion factors used. Net CVs are required for input into the annual emissions report.

Oxidation factors

155. The oxidation factor applied to the calculation of emissions should be specified within the monitoring plan. Where an oxidation factor of <1.0 has already been taken into account in calculating the default emission factor in the UK GHG Inventory, a second oxidation factor must not be applied. However, an oxidation factor should be used as required by the M&R Decision where this is not the case.

Conversion factors

156. Activity data concerning "process emissions" is based on material consumption, throughput or production output. Carbon contained in the input material streams that is not converted to CO₂ during the process is taken into account in the form of a conversion factor, or factors, expressed as a fraction. Conversion factors should also be noted in the

³³ Operators are encouraged to get involved in the collation of data for the inventory and if interested they should contact Defra (eu.ets@defra.gsi.gov.uk) to be involved.

³⁴ See: <http://www.berr.gov.uk/whatwedo/energy/statistics/source/total/page18424.html>

monitoring plan unless they are already taken into account in the corresponding process emission factors. They will be either default factors as contained in the M&R Decision or site-specific conversion factors determined through on-site analysis. An additional conversion factor correction must not be applied to CO₂ emissions calculations where the process emission factor already takes conversion into account.

Correction to standard conditions

157. Operators should use appropriate factors to convert data to the units required for reporting in accordance with the M&R Decision. Verifiers must check that the correct factors have been used (for example checking that emission factors and calorific values are in the same terms i.e. gross or net, the same standard temperature and pressure, etc). N.B. The M&R Decision requires annual reporting of gas related activity, CV and emission factor data in terms of normal cubic meters (Nm³) which it defines as meaning a temperature of 273.15K (0°C) and a pressure of 101,325 Pa.
158. The same responsibilities apply to process conversions and factors.

Improvements

159. Where a verifier considers that it is technically feasible for more accurate emission factors, calorific values, composition data, conversion factors, and oxidation factors to be applied by the installation, enabling them to move to a higher tier, these should be recommended as potential improvements in the verification report, taking into account expected improvements indicated in the regulators' corresponding guidance note³⁵.

4.4 Data management systems

160. 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 verifiers can be more confident in the quality of the data being checked, and this may influence the data sampling strategies and the verification plan.
161. To improve data management operators can find out more from publications, such as the practitioner guide issued by the Institute of Environmental Management and Assessment (IEMA). The guidance is aimed at companies and organisations that have not previously been involved in regulated data reporting, or reporting of data that has been subject to high levels of assurance such as might be applied for financial purposes. It focuses at the installation level where much of the data

³⁵ See: http://www.environment-agency.gov.uk/static/documents/Business/guidance_1373049.pdf

related to activity and carbon composition are generated and located for record keeping purposes. Operators should refer to the IEMA website for further details^{36,37}.

4.4.1 The Operator's Control System

162. Verifiers shall check that installations have appropriate processes in place for data acquisition and handling, a control system and control activities, as required under sections 10.1, 10.2 and 10.3 of the M&R Decision and as specified in the monitoring plan.
163. Section 10.3.1 of the M&R Decision requires the operator to have as a minimum written procedures covering:
- *the sequence and interaction of data acquisition and handling activities according to 10.1, including the methods of calculations or measurement which are used,*
 - *risk assessment of the definition and evaluations of the control system according to 10.2,*
 - *management of the necessary competences for the responsibilities assigned according to 10.3.1,*
 - *quality assurance of the measuring equipment and information technology used (if applicable) according to 10.3.2,*
 - *internal reviews of reported data according to 10.3.3,*
 - *outsourced processes according to 10.3.4,*
 - *corrections and corrective action according to 10.3.5,*
 - *records and documentation according to 10.3.6.*
164. Section 10.3.1 further requires each of the operator's procedures to address as appropriate: responsibilities; records (electronic and physical, whatever is applicable and suitable); information systems used (if applicable); input and output, and clear linkage with previous and next activity; and frequency (if applicable).
165. The procedures should be suitable to mitigate risks identified as part of the operator's control system and assessment of risks of misstatements in the annual emissions report and of non-conformities concerning the approved monitoring plan, the permit and the M&R Decision. An operator may hold additional written procedures where the assessment of risks suggests this appropriate. The verifier should expect to witness at least

³⁶ See: http://www.iema.net/shop/product_info.php?products_id=7895

³⁷ See: <http://www.iema.net/>

the above listed procedures as part of an effectively established, documented, implemented and maintained data acquisition and handling and risk control system. If one of the above listed written procedures is considered irrelevant to the operator's activities and risks (e.g. 'outsourced processes according to 10.3.4', where nothing is outsourced), the operator should be able to demonstrate written record confirming this decision and the regulator's accompanying approval (e.g. 'outsourced processes according to section 10.3.4 of the M&R Decision is not relevant at the current time or foreseeable future as no processes affecting EU ETS activities are outsourced').

166. A description of the written procedures that should be in operation (starting 1st January 2008) is listed in Appendix 2 of each permit under the 'Management arrangements for monitoring and reporting' section of the approved monitoring plan. Copies of the actual written procedures and associated documentation (e.g. logs recording implementation) should be immediately available to the regulator or annual emissions verifier on request. Operators should note that failure to comply with the above outlined control requirements could constitute a breach of permit condition 1 and therefore be subject to enforcement action under the regulator's enforcement and prosecution policy. Also, where a verifier discovers discrepancies as part of annual emissions verification (e.g. absence of a required procedure or non-compliance with a procedure), they should advise the operator immediately, and depending on the seriousness record it as a non-conformity or a material non-conformity in the verification report that is passed on to the regulator. A material non-conformity will result in a 'not verified' verification opinion. Possibility of any 'not verified' verification opinion should be brought to the regulator's attention as soon as possible to see if the matter can be resolved and a more positive verification opinion result (before the 31st March final submission deadline).
167. The verifier should add recommendations to the verification report where their own consideration of risks suggests that improvements could be made to the operator's data acquisition and handling and risk control system.

4.4.2 Data retention

168. Section 9 of the M&R Decision, requires operators to retain data, calculations, and related specified information for at least ten years after the submission of emission reports. Relevant information may be retained in paper and/or electronic form.
169. Verifiers should also retain parallel documentation records for ten years (including working papers). Relevant information may be retained in paper and/or electronic form.
170. Similar requirements apply to documents and laboratory tests used to calculate emissions data. For example, results of tests for 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. Original copies of reports are preferably to photocopies.

4.5 Materiality

171. The M&R Decision states that *'the verifier shall make a judgement with respect to whether the annual emissions report contains any material misstatement as compared to the materiality threshold, and whether there are material non-conformities or other issues relevant for the verification opinion'*, and that *'an annual emissions report is verified as satisfactory if the total emissions are not materially misstated, and if, in the opinion of the verifier, there are no material non-conformities'*.
172. Section 2(5) of the M&R Decision defines:
- *'materiality level means the quantitative threshold or cut-off point to be used to determine the appropriate verification opinion on the emission data reported in the annual emissions report'*
 - *'material misstatement means a misstatement (omissions, misrepresentations and errors, not considering permissible uncertainty) in the annual emissions report that, to the professional judgement of the verifier, could affect the treatment of the annual emissions report by the competent authority, e.g. when the misstatement exceeds the materiality level'*
 - *'non-conformity means any act or omission of an act by the installation being under verification, either intentional or unintentional, that is contrary to the requirements in the monitoring plan approved by the competent authority under the installation's permit'*
 - *'material non-conformity means that a non-conformity to the requirements in the monitoring plan approved by the competent authority under the installation's permit, could lead to a different treatment of the installation by the competent authority'*
173. Non-conformities have a qualitative nature which means that it very much depends on the specific circumstances and **the professional judgment of a verifier** whether a non-conformity has material effect. Misstatements are more of a quantitative judgement and are more linked to the materiality threshold. The materiality level for Category A and B installations is set at 5% and the materiality level for Category C installations at 2%.
174. Quantitative thresholds (including the materiality levels set by the M&R Decision) are not relevant to consideration of non-conformities. Non-conformities are considered to be material if the verifier decides that they **could** have any numerical effect on the reported emissions. Non-material non-conformities are other issues contrary to the requirements of

the monitoring plan. For example, failure of the monitoring plan to reflect recent organisational changes, where the monitoring methodology remains the same but is undertaken by a different department or person, is likely to be considered a non-material non-conformity where the verifier has no reason to suspect that it has led to any material error in the reported emissions.

175. In cases where the verifier identifies misstatements concerning the reported emissions, the verifier should require additional information from the operator to resolve the matter. If additional information does not resolve the outstanding data queries and the outstanding misstatements and non-conformities leave material misstatements or material non-conformities, then the verifier shall state that the annual emission report was not verified as satisfactory (i.e. issue a 'not verified' opinion). The operator will have to progress this issue with the relevant regulator.
176. As an example, if an otherwise adequate meter has drifted out of calibration during the reporting period, then the verifier may form an opinion as to whether this could have had a material impact upon the emissions data. If so, the installation may propose an adjustment for the drift and if the proposed adjustment is considered adequate by the regulator, the verifier may then consider any remaining error to be non-material and proceed to issue a satisfactory final verification report.
177. The operator should seek to address all misstatements and non-conformities immediately, and should be expected to be able to resolve most before issue of the final verification report. Misstatements and non-conformities that are resolved before issue of the final verification report shall be logged in the verifier's internal verification documentation. Any remaining will be noted in the final verification report that is submitted to the operator for passing on to the regulator.
178. Further information on materiality and what it means is available in the EA Guidance note EA 6/03 and a supporting note on how to address non-conformities and misstatements³⁸. Section 4.8.1 below contains further guidance on identifying and dealing with errors, omissions and misrepresentations that could lead to material errors.

4.6 Developing and implementing a verification plan

179. The verifier is required to draw up a verification plan which is commensurate with a risk analysis, related to the scope and complexity of the operator's activities and emission sources and source streams, and which could lead to material misstatements and non-conformities.

³⁸ http://www.european-accreditation.org/n1/doc/EA6_03.pdf

180. More detailed information about how verification plans should be developed by verifiers is contained within EA-6/03 and UKAS guidance and will not be covered in detail here. However, below are some issues that the UK Government³⁹ considers must be taken into account in developing the verification plan.

4.6.1 Scope and complexity

181. The verifier shall 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.
182. 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 may be more time consuming than it otherwise needs to be. Operators should therefore have all the relevant documents and data ready for the verification (see Quick Reference Guide for Operators, evidence pack box, available on the Defra webpage).
183. Any material misstatements in the emissions data submitted by Group C installations (emitting >500,000t/CO₂ per year) will potentially have very significant impacts on the number of allowances they surrender each year and, therefore, actual environmental impacts. Verifiers should therefore tailor their plans to ensure omissions, misrepresentations or errors in data for these large installations are discovered and corrected wherever possible. Material misstatements in data for smaller installations may not have such significant environmental impacts, but could have a significant impact on the small business itself. Errors may increase the number of allowances that a small installation needs 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.
184. 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 Annex V of the Directive).

4.6.2 Sampling

185. Grouping of installations and then sampling the records from some in order to verify the emissions data for others is **not allowed** for annual

³⁹ UK Government means DECC (Department of Energy and Climate Change), the Scottish Executive, the National Assembly for Wales or the Department of the Environment (Northern Ireland).

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verifications in the M&R Decision. Each installation's annual emissions report and monitoring must be verified on its own merits.

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

Data sampling

187. Data sampling strategies may be used by the verifier to reduce the resources required for verification at an installation provided the sample is representative and conforms to all legislative requirements, including the principles of verification of the Directive and M&R Decision. It should be noted that EA-6/03 relates verification requirement to the sufficiency of verification evidence and verification risk, and optimisation of the breadth and depth of sampling in order to deliver a verification opinion with reasonable assurance.
188. Any data sampling strategy to verify the accuracy of the data requires prior assessment of relevant evidence 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, and again at the strategic and risk analysis stage (Stage 1 in Figure 2) and subsequent verification stages (Stages, 2, 3 and 4 in Figure 2) as necessary.
189. Where a data sampling strategy has been adopted and problems are revealed within the sample selected, then the whole data set must be re-examined (subject to a repeated risk analysis) and additional data samples tested until such time that the verifier is satisfied that the full extent of any potential or actual misstatement is understood.
190. Data sampling should include the verifier carrying out horizontal and/or vertical data checks.

Fuel and material sampling

191. Section 13 of the M&R Decision refers to sampling of fuels and materials in order to perform analysis to calculate specific emission factors, calorific values, composition data, oxidation factors and process emission conversion factors.
192. Where the monitoring plan describes the sampling requirements, the verifier will simply check that these have been followed correctly (and recommend any improvements if necessary). However, plans may not fully specify the requirements in detail. In such cases, the operator should offer proposals and seek clarification from the regulator regarding requirements, or provide evidence to the verifier demonstrating that representative fuel or materials sampling has been carried out (in accordance with section 13.6 of the M&R Decision).

193. If the sampling regime is not specified in the monitoring plan and the verifier believes that the regime used by the operator is inadequate, the operator may need to obtain written clarification from the regulator with respect to representative sampling requirements and implement improvements. Or, if less urgent and unlikely to cause material errors, the matter may be raised in the verifier's improvement recommendations.
194. In subsequent verifications, findings from previous engagements may be considered in deciding whether to increase or decrease the level of verification effort afforded to individual sources, or data, or the system.

4.6.3 Verifier review and quality assurance

195. The verifier's internal processes are covered in the UKAS Guidance and checked through the accreditation process. Accreditation requires the verifier to demonstrate good quality assurance and robust internal processes. Competent technical reviewers and lead verifiers are critical to successful data verification, and they must have a high level of competence and independence.
196. UKAS has established a process for witnessing of all lead GHG verifiers.

4.7 Application of monitoring methodology

4.7.1 Monitoring methodologies

197. Verifiers should note that the monitoring methodology for an installation is already approved by the regulator and is detailed in the installation's monitoring plan. In the UK, these monitoring plans consist of approved requirements confirmed in Appendix 2 of the permits. Further more detailed information may also be found in:

- The operator's written procedures concerning data flow and control activities, as formally required by section 10.3.1 of the M&R Decision.
- The original ETS2.2 monitoring plan application.
- Formal correspondence between the operator and regulator, notifying changes to the monitoring plan.

The monitoring plans include specification of the location and identity of relevant measuring equipment and associated compliance tiers. The methodology in the plan must be used for verification purposes whether or not it is the same as that for a similar installation.

Operators must provide indication of the complete and up to date monitoring plan on request.

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198. Process emissions data calculations and measurements vary by industrial sector. Specific requirements for each installation will be included in the monitoring plan based on the Annexes in the M&R Decision. In some cases, further clarification of approaches may be available from industry specific documents designed to promote consistent approach and understanding amongst operators and verifiers, e.g. JEP (Electricity Supply Industry) guidance⁴⁰.
199. If the verifier considers that the monitoring has not been applied correctly in accordance with the monitoring plan they should raise any inconsistencies with the operator as soon as possible. The operator must then either change the monitoring to come into line with the monitoring plan, or apply to the regulator to vary the monitoring plan.
200. If the inconsistency cannot be corrected through a variation (variation to the permit or approved notification of a minor change to the monitoring plan) in time for the verification report to be issued, and the discrepancy does **not** cause material errors or it is **not** because the operator has used a lower tier factor than the one specified in the monitoring plan (excluding times of authorised temporary deviation), then a 'verified' opinion can be issued. In these cases, the verifier must state the reasons for any inconsistencies and describe the improvements required to comply with the monitoring plan. However, if the inconsistency is not corrected and it is likely to lead to material errors, or the inconsistency involves the use of a lower tier factor than that specified in the monitoring plan (excluding times of authorised temporary deviation), the verifier must issue a 'not verified' verification opinion (see section 4.10.2 for further information) with a description of the material errors and reasons.
201. If the verifier believes that an approved monitoring plan is incorrect or inadequate in terms of the requirements of the M&R Decision, the operator must:
- be advised as soon as possible of the need for immediate action if the discrepancy is likely to be of material concern and could result in a 'not verified' verification opinion;
 - in other cases, be advised, including in the form of a recommended opportunity for improvement in the verification report (e.g. where it would be feasible for the operator to apply a higher tier methodology). It is then the operator's responsibility to comment on any recommendations in the improvement report due by 30 June and to implement improvements as specified by the regulator in response to that report (see section 2.6).
202. The monitoring plan should specify monitoring required for all relevant greenhouse gas emission sources listed in the GHG Permit. Verifiers must check that the scope of the permit complies with Appendix 1 of the

⁴⁰ See regulator websites e.g. the Environment Agency's: <http://www.environment-agency.gov.uk/business/topics/pollution/32240.aspx>

Directive and EU ETS Guidance Note 1⁴¹, and any determinations by the regulator. They must also check that all emission sources listed in the GHG Permit are included in the monitoring plan. Any discrepancies should be raised with the operator as soon as possible, and resolved. Verifiers may ask operators to show evidence of why a permit scope does not meet with their expectations for compliance. Evidence could include details of correspondence with the regulator about which sources should and should not be in the permit, and any permit variation documents.

4.7.2 Laboratory accreditation

203. Top tier monitoring (typically Tier 3) to determine emission factors, carbon contents, CVs, activity specific, oxidation or conversion factors typically requires laboratories to be accredited to EN ISO 17025:2005 ('General requirements for the competence of testing and calibration laboratories'). This is irrespective of whether the laboratory is located onsite or offsite, and run by the operator or not. 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 methods are those required by the monitoring plan.
204. If laboratory ISO 17025 accreditation is gained during the year, the operator should immediately seek a permit variation from the regulator. When completing the annual emissions report, the operator must compare the results of relevant pre-accreditation laboratory analysis with those since gaining accreditation or using accredited laboratories. Provided the operator can adequately demonstrate to the verifier that the dataset is continuous and the results of analyses performed before accreditation do not contain material errors (as a result of lacking accreditation), then the whole year's EU ETS reporting must be based on application of the laboratory analyses. Where the results between the pre- and post- ISO 17025 accreditation shift noticeably, indicating that material errors may have occurred during the period before laboratory accreditation, the previous default values (lower tier factors) specified in the monitoring plan must be used up to the point that ISO accreditation is granted. Once ISO17025 accreditation is obtained, measurements from the accredited laboratory must then be used for reporting (irrespective of whether permit variation to incorporate the move to the new tier has been completed by the regulator). However, the operator should demonstrate that the variation is at least in progress.
205. Where a verifier considers that an installation could feasibly move to a higher tier, such as by obtaining ISO 17025 accreditation for its laboratories or by using off-site accredited laboratories, and more accurate on-site sampling and analysis, this should be explained in the verification report as a 'recommended improvement' (see the verification report template, Annex 1, section C). In making recommendations, the

⁴¹ See: <http://www.defra.gov.uk/environment/climatechange/trading/eu/pdf/guidance-note1.pdf>

verifier should consider the regulator's guidance on expected improvements.

206. Although a clearly stated preference is retained for use of accredited laboratories, section 13.5.2 of the M&R Decision has introduced additional possibility of meeting top tier requirements using **non-accredited laboratories**, limited to where the operator can:

- Demonstrate to the regulator that the laboratory meets equivalent requirements to those laid out in EN ISO 17025:2005⁴².
- Provide evidence that the laboratory is technically competent and able to generate technically valid results using the relevant analytical procedures. Onus is on the operator for:
 - A validation of each relevant analytical method carried out by the non-accredited laboratory against reference methods carried out by a laboratory appropriately accredited to EN ISO 17025:2005.
 - Once a year inter-comparison of results, involving a laboratory appropriately accredited to EN ISO 17025:2005 and, representative samples and reference methods for each relevant parameter and fuel or material.

207. Where the verifier comes across use of data from non-accredited laboratories, they should check that the regulator has been appropriately notified and has approved the laboratories and parameters involved, and that validation and annual inter-comparison requirements are in order (according to section 13.5.2 of the M&R Decision). This includes need for the operator to apply conservative adjustments to non-accredited data where the inter-comparison tests suggest under-estimation of emissions (see Section 13.5.2(b) of the M&R Decision).

4.7.3 Uncertainty

208. Other than rare cases where a fall-back approach has been approved (under section 5.3 of the M&R Decision), sections 7.1 and 7.2 of the M&R Decision confirm that the uncertainties in the monitoring method tiers are authorised by the regulator on accepting the installation's monitoring plan. Under section 10.4.2(c) of the M&R Decision, the verifier is required *'to confirm the validity of the information used to calculate the uncertainty level'* (for example, that a measurement instrument has not been compromised by inadequate maintenance or calibration since the regulator's authorisation; or insufficient frequency of analysis concerning representative derivation of an installation specific emission factor).

⁴² See an IMPEL Emissions Trading Technical Support Group (ETSG) note available on this subject, 'Equivalence of non-accredited labs to EN ISO 17025:2005', via http://ec.europa.eu/environment/impel/pdf/final_report_annex5.pdf

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However, the verifier is **not** required to repeat the operator's uncertainty analysis. It should be noted that the definition of 'misstatement' in section 2(5)(j) of the M&R decision makes pointed reference to '*omissions, misrepresentations and errors, not considering the permissible uncertainty*'. In other words the verifier should not take authorised measurement uncertainty into account in their consideration of materiality.

209. M&R Decision section 7.1 (uncertainty assessment: calculation-based methodology) and section 7.2 (uncertainty assessment: measurement-based methodology) both state '*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*'. Observations regarding non-conformities or recommended improvements should be recorded in the verification report.
210. As a minimum requirement, operators should specify (and verifiers shall check) that the specified uncertainty of metering equipment or calculated uncertainty (where an assessment has been carried out), is numerically smaller than the uncertainty thresholds of the M&R Decision tiers approved in the monitoring plan.
211. Further information on the UK competent authorities interpretation of uncertainty assessment requirements and the information used to calculate it is available from the Environment Agency's website⁴³.
212. Procedures should be in place to assess stock opening and closing balances. These may be either in the monitoring plan or the installation's own operating procedures. Verifiers should check that the records and calculations are consistent with the approved methods, and should recommend improvements if the method is considered to be inappropriate.
213. Only in the case of fall-back approaches approved under section 5.3 of the M&R Decision are operators formally required to submit an annual re-evaluation of the uncertainty analysis, along with the annual emissions report, for verification. An overall uncertainty analysis is required, in the case of a fall-back approach, combining the uncertainties of all variables and parameters used in the calculation of the reported annual emissions according to the ISO Guide to the Expression of Uncertainty in Measurement⁴⁴ and ISO 5168:2005. Although the need to verify the emissions of an installation applying a fall-back approach will present the verifier with additional work and competency needs, instances of approved fall-back approaches are extremely rare in the UK.

⁴³ see: http://www.environment-agency.gov.uk/static/documents/Business/uncertainty_mrg_1807595.pdf

⁴⁴ Guide to the Expression of Uncertainty in Measurement, ISO/TAG 4. Published by ISO 1993. Reprinted in 1995 (in the name of the BIMP, IEC, IFCC, ISO, IUPAC, IUPAP and OIML).

4.7.4 Excluded emission sources

214. The monitoring plan approved by the regulators may specify the approach for calculating emissions from emission sources that are excluded from the scope of the permit (e.g. technical units that are not deemed to be part of a combustion installation), but are served by the same fuel meter as other included sources. Verifiers must check that the operators have followed the approved method and, if necessary, should recommend improvements in the verification report.
215. Where there appears to be no approved method for calculating emissions from minor disaggregated sources, the verifier shall consider whether the estimation method used by the operator could lead to material errors affecting the accuracy of emissions calculations from sources included in the permit. If in doubt, advice should be sought from the regulator. In some cases the regulator may have permitted a 'conservative' (as defined in section 2(2)(d) of the M&R Decision), estimate of emissions⁴⁵.

4.7.5 De minimis and minor source streams

216. Some monitoring plans include reference to de minimis and/or minor source streams (as defined in section 2(4) of the M&R Decision⁴⁶). The monitoring tiers required for calculating emissions from these source streams should be specified in the monitoring plan and the verifier should simply check that the appropriate activity data and factors have been used in the calculations.
217. In some cases a 'de minimis' tier approach may be appropriate and this too should also be specified in the monitoring plan and checked for correct application by the verifier. Where no monitoring methodology is specified for a de minimis source stream, verifiers should check that the emissions have been calculated on a fair and reasonable basis that does not lead to material misstatements, and they should recommend that the operator confirm their chosen approach with the regulator.
218. Verifiers do not need to recommend improvements to source streams listed as de minimis and minor unless there is doubt about eligibility based on the reported emissions. Efforts should normally focus on recommending improvements to the monitoring of larger emission sources on a site.

⁴⁵ See an IMPEL Emissions Trading Technical Support Group (ETSG) note, 'Determining the quantity and assessing the uncertainty of a source stream partially covered by EU-ETS', for more information: http://ec.europa.eu/environment/impel/pdf/final_report_annex5.pdf

⁴⁶ Minor source streams mean those that jointly emit less than 5kt fossil CO₂ or less per year or that contribute less than 10% (up to a maximum contribution of 100kt fossil CO₂) of the total annual emissions of that installation (before subtraction of transferred CO₂), which ever is the highest in terms of absolute emissions. De minimis source streams mean those that jointly emit less than 1kt fossil CO₂ or less per year or that contribute less than 2% (up to a maximum contribution of 20kt fossil CO₂) of the total annual emissions of that installation (before subtraction of transferred CO₂), which ever is the highest in terms of absolute emissions.

4.8 Revising calculations

219. The following section explains the types of errors, omissions or misrepresentations that may lead to material misstatement in the final emissions figure, and how they should be assessed and corrected. Operators should be aware that they will be required to amend the annual emission report if errors are found by the verifier and need to be corrected. The process requires good co-operation between the verifier and the operator, and quick responses to queries and requests for further information to prevent delays in the process.

4.8.1 Checking for, and dealing with, errors

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

- a. Verify data sets and fuel/material data as determined by the verification/data sampling plan.
- b. If errors, omissions or misrepresentations are found, the installation operator should correct them
- c. When errors, omissions and misrepresentations 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 misrepresentations recur or may be deemed based on data sampling not to recur in the rest of the data set.
- d. If errors, omissions or misrepresentations recur, the operator of the installation 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 misrepresentations recur or may be deemed (based on sampling) not to recur 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.

221. If errors are identified by the verifier, they should be corrected by the operator and recorded in the verifier's internal verification report/documentation. 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 misstatement for (a) that source stream; and (b) the emissions report. This should be commented on in the verification report.

4.8.2 Missing data

222. Where data are missing, the operator should seek approval from the regulator on how the lack of data should be handled (e.g. when a fiscal gas meter fails for a period). Any agreements on how missing data should be treated (such as the procedure outlined in section 4.3.4) must then be checked by the verifier as having been followed correctly.
223. If the regulator has accepted that a certain element of the monitoring plan could not be met during the year, then this can be taken into account in the verification, and a 'verified' opinion issued, noting as a comment that while the monitoring is not in accordance with the monitoring plan, this has been accepted by the regulator.

4.8.3 Unverifiable annual emissions figure

224. If an installation's annual emissions figure cannot be verified, the verifier shall 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-conformity with the monitoring plan or M&R Decision the operator should make the necessary changes to the monitoring methodology or seek approval for the discrepancies from the regulator, prior to finalising the annual emissions report and acquiring the final verification opinion.
225. 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 the operator has failed to make sufficient information (requested by the verifier) available to the verifier, or there is significant (material) non-conformity with the monitoring plan, or there are missing data that could not be accurately estimated, then a 'not verified' opinion must be reported (see section 4.10 below).

4.9 Installations that cease to be Schedule 1 activities

226. Where an installation ceases to carry out all Schedule 1 activities at the installation (e.g. the installation closes, or drops permanently below the capacity threshold for the activity specified in Schedule 1), the operator shall apply to the regulator to surrender the installation's permit. Such an application must be made within 1 month of the date on which the installation ceases to carry out the activities (Regulation 16).
227. The regulator will then issue the operator with a notice of surrender of the permit. The notice will require the operator to prepare and submit a verified annual emissions report and associated verification report. This will cover the reportable emissions from the beginning of the year in which the notice of surrender takes effect up to the date the notice takes

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effect. The notice will also specify the date by which the annual emissions and verification reports should be submitted.

228. Operators should aim to contract a verifier as soon as they become aware that the installation will cease to carry out all Schedule 1 activities. This will ensure that the verification can be completed in time for the verified annual emissions report to be submitted by the date specified in the surrender notice.
229. In general, the process described in this document should be followed to verify a part year's emissions data. The verifier must also confirm the date on which the installation ceased to carry out the Schedule 1 activity(ies), however, they will not need to recommend monitoring improvements. Operators should aim to ensure verification begins before the site closes and is dismantled so that a site visit can be carried out by the verifier. However, this may not always be possible if the verifier is contracted after equipment is removed or destroyed. If this situation occurs, operators must provide the verifier with adequate records and, potentially, photographs of the equipment so that the verifier can perform a proper assessment as far as practicable. The absence of information must be taken into account by the verifier in reaching conclusions about the materiality of the data.
230. The operator is then required to surrender allowances equal to the reportable emissions (plus any other outstanding allowances) as set out in the notice of surrender.
231. Regulators can also revoke permits by serving a notice (Regulation 17), in which case similar requirements will be set out in the notice of revocation.
232. Further requirements relating to closures are contained within Regulations 16 and 17.

4.10 Reporting

233. The EA-6/03 Guidance recognizes two types of reports that both need to be prepared by the verifier as part of annual verification (corresponding to the section 10.4.2(d) and (e) requirements of the M&R Decision):
- The internal verification report – the internal verification documentation recording evidence that the strategic analysis, the risk analysis and the verification plan have all been performed in full, and sufficient information to justify the verification process (including the competence of the verifier, and justifications for all decisions made) and the final verification opinion.
 - The verification report - the final verification opinion statement complying at least with the requirements of

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Annex V, point 11, of the EU ETS Directive, section 10.4.2(e) of the M&R Decision and any specific Member State requirements, and which is issued to the operator for onward submission to the regulator.

234. The internal verification report forms the basis for the verifier's independent technical review (as required by UKAS and other members of the European cooperation for Accreditation), and for any additional scrutiny which may be requested by the accreditation body or regulator.
235. EA-6/03 includes an "informative" annex on the recommended minimum content of a verifier's internal verification report⁴⁷.
236. The UK requires use of a standard template for the final verification opinion which is available on Defra's website⁴⁸. The UK also requests that all misstatements and non-conformities that are known and that remain outstanding at the time of the verifier issuing the verification report, must be indicated in the verification report. This is irrespective of whether material or non-material, and is to assist the requirement set in section 10.4.2(e) of the M&R Decision that *'Member States shall ensure that the operator addresses non-conformities and misstatements after consultation of the competent authority in a time scale set by the competent authority'*. This responsibility is then completed by the operator submitting a corresponding improvement report by the ensuing 30 June and fulfilling conditions 10 and 11 of their GHG Permit (see section 2.6).
237. As discussed in section 4.1, operators need to prepare and carry out the following:
- Submit a verified annual emissions report and a verification report to the regulator by **31 March** each year.
 - As soon as possible after submission of the verified annual emissions report and by **31 March**, the verified annual emissions figure should be entered into the Registry and approved by the verifier;
 - Where required, submit an improvement report to the regulator by **30 June** each year (see section 2.6).
238. The sections below briefly discuss the annual emissions report and the matters that must be covered in the verification report prepared by the verifier.

⁴⁷ Annex G, EA-6/03 July 2008 rev02: http://www.european-accreditation.org/n1/doc/EA6_03.pdf

⁴⁸ See: <http://www.defra.gov.uk/environment/climatechange/trading/eu/operators/mon-rep-ver.htm>

4.10.1 Annual emissions report

239. The annual emissions report must be completed by the operator using the format in section 14 of the M&R Decision. To assist operators in the UK, regulators have developed an annual emissions report template (ETS7)⁴⁹. This report and the GHG Permit must then be used as a basis for the verification. Once the annual emissions report is final and has been verified, the verifier must attach the completed verification report template to form one file. This file should then be provided to the operator in a 'read-only' form. The operator must then forward the verified annual emissions report and verification report to the regulator **as the one file**.

4.10.2 Verification report

240. Section 10.4.2(e) of the M&R Decision states: *'The verifier shall present the verification methodology, his findings and verification opinion in a verification report, addressed to the operator, to be submitted by the operator with the annual emission report to the competent authority. **An annual emissions report is verified as satisfactory if the total emissions are not materially misstated, and if, in the opinion of the verifier, there are no material non-conformities***'
241. Section 10.4.2(e) of the M&R Decision adds *'The verifier may conclude an annual emissions reports is not verified as satisfactory, if the verifier finds material non-conformities or material misstatements (with or without material non-conformities). The verifier may conclude an annual emissions report is not verified when there was a limitation of scope (when circumstances prevent, or a restriction was imposed that prevents, the verifier from obtaining evidence required to reduce the verification risk to the reasonable level) and/or material uncertainties.*
242. EA-6/03 provides a normative annex on the minimum content that needs to be included in a verification opinion⁵⁰. For UK reporting, this has been developed into the template verification report available from Defra's website. **This standard format must be used by all verifiers preparing verification reports for clients with installations in the UK.** Verifiers must read all the instructions in the first worksheet before completing the template and ensure that all the connected sheets have been downloaded.
243. The template indicates that a verifier should specifically note if:
- a. the operator is in compliance with the rules of the Scheme
 - b. the emissions data have been reported in compliance with the general reporting principles and the monitoring plan; and

⁴⁹ See Appendix 2 – Contact details for regulator websites where the template can be downloaded.

⁵⁰ Annex H, EA-6/03 July 2008 rev02: http://www.european-accreditation.org/n1/doc/EA6_03.pdf

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- c. the emissions data have been satisfactorily verified.
244. The wording of the Directive (Annex V) and section 10.4.2(e) of the M&R Decision require a positive opinion i.e. '*emissions are not materially misstated*'. This form of statement is similar to what is known in accounting as 'reasonable assurance' previously known as a 'a high level of assurance' (which is applied to financial statement audits). Therefore significant effort needs to go into ensuring that nothing has come to the verifier's attention to suggest that the data are not materially misstated, and enough checks have been done for the verifier to reach a positive conclusion.
245. There are potentially three types of verification opinion statement that may be issued. These are described in Table 1 below.

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Table 1. Types of verification opinion statements.

	Type of VOS	What it means	Consequences
1.	Verified.	The verifier is satisfied there are no material misstatements in the annual emissions report and that there are no material non-conformities regarding how the monitoring has been carried out in accordance with requirements of monitoring plan and the M&R Decision. Any inconsistencies have been resolved and are no longer an issue.	None.
2.	Verified with comments.	The verifier considers that there are some remaining inconsistencies (non-material misstatements and non-material non-conformities), potentially with the monitoring plan or the M&R Decision that should be addressed by the operator as soon as possible and these are noted in the verification report. However, the inconsistencies are not material and therefore the annual emissions data can be verified as satisfactory.	Remaining misstatements and non-conformities (as well as other recommendations for improvements to comply with the monitoring plan and M&R Decision) must be noted in the verification report, and should then be resolved by the operator following regulator agreement via the operator's 30 June improvement report commitment. Permit variations may be required.
3.	'Not verified' or 'unverified'	<p>The verifier considers that there is material misstatement in the emissions report, that has not been possible to correct or amend, and/or that there are material non-conformities regarding adherence to the requirements of the monitoring plan or M&R Decision. The verification report must state why the data could not be verified and where the material misstatements and material non-conformities lie.</p> <p>The verifier should also indicate the likely materiality of the (potential) misstatement/non-conformity.</p> <p>This situation should be avoided wherever possible, by starting the process early, maintaining good communication between verifier and operator, carrying out early correction of any errors or inconsistencies or seeking relevant approvals from the regulator.</p>	<p>The verifier shall issue a verification report inclusive of an opinion clearly stating that the data is 'not verified'. The emission report and verification report will then be considered by the regulator in accordance with Regulation 30. The verifier shall NOT approve the figure inserted by the operator into the registry. This must be done only by the Registry Administrator following confirmation from the regulator that the data is acceptable or has been determined to be different. The operator's account will be frozen (excluding the ability to surrender allowances) until such time as the relevant emissions figure can be confirmed as satisfactory by the regulator. If the regulator is unable to confirm the figure by 30 April, the operator should surrender the number of allowances estimated (by the operator) to be a sufficient number of allowances.</p>

4.10.3 Recommendations for improvements

246. The verifier is required to indicate recommended improvements in Annex 1 of the verification report. Annex 1 of the verification report is divided into three sections to allow the verifier to list:

- A. Misstatements.
- B. Non-conformities.
- C. Recommended improvements.

247. Operators should address the cause of misstatements and non-conformities, and consider implementing recommended improvements, as soon as possible notifying the regulator of the changes to be made to fully comply with the monitoring plan. Or they should apply to the regulator to vary the permit relating to the part of the monitoring plan affected. Subsequent verifications can check notifications and variations were made and any correspondence with regulators.

248. In relation to section C, a verifier is expected to recommend:

- Improvements related to the monitoring plan and/or quality assurance upgrades.
- Improvements related to improvement in data accuracy and upgrade in tier.
- Other improvements (e.g. to the data management system, robustness, transparency, etc.).

The verifier will only consider the technical feasibility of improvements to achieve a higher tier, not the cost-effectiveness of the improvement. They will also consider the regulator's expectations for improvements by different sectors. The operator can comment on the cost-effectiveness of the recommendations, when they submit their improvement report to the regulators by 30 June.

249. Regulators will consider operator reports on improvements and may decide to vary the permit to include verifier recommendations or other appropriate improvements. Where the operator disagrees with the verifier's recommended improvements (regarding technical feasibility) or considers that they are not cost-effective, this will be considered by the regulator in determining whether or not to require the improvements through a permit variation or change in the monitoring plan.

250. Operators can appeal variations to conditions of GHG Permits within timeframes set out in the regulations (Regulations 32 and 33).

4.11 Registry interaction

251. The verifier must apply online through the Registry website to become authorised to use the UK Registry. They must appoint an 'authorised representative' and submit evidence identifying both the verification body itself (where applicable) and the individual who will access the registry on its behalf. Evidence of their accreditation must be submitted with each application. This will be checked against the UKAS list of accredited verifiers and verifiers accepted from other Member States. The Registry Administrator will then check the identity of the individuals because they require digital certificates to access the secure area of the website.
252. The verifier's application must be approved by the Registry Administrator before the authorised representative can access the registry, be selected as the operator's verifier and approve verified emissions figures in the Registry. So it is advisable for verifiers to apply to the registry as soon as possible. The procedures for verifiers and identity requirements are set out in the Registry Terms and Conditions available from the Registry website⁵¹.
253. The total emissions figure for an installation in an annual emissions report that has been verified as satisfactory shall be used **by the regulator to check whether a sufficient number of allowances have been surrendered by the operator in respect of that same installation.**
254. This process will be achieved through the operation of the Emissions Trading Registry with involvement of the regulators.
255. Once the verified annual emissions report and verification report has been submitted to the regulator, the operator's primary authorised representative (PAR) or secondary authorised representative (SAR) can enter (propose) the emissions data for the installation into the Registry. Alternatively, the operator can arrange for the verifier to enter the installation's verified annual emissions data on their behalf (once the verification report is completed and submitted to the regulator). Entry of data into the Registry is independent of the regulator and must take place by 31 March each year at latest.
256. If the operator's authorised representative (PAR or SAR) enters the verified annual emissions data, the verifier will still be required to log onto the Registry and confirm that the figure entered is correct. After this, 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.
257. Allowances making up the total of annual reportable emissions for the installation (for that year) must be surrendered by the PAR or SAR from the installation's account by 30 April each year.

⁵¹ See http://etr.defra.gov.uk/Web_TsAndCs.asp

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258. Where an operator fails to surrender allowances by 30 April each year as required by their permit conditions, the Registry Administrator will report the deficiency to the regulator who will consider enforcement of a civil penalty of 100 euros per tonne of reportable emissions not covered by a surrendered allowance by that date.
259. If the verifier cannot verify, or rejects, the figure entered by the PAR or SAR, the operator of the installation will be required to resolve any issues regarding the emissions data with the verifier, and if necessary, the regulator. Any issues requiring resolution may result in a revised verification report being issued by the verifier and submitted to the regulator by the operator. Verifiers may consider such work as additional and charge accordingly. In the meantime, the operator of the installation will be prevented from making further transfers of allowances (excluding the surrender of allowances) until the annual emissions figure is accepted by the regulator. The operator may also be liable for penalties for failing to surrender sufficient allowances by 30 April each year.
260. Where a 'not verified' opinion is issued, and the regulator is unable to determine the annual emissions figure by 30 April (under regulation 30), the operator should surrender the number of allowances that they estimate to be correct, which may be the 'unverified' annual emissions figure plus a margin for error. If the subsequent determination by the regulator finds that the actual annual emissions figure is higher and that more allowances should have been surrendered, then the operator will be liable for penalties on these additional allowances, as well as having to surrender them.
261. Further information about the registry and how to apply for a registry account is available on the Environment Agency's website⁵².
262. 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.

⁵² <http://www.environment-agency.gov.uk/business/topics/pollution/32250.aspx>

Appendix 1 Acronyms and glossary

Activity Data	Historic data and information about fuel use rates, production rates, material use rates and fuel types that have been used to calculate CO ₂ emissions from combustion and processes.
Activity Factor	The numeric value representing any action or operation that causes or influences the release of greenhouse gas emissions (e.g. amount of fuel consumed or counts of emission sources); absolute greenhouse gas emissions result when related to the rate of emissions from the action.
Audit	The objective of an audit (of the information being verified) is to enable the verifier to express an opinion on whether the information is in accordance with an identified framework for drawing up emission reports.
Baseline emissions	Annual carbon dioxide (CO ₂) emissions from an installation during the baseline period of 2000 to 2003 or as submitted in accordance with an installation's new entrant application.
BERR	Department for Business Enterprise & Regulatory Reform works to create the best environment for business success in the UK and to help people and companies become more productive by promoting enterprise, innovation and creativity.
Combustion installation	See paragraph 6 of Guidance Note 1.
Competent authority	A body or institution which has the authority to enforce Commission legislation. In the UK and in this guidance, competent authorities are also referred to as 'regulators'.
Conversion factors	Factors expressing the fraction of carbon contained in input materials that is converted to CO ₂ during a process.
CVs	Calorific values. The calorific values used to prepare the UK's GHG Inventory and are typically derived from the Department of Trade and Industry's Digest of UK Energy Statistics (DUKES).
DECC	Department of Energy and Climate Change, which brings together much of the Climate Change Group, previously housed within the Department for Environment, Food and Rural Affairs (Defra), with the Energy Group from the Department for Business Enterprise and Regulatory Reform (BERR).
DEFRA	Department for Environment, Food and Rural Affairs, which works for the essentials of life - food, air, land, water, people, animals and plants. Defra's remit is the pursuit of sustainable development - weaving together economic, social and environmental concerns
Density transducers	Equipment for measuring the density of a gas, liquid or solid.
DUKES	Digest of UK Energy Statistics, which contains extensive tables, charts and commentary covering all the major aspects of energy, including separate sections on petroleum, gas, coal and electricity.
EA	European Co-operation for Accreditation, who cover European conformity assessment activities.
Emissions	Emissions from a permitted installation, measured in tonnes of carbon dioxide. Calculations should only be rounded at the end when reporting the CO ₂ in total number of tonnes with no decimal points.
Emission factor	The emission rate for a particular emission source per unit of the source, when related to the activity data (e.g., amount of fuel consumed or counts of emission sources) results in absolute greenhouse gas emissions.

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EU ETS	European Emissions Trading Scheme. One of the policies being introduced across Europe to reduce emissions of carbon dioxide and combat the serious threat of climate change. Phase I of the Scheme began on 1 January 2005 and ran until 31 December 2007. Phase II began 1 January 2008 and will run until 31 December 2012 to coincide with the first Kyoto Protocol commitment period. Phase III will commence 1 January 2013.
Flow totalisation	Flow meters that have a built in capability to sum or totalize volume continually.
Fiscal metering	Metering used to measure the quantity of hydrocarbons used for sale, custody transfer, ownership allocation or calculation of royalty or tax.
GHG	Greenhouse Gas. A gas that absorbs and re-emits infrared radiation, warming the earth's surface and contributing to climate change. Each greenhouse gas has a different capacity to cause global warming. Greenhouse gases include water vapour, carbon dioxide, methane, nitrous oxide nitrous oxide (N ₂ O), hydrochlorofluorocarbons (HCFCs), ozone (O ₃), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF ₆).
GHG Permit	Greenhouse Gas Permit. A permit granted to an installation pursuant regulation 8 of the UK Regulations.
IEMA	Institute of Environment Management and Assessment. A not-for-profit Professional Institute established to promote best practice standards in environmental management, auditing and assessment.
Installation	An 'installation' is defined in the ETS Regulations as: a stationary technical unit where one or more activities listed in Schedule 1 of the ETS Regulations are carried out; and any other location on the same site where any other directly associated activities are carried out which have a technical connection with the activities carried out in the stationary technical unit and which could have an effect on greenhouse gas emissions and pollution. (See Guidance Note 1 – Guidance on Inclusion for further information).
ISO	International Organisation for Standardisation.
LDZ	Local Distribution Zone of the National Grid network.
M&R Decision	Monitoring and Reporting Decision. Commission Decision 18/07/2007, 2007/589/EC 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.
Monitoring Plan	Monitoring plans outline the monitoring and reporting that will be carried out by an installation in the EU ETS. It is prepared by operators and must be approved by regulators. Monitoring plans form part of the installation's GHG Permit.
Materiality	An expression of the relative significance of any individual matter (error, omission misrepresentation) in the context of an installation's annual emissions data.
Non-compliance year	The year after which in respect of which an operator fails to comply with a condition of the permit imposed pursuant to regulation 10(3).
Operator	A person who operates or manages an installation, if provided for under national legislation, who has been given the authority to make economic decisions concerning technical operations.
Oxidation factors	A factor representing the proportion of carbon that is oxidised during combustion.
PAR	Primary Authorised Representative.
Permit variation notice	Has the meaning of regulation 14(9). In brief, it is a notice served by the regulator specifying variation to the provision of a permit, such as conditions relating to monitoring and reporting and the date or dates upon which the variation/s are expected to take effect.
Recovery year	The scheme year following the non-compliance year, or where the non-compliance results from an error in the report submitted by an operator under a monitoring and reporting condition, the scheme year in which the error is discovered.

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Registry	Computerised registries are key components of the EU Emissions Trading Scheme . A Registry allows account holders to hold, transfer, or acquire EU allowances and Kyoto units. They also enable regulators and nominated competent authorities to manage regulated industries (those with legal emissions reduction targets), and monitor national compliance and performance against international emissions reductions obligations.
Regulator	The agency responsible for issuing permits and approving annual monitoring and reporting plans as defined in regulation 2 of the Greenhouse Gas Emissions Trading Scheme Regulations 2005.
Risk assessment	Assessment carried out by a verifier to identify potential risks in the data that could lead to material errors or misstatements. This is used to direct and plan the verification process.
SAR	Secondary Authorised Representative
Stationary technical unit	A 'stationary technical unit' can be taken to mean something which is functionally self contained in the sense that the unit - which may consist of one component or a number of components functioning together - can carry out the Schedule 1 activity or activities on its own. (See Guidance Note 1 – Guidance on Inclusion for further information).
Tier	A specific methodology for determining activity data, emission factors and oxidation or conversion factors. Several tiers from a hierarchy of methodologies from which a selection shall be made in accordance with the Commission's M&R Decision.
UK GHG Inventory	The UK's Greenhouse Gas Inventory prepared annually by AEA on behalf of Defra for submission to the UNFCCC.
UKAS	United Kingdom Accreditation Service
UK ETS	United Kingdom Emissions Trading Scheme
UNFCCC	United Nations Framework Convention on Climate Change
Verification	Systematic, independent and documented assessment and/or identification performed at regular intervals by a verification body of the greenhouse gas emissions, emission reductions and/or storage of greenhouse gas emissions by an installation in the EU ETS.
Verification plan	Description of the activities and arrangements for the verification process (the verification programme and data sampling plan).
Verifier	The verification body or person responsible for carrying out the verification process and drawing up a report.
Verification report	The report issued by the verifier to an operator for passing on to the regulator with the verified annual emission report. The verified annual emissions report is the verified version of the operator's annual emissions report.

Appendix 2 Contact details

Government and Devolved Administrations

- Department of Energy and Climate Change, EU Emissions Trading Scheme, Area 4A, Ergon House, Horseferry Road, London, SW1P 2AL, UK. (eu.ets@defra.gsi.gov.uk)

<http://www.defra.gov.uk/environment/climatechange/trading/eu/>

- Scottish Executive, Environment Group, Climate Change Branch, 1G (North), Victoria Quay, Edinburgh, EH6 6QQ (climate.change@scotland.gsi.gov.uk)

<http://www.scotland.gov.uk/Topics/Environment/Climate-Change>

- The Department of Environment in Northern Ireland, River House, 48 High Street, Belfast, BT1 2AW (michael.o'neill@doeni.gsi.gov.uk)

<http://www.ehsni.gov.uk/environment/climatechange/air-climatechange.shtml>

- Welsh Assembly Government, Environment Division, Cathays Park, Cardiff CF10 3NQ (environment@wales.gsi.gov.uk)

http://new.wales.gov.uk/topics/environmentcountryside/climate_change/?lang=en

Regulators

- Environment Agency if the installation is located in England and Wales (ethelp@environment-agency.gov.uk)

<http://www.environment-agency.gov.uk/business/topics/pollution/32232.aspx>

- Scottish Environment Protection Agency if the installation is located in Scotland (emission.trading@sepa.org.uk);

http://www.sepa.org.uk/air/eu_emissions_trading_scheme.aspx

- Department for Business Enterprise and Regulatory Reform if the installation is located offshore (UK-wide) (emt@berr.gsi.gov.uk)

<https://www.og.berr.gov.uk/environment/euetsr.htm>

- Chief Inspector if the installation is located in Northern Ireland (emissions.trading@doeni.gov.uk).

<http://www.ni-environment.gov.uk/pollution/emissionstrading.htm>

Appendix 3 References

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UN Framework Convention on Climate Change (including the Common Reporting Format).

<http://unfccc.int/2860.php>

ISO 14064-1:2006, Greenhouse gases -- Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.

http://www.iso.org/iso/catalogue_detail?csnumber=38381

ISO 14064-2:2006, Greenhouse gases -- Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements.

http://www.iso.org/iso/catalogue/catalogue_tc/catalogue_detail.htm?csnumber=38382

ISO 14065:2007, Greenhouse gases -- Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition.

http://www.iso.org/iso/catalogue_detail?csnumber=40685

BS EN ISO/IEC 17025:2005, General requirements for the competence of testing and calibration laboratories. <http://www.bsi-global.com/en/Standards-and-Publications/Industry-Sectors/Quality/Quality-Products/BS-EN-ISOIEC-170252005/>

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://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:275:0032:0046:EN:PDF>

European Commission (2004) Commission Decision 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 (C)EN standards].

http://europa.eu.int/comm/environment/climat/pdf/c2004_130_en.pdf

European Commission (2007) Commission Decision 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 (C)EN standards]

http://eur-lex.europa.eu/LexUriServ/site/en/oj/2007/l_229/l_22920070831en00010085.pdf

European Commission (2004) Council Decision 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 of the European Parliament and of the Council.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:338:0018:0023:EN:PDF>

European Commission (2003) Council Directive of the European Parliament and of the Council, 2003. Public Access to Environmental Information and Repealing Council Directive 90/313/EEC <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:041:0026:0032:EN:PDF>

European Commission (2003) The Regulations implement the European Community Integrated Pollution Prevention Control Directive.

Integrated Pollution Prevention Control Reference Document on the General Principles of Monitoring (2003). http://www.epa.ie/Licensing/IPPCLicensing/BREFDocuments/FileUpload_480_en.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=4⁵³.

⁵³ Please note that membership of IETA may be required in order to download the document from their website.

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European Commission (2000) Establishing a list of Wastes <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2000:226:0003:0024:EN:PDF>

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European Commission European Pollutant Emission Register (EPER) and European Pollutant Release and Transfer Register (E-PRTR)
<http://ec.europa.eu/environment/air/pollutants/stationary/eper/index.htm>

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

European Co-operation for Accreditation Guidance for Recognition of Verifiers Under EU ETS Directive
http://www.european-accreditation.org/n1/doc/EA6_03.pdf

UK Regulations

The Greenhouse Gas Emissions Trading Scheme Regulations 2005, SI2005 No. 925 and amendments (including SI 2006 No. 737; SI 2007 No. 465; and SI 2007 No. 3433)
<http://www.opsi.gov.uk/si/si2005/20050925.htm> ;
http://www.opsi.gov.uk/si/si2006/uksi_20060737_en.pdf ;
http://www.opsi.gov.uk/si/si2007/pdf/uksi_20070465_en.pdf ;
http://www.opsi.gov.uk/si/si2007/pdf/uksi_20073433_en.pdf)

Offshore regulations

Environmental Protection Agency (1999) Regional haze regulations
http://www.epa.gov/ttn/caaa/t1/fr_notices/rhfedreg.pdf

Guidance notes

Department of Environment, Food and Rural Affairs (2004) EU Emissions Trading Scheme – Guidance Note 1. Guidance on inclusion
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<http://defraweb/environment/climatechange/trading/eu/pdf/annverifguide.pdf>

Environment Agency (2007) Competent Authority Interpretation of the Main Uncertainty Analysis Requirements resulting from the Revised Monitoring and Reporting Guidelines (MRG 2007)
http://www.environment-agency.gov.uk/static/documents/Business/uncertainty_mrg_1807595.pdf

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Environment Agency (2007) - ETS2.2 Monitoring and Reporting Template. <http://www.environment-agency.gov.uk/business/topics/pollution/32236.aspx>

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<http://www.defra.gov.uk/environment/climatechange/trading/eu/index.htm>

CIS 5 UKAS Guidance for the Application of ISO/IEC Guide 65 (EN45011), EA-6/01 and EA-6/03, for verification of greenhouse gas emissions for the purpose of the UK's various emissions accounting and trading schemes (Annex III EU ETS Permitted Installations)
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<http://www.defra.gov.uk/environment/climatechange/trading/eu/operators/phase-1.htm>

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<http://www.defra.gov.uk/environment/climatechange/trading/eu/operators/phase-2.htm>

Appendix 4 Annex V of the Directive

CRITERIA FOR VERIFICATION REFERRED TO IN ARTICLE 15

General Principles

1. Emissions from each activity listed in Annex I 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 (EMAS).

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

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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(3) is satisfactory. This report shall specify all issues relevant to the work carried out. A statement that the report pursuant to Article 14(3) 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 adopted by the Commission pursuant to Article 14(1);
 - (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 5 Section 10.4 of M&R Decision

10.4 Verification

10.4.1 General Principles

The objective of the verification is to ensure that emissions have been monitored in accordance with the guidelines and that reliable and correct emissions data will be reported pursuant to Article 14(3) of Directive 2003/87/EC. Member States shall consider respective guidance issued by the European Cooperation for Accreditation (EA).

Subject to Chapter 10.4.2 e) a verification shall come to a verification opinion that states with reasonable assurance whether the data in the emissions report is free from material misstatements and whether there are no material non-conformities.

The operator shall submit the emissions report, a copy of its approved monitoring plan for each of its installations, and any other relevant information to the verifier.

The scope of the verification is defined by the tasks the verifier needs to perform to achieve the above objective. As a minimum the verifier shall perform the activities in accordance with the subsequent section 10.4.2.

10.4.2 Verification Methodology

The verifier shall plan and perform verification with an attitude of professional scepticism recognizing that circumstances may exist that cause the information contained in the Annual Emissions Report to be materially misstated.

As part of the verification process, the verifier shall carry out the following steps:

(a) Strategic Analysis

The verifier shall:

- verify whether the monitoring plan has been approved by the competent authority and whether it is the right version. If this is not the case, the verifier should not continue the verification except for elements that are obviously not affected by the non-approval
- understand each activity undertaken by the installation, the sources, source streams within the installation, the metering equipment used to monitor or measure activity data, the origin and application of emission factors and oxidation/conversion factors, any other data used to calculate or measure the emissions, and the environment in which the installation operates;
- understand the operator's monitoring plan, data flow, as well as its control system, including the overall organisation with respect to monitoring and reporting;
- apply the materiality level defined in Table 3 below.

Table 3
Materiality Levels

	Materiality Level
Category A and B Installations	5 %
Category C Installations	2 %

The verifier shall perform the strategic analysis in such a way that the verifier is able to conduct the risk analysis as set out below. When necessary this shall include a site visit.

(b) Risk Analysis

The verifier shall:

- analyse the inherent risks and control risks related to the scope and complexity of the operator's activities and emission sources and source streams, and which could lead to a material misstatements and non-conformities;
- draw up a verification plan which is commensurate with this risk analysis. The verification plan describes the way in which the verification activities are to be carried out. It contains a verification programme and a data sampling plan. The verification programme describes the nature of the activities, at what times they must be carried out and their scope in order for the verification plan to be completed. The data sampling plan sets out what data is to be tested in order to reach a verification opinion.

(c) Verification

In carrying out the verification, the verifier shall conduct a site visit, when appropriate, to inspect the operation of meters and monitoring systems, conduct interviews, and collect sufficient information and evidence.

Moreover, the verifier shall:

- carry out the verification plan by gathering data in accordance with the defined sampling methods, walkthrough tests, document reviews, analytical procedures and data review procedures, including any relevant additional evidence, upon which the verifier's verification opinion will be based;
- confirm the validity of the information used to calculate the uncertainty level as set in the approved monitoring plan;
- verify that the approved monitoring plan is implemented and seek understanding whether the monitoring plan is up to date;

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- request the operator to provide any missing data or complete missing sections of audit trails, explain variations in the emissions data, or revise calculations, or adjust reported data, before reaching a final verification opinion. The verifier should, in any form, report all non-conformities and misstatements identified to the operator.

The operator shall correct any reported misstatements. The entire population from which a sample was taken shall be corrected.

Throughout the verification process, the verifier shall determine misstatements and non-conformities by assessing whether:

- the monitoring plan has been implemented to support the determination of non-conformities;
- there is clear and objective evidence obtained through the gathering of data to support the determination of misstatements.

(d) Internal Verification Report

At the end of the verification process, the verifier shall prepare an internal verification report. The verification report shall record evidence showing that the strategic analysis, the risk analysis and the verification plan has been performed in full, and provide sufficient information to support verification opinions. The internal verification report should as well facilitate a potential evaluation of the audit by the competent authority, and accreditation body.

Based on the findings contained in the internal verification report, the verifier shall make a judgment with respect to whether the annual emissions report contains any material misstatement as compared to the materiality threshold, and whether there are material non-conformities or other issues relevant for the verification opinion.

(e) Verification Report

The verifier shall present the verification methodology, his findings and verification opinion in a verification report, addressed to the operator, to be submitted by the operator with the annual emission report to the competent authority. An annual emissions report is verified as satisfactory if the total emissions are not materially misstated, and if, in the opinion of the verifier, there are no material non-conformities. In the case of non-material non-conformities or non-material misstatements, the verifier may include these in the verification report ("verified as satisfactory with non-material non-conformities or non-material misstatements"). The verifier may also report these in a separate management letter.

The verifier may conclude an annual emissions reports is not verified as satisfactory, if the verifier finds material non-conformities or material misstatements (with or without material non-conformities). The verifier may conclude an annual emissions report is not verified when there was a limitation of scope (when circumstances prevent, or a restriction was imposed that prevents, the verifier from obtaining evidence required to reduce the verification risk to the reasonable level) and/or material uncertainties.

Member States shall ensure that the operator addresses non-conformities and misstatements after consultation of the competent authority in a timeframe set by the

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competent authority. In addition, all divergences of opinion between operators, verifiers and competent authorities shall not affect proper reporting and shall be settled in accordance with Directive 2003/87/EC, these guidelines, and the requirements established by the Member States pursuant to Annex V to that Directive, and relevant national procedures.

Appendix 6 EU ETS Regulations relating to verification

Conditions of greenhouse gas emissions permits

10 (1) There shall be included in a greenhouse gas emissions permit such conditions as the regulator considers appropriate and in particular such conditions as the regulator considers appropriate to comply with paragraphs (2) to (6).

(2) A greenhouse gas emissions permit shall include conditions concerning the monitoring and reporting of specified emissions from the installation to which it relates and, in particular—

(a) conditions to ensure that any specified emissions from the Schedule 1 activity to which it relates are monitored and reported in accordance with the Monitoring and Reporting Decision, including conditions—

- i. specifying the monitoring methodology and frequency; and
- ii. requiring the operator to submit reports of the annual reportable emissions to the regulator and concerning the timing of such reports;

(b) a requirement that all reports submitted pursuant to conditions imposed under sub-paragraph ii are verified in accordance with the criteria set out in Annex V of the Directive and that the regulator is informed of the results of any such verification; and

(c) a requirement that an operator notifies the regulator as soon as he becomes aware of any factor which might prevent him from complying with any of the conditions included in a greenhouse gas emissions permit pursuant to this paragraph.

(3) A greenhouse gas emissions permit shall contain conditions to ensure that the operator surrenders allowances equal to the annual reportable emissions from the installation within four months of the end of the scheme year during which those emissions arose.

(4) A greenhouse gas emissions permit shall provide that for the purpose of assessing compliance with a condition imposed pursuant to paragraph (3) in relation to a recovery year, the annual reportable emissions from the installation in that year shall be deemed to be increased by an amount equal to the amount of annual reportable emissions in respect of which the operator failed to comply with that condition in the non-compliance year.

(5) For the purposes of paragraph (4)—

(a) “a non-compliance year” shall be a scheme year in respect of which an operator fails to comply with a condition of the permit imposed pursuant to paragraph (3); and

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- (b) “the recovery year” shall be the scheme year following the non-compliance year, or where the non-compliance results from an error in the report submitted by an operator under a monitoring and reporting condition, the scheme year in which the error is discovered.
- (6) A greenhouse gas emissions permit shall contain a condition stating that in relation to any period for which the installation is an excluded installation (the “exclusion period”)—
- (a) the operator shall be deemed to be in compliance with any conditions imposed pursuant to paragraphs (2) and (3); and
 - (b) the operator shall be required to notify the regulator of any change in operation during the exclusion period, at least 2 months before the end of that exclusion period or within 10 days of the revocation of a certificate served under regulation 11(6) (except in relation to a part of the installation in respect of which a new certificate is issued in accordance with regulation 11(11)(b)).
- (7) Subject to paragraph (8), where an operator makes a change in operation to an excluded installation, the greenhouse gas emissions permit which relates to that installation shall, for the duration of the period for which the installation is an excluded installation, be deemed to authorise the change in operation.
- (8) Paragraph (7) shall not prevent an operator from making an application under regulation 14(2) for a variation of the provisions of a greenhouse gas emissions permit which relates to an excluded installation.
- (9) Regulators shall periodically review the conditions of greenhouse gas emissions permits and may do so at any time.

Offences

38(1) It is an offence for a person—

- (a) to contravene regulation 7;
- (b) to fail to comply with or to contravene a condition of a greenhouse gas emissions permit (except where regulation 39 or 40 apply to such failure to comply or contravention);
- (c) to fail to comply with regulation 12(1), 13(2) or 16(1) or to fail to comply with a condition of a notice under regulation 22(13)(a) imposed pursuant to regulation 22 (15) (b);
- (d) to fail to comply with the requirements of an enforcement notice;
- (e) to fail, without reasonable excuse, to comply with any requirement imposed by a notice under regulation 16(16) or 35(2);
- (f) **to make a statement which he knows to be false or misleading in a material particular, or recklessly to make a statement which is false or misleading in a material particular, where the statement is made—**
 - (i) in purported compliance with a requirement imposed by a notice under regulation 8(5), 14(6), 15(10), 16(16), 22(9), 24 (6) or 35(2);

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- (ii) for the purpose of obtaining the grant of a greenhouse gas emissions permit to himself or any other person, or the variation, transfer or surrender of a greenhouse gas emissions permit;
 - (iii) for the purpose of obtaining a certificate under regulation 11;
 - (iv) for the purpose of obtaining a notice authorising a pool under regulation 27;
 - (v) as part of the verification of a report required under a monitoring and reporting condition;**
 - (vi) for the purpose of obtaining an allocation from a new entrant reserve provided for in the approved national allocation plan;
 - (vii) for the purpose of retaining the allocation or a proportion of the allocation of allowances in respect of an installation which ceases to carry out a Schedule 1 activity;
- (g) intentionally to make a false entry in any record required to be kept under the condition of a greenhouse gas emissions permit;
- (h) with intent to deceive, to forge or use a document issued or authorised to be issued under a condition of a greenhouse gas emissions permit or required for any purpose under a condition of such a permit or to make or to have in his possession a document so closely resembling any such document as to be likely to deceive;
- (i) to fail to comply with Article 15(1), 15(3) or 19(3) of the Registries Regulation.
- (2) A person guilty of an offence under paragraph (1) shall be liable—
- (a) on summary conviction, to a fine not exceeding the statutory maximum or to imprisonment for a term not exceeding three months;
 - (b) on conviction on indictment, to a fine or to imprisonment for a term not exceeding two years or to both.
- (3) Where an offence under this regulation is committed by—
- (a) a body corporate (other than a limited liability partnership) and is proved to have been committed with the consent or connivance of, or to have been attributable to any neglect on the part of, any director, manager, secretary, or other similar officer of the body corporate or a person who was purporting to act in any such capacity;
 - (b) a limited liability partnership and is proved to have been committed with the consent or connivance of, or to have been attributable to any neglect on the part of, any member of the limited liability partnership or a person who was purporting to act as such; or
 - (c) a partnership in Scotland (other than a limited liability partnership) (a “Scottish partnership”) and is proved to have been committed with the consent or connivance of, or have been attributable to any neglect on the part of, any partner or a person who was purporting to act as such,

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that person as well as the body corporate, the limited liability partnership or the Scottish partnership, as the case may be, shall be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

- (4) Where the affairs of a body corporate (other than a limited liability partnership) are managed by its members, paragraph (3) shall apply in relation to the acts or defaults of a member in connection with his functions of management as if he were a director of the body corporate.
- (5) Where the commission by any person of an offence under this regulation is due to the act or default of some other person, that other person may be charged with and convicted of the offence by virtue of this paragraph whether or not proceedings for the offence are taken against the first-mentioned person.