



Personnel Competency Standard for Manual Stack-Emission Monitoring

Environment Agency
Version 10
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Record of amendments

Version number	Date	Amendment
9	Oct 14	Annex 2 - updated Code of conduct
10	August 16	Section 2.2 - Allowed Trainees more flexibility about when they can take the Level 1 examinations
		Section 4.5.2 – Added information about maintaining the hazard identification and risk assessment requirement

Status of this document

This MCERTS performance standard may be subject to review and amendment following publication of this document. The latest version of the standard, together with guidance on the scheme, is available on the Environment Agency's website at www.mcerts.net.

Feedback

If you have any comments on this document please contact Rupert Standing at rupert.standing@environment-agency.gov.uk

Foreword

We set up our Monitoring Certification Scheme (MCERTS) to provide a framework of standards you can use to monitor things that affect the environment. MCERTS covers:

- the standards of performance that your monitoring equipment must meet
- the level your staff must be qualified to
- accrediting laboratories and inspecting sites in line with European and international standards

The standard we focus on in this document sets out what you must do if you want to become certified to monitor pollution released from chimney stacks.

You can apply to MCERTS as a person or as an organisation. This document sets out the standards you must meet to be certified as an individual. You can get a separate document, which focuses on organisations, from the contact details at the end of this foreword.

This standard focuses on:

- your experience and training
- exams you must take

CSA Group runs this scheme on our behalf and is approved to do so by the United Kingdom Accreditation Service (UKAS).

The benefits of this standard

- The standard makes sure that information about pollution released from chimney stacks is reliable.
- Everybody in the competitive market of monitoring pollution from chimney stacks will be working towards the same standard.
- The standard sends a message that measuring pollution from chimney stacks is an important part of producing reliable information for regulatory purposes.
- By setting quality standards which everybody must work towards, the standard promotes and raises the professional reputation of people and organisations involved in monitoring pollution from chimney stacks.

If you have any questions about what you need to do to be certified or would like more information about how to apply, please contact:

CSA Group
Unit 6 Hawarden Industrial Park
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CH5 3US

Phone: +44(0)1244 670 900
E-mail: ukinfo@csagroup.org

You can get more information on MCERTS, including the standards related to monitoring pollution from chimney stacks, from our website at www.mcerts.net.

If you have any general questions about MCERTS, please contact Rupert Standing at rupert.standing@environment-agency.gov.uk

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Personnel competency standard for manual stack emissions monitoring

1. Introduction

1.1 Manual stack emission monitoring for regulatory purposes includes measurements for:

- determining compliance with numerical limits in authorisations and permits
- the calibration of continuous emission monitoring systems (CEMs)
- acceptance trials on new pollution abatement plant or alternative fuel applications

Note: Stack emission monitoring is a general term used to describe the preparation work prior to a measurement campaign, undertaking the site work, calculating the monitoring results and producing the final report for the client.

1.2 MCERTS for manual stack emission monitoring is built on proven international standards to ensure that the quality of monitoring data is high. The scheme is split into two components – the certification of personnel to the MCERTS personnel competency standard and the accreditation of stack-emission monitoring organisations to the MCERTS performance standard for organisations.

1.3 This document defines the personnel competency standard and sets out the requirements for personnel to achieve certification under the standard.

1.4 This standard should be used in conjunction with its companion standard the “MCERTS performance standard for organisations” and the “MCERTS examination syllabuses for manual stack-emission monitoring”. Both documents are available on the Environment Agency’s website at www.mcerts.net.

1.5 The MCERTS performance standard for organisations specifies the roles and responsibilities of MCERTS certified personnel working within an MCERTS accredited organisation.

2. Personnel competency standard

2.1 Competence levels

2.1.1 The standard defines three levels of competence - an entry level (trainee), Level 1 (technician) and Level 2 (team leader).

2.2 MCERTS entry level (Trainee)

2.2.1 Personnel entering the stack emission monitoring profession shall register on the personnel scheme as trainees. No certification will be awarded at this level.

Note 1: It is envisaged that most personnel will attain MCERTS Level 1 competency between six to twelve months following registration as a trainee. Exceptions may occur for personnel who do not undertake stack emission monitoring as the main part of their work.

2.2.2 Personnel shall attend an approved training course that covers hazard identification and risk assessment relating to stack emission monitoring. As a minimum, the course shall cover the health and safety section of Environment Agency Technical Guidance Note M1 and Source Testing Association's (STA) Risk assessment guide⁴.

Note 2: The MCERTS examination board will assess the suitability of training courses. Course providers are required to have a formal agreement with the Certification Body. The formal agreement includes the minimum qualification and experience required of course tutors.

Note 3: A list of approved training providers is available at the CSA website on www.csagroupuk.org

Note 4: It is strongly recommended that trainees receive this training near the start of their training programme.

2.2.3 The course on hazard identification and risk assessment shall be repeated every 5 years.

2.2.4 The MCERTS performance standard for organisations explains the role of trainees working within an MCERTS accredited organisation. A summary is provided in Annex 1 of this document.

2.3 MCERTS Level 1 (Technician)

2.3.1 To achieve MCERTS Level 1 certification personnel shall:

- gain a minimum of six months experience at the MCERTS trainee level
- perform manual emission monitoring on ten occasions
- submit a confirmation of work experience
- attend a course on hazard identification and risk assessment in the last 5 years
- pass a formal Level 1 examination assessing overall competence in stack emission monitoring including knowledge of health and safety

Note 1: A confirmation of work experience form is completed during the application process. The form is provided by CSA.

Note 2: Personnel may take the Level 1 examination before they have gained the minimum experience requirements but will not be granted certification until they have met all the certification requirements of Level 1.

2.3.2 The areas in which personnel shall demonstrate competence to achieve Level 1 certification are outlined in the MCERTS examination syllabus for manual stack emission monitoring.

2.3.3 The MCERTS performance standard for organisations explains the roles and responsibilities of Level 1 certified staff working within an MCERTS accredited organisation. A summary is provided in Annex 1 of this document.

2.4 MCERTS Level 2 (Team Leader)

2.4.1 In addition to meeting the requirements of MCERTS Level 1, to achieve MCERTS Level 2 certification personnel shall:

- gain at least six months experience at MCERTS Level 1
- perform manual stack emission monitoring on ten occasions at Level 1
- submit a confirmation of work experience
- pass one or more technical endorsements
- attended a course on hazard identification and risk assessment in the last 5 years
- pass an oral examination that contains elements on health and safety, planning, strategy, execution and reporting of stack-emission monitoring campaigns.

2.4.2 In addition, to achieve full certification at Level 2, at least 5 of the stacks worked on at Level 1 shall be at different sites (see section 2.5 for personnel who work on less than 5 sites).

2.4.3 Personnel shall have gained the minimum experience requirements before applying for the Level 2 oral examination.

Note 2: It is recommended that personnel who carry out a wide range of monitoring at a number of different processes spend at least one year at Level 1.

Note 3: Personnel are allowed to take technical endorsements before the Level 2 exam. However, these endorsements cannot be used until they pass the Level 2 exam.

2.4.4 The areas in which Level 2 personnel are required to demonstrate competence are outlined in the MCERTS examination syllabus for manual stack emission monitoring.

2.4.5 The MCERTS performance standard for organisations explains the roles and responsibilities of Level 2 certified staff working within an MCERTS accredited organisation. A summary is provided in Annex 1 of this document.

2.5 MCERTS Level 2 with limited scope

2.5.1 Personnel who do not have the opportunity to carry out monitoring at 5 different sites can still be certified. However, the scope of certification shall be limited to the sites at which they work.

2.5.2 As limited scope personnel do not tend to have as broad a range of experience as personnel who work on 5 sites or more, their oral exam may not cover topics in the same range or depth. The oral exam will be specific to the sites they have worked on.

2.5.3 Personnel with limited scope certification can have the limitation to their scope removed by firstly demonstrating they meet the experience requirements in Section 2.4. Once this has been demonstrated they must pass the oral exam for personnel who work on 5 sites or more.

2.6 Technical endorsements

2.6.1 To operate at MCERTS Level 2, personnel shall obtain one or more following technical endorsements:

Particulate monitoring by isokinetic sampling techniques (TE1)

This endorsement covers particulate monitoring by isokinetic sampling techniques. This also includes supporting measurements for water vapour and oxygen. Level 2 personnel shall obtain TE1 in order to carry out particulate size fractionation measurements (PM₁₀ and PM_{2.5}).

Note 1: The measurement principles and much of the equipment used for particulate and size fractionation sampling are the same, as both use isokinetic sampling techniques. The main difference is the addition of a device for separating particulates by size.

Note 2: TE1 assesses particulate sampling and does not include questions specific to particulate size fractionation.

Multi-phase sampling techniques (TE2)

This endorsement covers isokinetic sampling for a range of species in the particulate and vapour phases. The species include metals and trace organic micro pollutants such as dioxins/furans, PCBs, and PAHs. TE1 is a prerequisite for this endorsement.

Gases/vapours by manual techniques (TE3)

This endorsement covers the monitoring of gases and vapours by non-isokinetic manual techniques, which includes adsorption onto sorbent tubes and impinger solutions. The species include organic compounds, halides and halogens.

Note 3: See Section 2.8 for limited TE3 endorsement.

Gases/vapours by instrumental techniques (TE4)

This endorsement covers the monitoring of gases and vapours by instrumental techniques. The species include CO, CO₂, O₂, SO₂, NO and NO₂ by a variety of techniques and also total organic compounds by FID. The endorsement also covers a range of generic techniques such as optical spectroscopy.

Note 4: See Section 2.8 for limited TE4 endorsement.

2.7 Progression by technical endorsements

2.7.1 To obtain a technical endorsement in any one category, personnel shall:

- attain MCERTS certification at Level 1
- perform manual stack-emission monitoring methods specific to the technical endorsement at the MCERTS Level 1 competency level on 5 occasions (not required if personnel already have TE1 – see paragraph 2.7.3)
- pass the relevant technical endorsement examinations

2.7.2 Personnel shall have gained the minimum experience requirements before taking the technical endorsement examination(s).

2.7.3 The particulate monitoring by isokinetic sampling techniques endorsement (TE1) is a key endorsement. The multi-phase sampling techniques and the particle size fractionation by isokinetic techniques endorsements shall only be issued to personnel who have obtained the particulate endorsement. In addition, obtaining the particulate endorsement enables a candidate to obtain any of the other endorsements (TE2 to TE4) by examination only, without prior site experience.

2.7.4 The areas in which personnel shall demonstrate competence are outlined in the MCERTS for manual stack-emission monitoring examination syllabus.

2.8 Limited Technical Endorsements for TE3 and TE4

2.8.1 For personnel with certification limited by site (as defined in paragraph 2.5) it is possible to obtain a Limited Technical Endorsement (LTE) for TE3 and TE4, referred to as LTE3 and LTE4 respectively.

2.8.2 Candidates who only wish to measure odour using methods covered by TE3 are also able to obtain LTE3. Their certification is not limited by site, but limited to the measurement of odour only.

2.8.3 Candidates who take a LTE are required to sit the narrative examination paper only of the respective technical endorsement.

2.8.4 If personnel with a LTE wish to remove the limitation on their technical endorsement, they must pass the relevant multiple-choice paper.

3 Personnel certification

3.1 Conformance assessment

3.1.1 The certification body shall assess whether an applicant complies with the MCERTS personnel competency standard by:

- confirmation of work experience
- checking appropriate training has been taken (i.e. hazard identification and risk assessment relating to stack-emission monitoring)
- examination

3.1.2 A Level 2 person, with the relevant technical endorsements, shall confirm that the candidate's work experience was performed to a satisfactory standard. For personnel who have not been trained by a Level 2 person, an individual within the quality system of the organisation, such as a quality manager, shall confirm that the work experience requirements have been met.

Note 1: Approval may be by signature or, if an electronic format is used, by typing the name.

3.1.3 The certification body shall appoint an examination board to set examinations in line with the MCERTS for manual stack-emission monitoring syllabus.

3.1.4 Examination shall be by a combination of multiple choice and/or structured written papers and, for Level 2, an oral examination.

3.1.5 The examination board shall mark/assess candidates' examination papers and performance in the oral examination.

3.1.6 The certification body shall provide a mechanism to handle appeals.

3.1.7 A MCERTS personnel competency certificate shall be awarded to personnel who obtain certification. For Level 2 this shall specify the technical endorsements held and any limitations on scope, where appropriate.

3.1.8 Level 1 and 2 competencies, technical endorsements and the hazard identification and risk assessment course are valid for 5 years from the date of issue. The expiry dates for the relevant competency level and the hazard identification and risk assessment course will be given on the certificate. For Level 2 the certificate shall also specify the dates technical endorsements expire.

Note 2: Technical endorsements obtained by Level 1 personnel have a 5 year recertification period. Technical endorsements are not recorded on their certificate because they only become "active" if they are certified to Level 2. However, the period between passing the endorsement and having to recertify is 5 years, regardless of whether the endorsement is "active" or not.

Note 3: There are several examination rounds at different times of the year. Each examination round is followed by an Exam Board meeting. Personnel certification and technical endorsements are dated from the day the Exam Board meets.

3.2 MCERTS register

The certification body shall maintain a MCERTS register of certified personnel. This shall include an outline of the scope of each person's certification.

Note: The register can be used for reference purposes by relevant bodies such as regulators, UKAS etc. It will not be publicly available but personnel can confirm their own record and give permission for it to be used for reference purposes.

3.3 Status of personnel certification

The certificate is awarded to an individual, on a personal basis, not to their employer. As such, it moves with an individual if they change jobs. Any limitations would continue to apply.

3.4 Code of conduct

To maintain the integrity of the scheme, certified personnel are required to agree to comply with the Code of conduct in Annex 2 of this standard.

3.5 Complaints against MCERTS Level 2 personnel

3.5.1 MCERTS Level 2 personnel may be required to retake an oral exam if the Exam Board receive and uphold a complaint about them of a serious nature, for example regarding technical competency or health and safety.

3.5.2 The oral exam will be carried out using the same format as the Level 2 oral exam. However, specific attention shall be given to areas relevant to the complaint.

3.5.3 Personnel required to retake an oral exam will be contacted by CSA. Once contacted they shall arrange to take the interview at the next available exam event. Personnel who do not arrange to retake the interview will lose their Level 2 certification.

3.5.4 Personnel who fail a repeat interview will lose their Level 2 certification. If they wish to stay in the scheme they must register at Level 1. To regain Level 2 certification they must undergo full Level 2 certification, as outlined in Section 2.4

4 Recertification of personnel

4.1 Renewing MCERTS entry level (Trainee)

Personnel who remain trainees for the 5 year certification time period must re-register in order to remain in the scheme for a further 5 years.

4.2 MCERTS Level 1 recertification (Technician)

- 4.2.1 Level 1 certification is valid for a period of 5 years from date of issue. Personnel shall undergo recertification before the end of the 5 year certification period to maintain certification for a further 5 years. This recertification shall take account of a person's ongoing experience and provide confirmation that they have retained their technical knowledge, and are aware of any new developments in stack-emission monitoring.
- 4.2.2 To be eligible for Level 1 recertification, personnel shall submit a confirmation of continuing work experience, which states that, over a 5 year certification period, they have carried out monitoring on a minimum of 25 occasions.
- 4.2.3 If Level 1 personnel can demonstrate the above they are eligible to undergo recertification.
- 4.2.4 Recertification consists of passing a single examination paper consisting of both multiple choice and narrative questions.

Note: Level 1 personnel would normally progress to Level 2 before the end of the 5 year certification period. Personnel who do not obtain Level 2 certification within this timeframe but wish to remain at Level 1 are therefore required to demonstrate continuing competence through the procedures described above.

- 4.2.5 On passing the examination, candidates shall be awarded Level 1 certification for a further period of 5 years.
- 4.2.6 Personnel may apply to sit the Level 1 examination up to 12 months prior to the expiry date shown on their current certificate. New certificates will be valid for a period of 5 years from the date of expiry of the existing certificate.
- 4.2.7 Level 1 personnel who have not carried out monitoring on the minimum number of occasions by the end of the 5 year period will lose their Level 1 certification. If they wish to stay in the scheme they must register at the MCERTS entry level. To regain Level 1 certification they must undergo full Level 1 certification, as outlined in Section 2.3.
- 4.2.8 Personnel who do not pass their Level 1 exam(s) before their certification has expired will return to the MCERTS entry level. To regain Level 1 certification they must undergo full Level 1 certification, as outlined in Section 2.3.

4.3 MCERTS Level 2 recertification (Team Leader)

- 4.3.1 Level 2 personnel certification is valid for a period of 5 years from date of issue. Personnel shall undergo recertification before the end of the 5 year certification period in order to maintain certification for a further 5 years. This recertification shall take account of a person's ongoing experience.

4.3.2 To be recertified, personnel shall submit a confirmation of continuing work experience form, which states that, over the 5 year certification period, they have carried out monitoring on a minimum of 25 occasions (or for Level 2 personnel who possess limited scope certification, a minimum of 5 occasions for each site they wish to include in their certification).

4.3.3 If personnel meet the requirements in paragraph 4.3.2 their Level 2 personal certification will be renewed.

Note 1: If personnel are unable to meet the experience requirements due to ill health, they are permitted to make a written submission explaining their situation. Under such circumstances it may be possible for them to maintain their certification by examination.

4.3.4 Level 2 personnel, who have not carried out monitoring on the minimum number of occasions by the end of the 5 year period will lose their Level 2 certification. If they wish to remain in the scheme they must register as a Level 1 (their Level 1 certification will be valid for a 5 year period from the date they register). To regain Level 2 certification they must undergo full Level 2 certification, as outlined in Section 2.4.

4.3.5 Level 2 personnel who do not provide evidence that they meet the experience requirements before the end of the 5 year certification period shall lose their Level 2 certification. This means they are no longer certified to carry out stack emission monitoring work.

4.3.6 If personnel provide evidence that they meet the recertification requirements of 4.3.2 in the 5 years following their certificate expiring, the Level 2 certification shall be reinstated for 5 years from the date their original certificate expired. However, they would not be certified to carry out stack emissions monitoring work from the time their certificate expires until the time they demonstrate that they meet the requirements of 4.3.2.

4.3.7 Level 2 personnel, who do not show that they meet the recertification requirements for Level 2 in the 12 months before or the 5 years after their certificate expires, can register in the scheme as a Level 1. To regain Level 2 certification they must undergo full Level 2 certification, as outlined in Section 2.4.

Note 2: Personnel who are not actively working in stack emissions monitoring at the time their recertification is due, will be able to obtain recertification provided they have met the requirements of 4.3.2.

4.4 Maintaining technical endorsements

4.4.1 Technical endorsements are valid for a period of 5 years from date of issue.

4.4.2 Personnel shall undergo reassessment before the end of the 5 year period. This assessment shall provide confirmation that they have retained their technical knowledge and are aware of any new developments in stack-emission monitoring.

4.4.3 Technical endorsements will be assessed by a single examination paper consisting of both multiple choice and narrative questions. Personnel holding limited technical endorsements will take the appropriate narrative paper only.

- 4.4.4 Personnel may apply to sit the required examinations up to 12 months prior to the expiry date shown on their current certificate. On passing the examination, new certificates will be valid for a period of 5 years from the date of expiry of the existing certificate.
- 4.4.5 Personnel who do not pass the relevant exam in the 5 year time period will have the technical endorsement removed from their certificate. To regain the technical endorsement personnel must pass both the multiple choice and narrative paper. On passing the examination the new certificate will be valid for 5 years from the date of passing the examination.
- 4.4.6 Personnel who do not maintain technical endorsement 1 will not be able to use technical endorsement 2. Technical endorsement 2 will therefore be removed from the certificate with technical endorsement 1.
- 4.4.7 Level 2 personnel must continue to hold at least one technical endorsement. Personnel who do not have a technical endorsement to accompany their Level 2 certification are not able to operate at Level 2 until they obtain a technical endorsement. If they wish to stay in the scheme they must register at Level 1. To regain Level 2 certification they must pass a technical endorsement examination.

4.5 Maintaining the hazard identification and risk assessment requirement

- 4.5.1 In order to remain certified to Level 1 or 2 it is a requirement to attend an approved hazard identification and risk assessment course relevant to stack emissions monitoring every 5 years. This helps provide confirmation that personnel remain up to date with changes in health and safety legislation and practices applicable to stack emission monitoring.
- 4.5.2 Personnel may attend a hazard identification and risk assessment course up to 12 months prior to the expiry of the previous course. The 5 years runs from the date of expiry of the previous course.

5 References

1. MCERTS for manual stack emission monitoring - performance standard for organisations, Environment Agency. Available from www.mcerts.net
2. MCERTS for manual stack emission monitoring – examination syllabuses, Environment Agency. Available from www.mcerts.net
3. Technical Guidance Note M1, Sampling requirements for stack emission monitoring, Environment Agency. Available from www.mcerts.net
4. Risk assessment guide: Industrial emission monitoring, Source Testing Association.

Annex 1 Certification and supervision required to carry out different stack emission monitoring activities under MCERTS accreditation

Certification	Activity	Supervision required
Trainee	Carry out site work	Under direct ¹ supervision of a Level 2
Level 1	Carry out risk assessments	Under direct ² supervision of a Level 2
	Carry out site reviews	Under direct supervision of a Level 2
	Produce site specific protocols (SSPs)	Level 2 must authorise completed SSP ³
	Carry out site work	Under general supervision of a Level 2 ⁴
	Produce monitoring reports	Level 2 must authorise final monitoring report
Level 2 ⁵	Carry out risk assessments	None
	Approve risk assessments	
	Carry out site reviews	
	Approve site reviews	
	Produce SSPs	
	Approve SSPs	
	Carry out site work	
	Supervise site work	
	Produce monitoring reports	
	Approve monitoring reports	

¹Direct supervision of a Trainee requires the Level 2 to observe **all** the site work activities they carry out.

²Direct supervision means that a Level 2 must accompany the Level 1 while carrying out risk assessments and site reviews.

³To authorise SSPs and reports produced by a Level 1, the Level 2 must check the completed documents in detail.

⁴To provide general supervision the Level 2 must be actively involved in the practical work of monitoring on site. However, they do not have to observe all the work carried out by the team they are supervising.

⁵The Level 2 must hold Technical Endorsements relevant to the monitoring required (this applies to carrying out the risk assessment, planning the work, carrying out the site work and producing the report).

Annex 2 Code of conduct

I agree to comply with the “MCERTS Personnel competency standard” and “MCERTS Performance standard for organisations”^{Note 1}

Note 1: this applies when personnel are carrying out MCERTS accredited stack emissions monitoring.

I agree to follow the health and safety principles in “Environment Agency Technical Guidance Note M1”^{Note 2}

Note 2: this applies to all stack emissions monitoring, including unaccredited work. Personnel, who do not follow the health and safety principles in Environment Agency Technical Guidance Note M1 on all occasions, may have their certification suspended or withdrawn by CSA.

I agree to comply with the “Regulations Applicable to Holders of CSA Certificates” and to inform CSA, without delay, of matters that may affect my capability to fulfil the certification requirements.

I agree to only make claims regarding the scope and status of my MCERTS certification in accordance with the scope for which certification has been awarded.

I agree not to use my certification in a misleading manner.

I agree not to use my MCERTS certification in such a manner as to bring CSA or the Environment Agency into disrepute.

I agree not to make any misleading or unauthorised statement regarding my MCERTS certification.

Upon suspension or withdrawal of my MCERTS certification, I agree to immediately discontinue any claim to hold certification and to return all certificates and identification cards to CSA.