



UPDATE ON INCLUSION OF MANUAL STACK EMISSIONS MONITORING WITHIN MCERTS

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ABSTRACT

Proposals by the Environment Agency to extend its Monitoring Certification Scheme: MCERTS to manual stack emissions monitoring were published in June 1999. The proposals provide for the establishment of a Register of MCERTS qualified personnel and monitoring organisations. Registration would be based on third party certification of personnel and accreditation of monitoring organisations in accordance with European Standards to demonstrate conformance with the Agency's MCERTS requirements.

INTRODUCTION

Most of the monitoring of emissions from industrial processes is carried out by industrial process operators under self-monitoring arrangements. In order to ensure that these arrangements command the confidence of both regulators and the public the Environment Agency is pursuing several initiatives to improve the quality and reliability of self monitoring data. Central to these initiatives has been the establishment of the Environment Agency's Monitoring Certification Scheme: MCERTS.

Proposals for the establishment of MCERTS were first consulted on in 1996⁽¹⁾. These focused initially on industrial stack emissions monitoring instruments. Responses were overwhelmingly supportive and the Agency proceeded with development of the Scheme. Sira Certification Service (SCS) were appointed to manage the Certification Service and MCERTS was successfully launched in April 1998.

The original proposals referred to the Agency's intention to broaden the Scheme later. The Agency considers that the regulatory requirements for manual stack emissions monitoring need to be more clearly stated in order to improve the reliability of this form of monitoring.

This paper summarises the proposals⁽²⁾ published by the Agency in June 1999 for achieving this by establishing a Register of MCERTS qualified personnel and organisations carrying out manual stack emissions monitoring.

PERSONNEL

European Standard EN 45013 specifies the general criteria that a certification body has to follow if it is to be recognised at a national or European level as competent and reliable in the operation of a system of certification of personnel, irrespective of the sector involved. It does not specify the levels of knowledge, skills, experience or training necessary for personnel to achieve certification. The Standard recognises that the specified general criteria may have to be supplemented when applied to a particular sector. The Agency's proposals would do this for manual stack emissions monitoring personnel by establishing MCERTS competency standards and certification arrangements.

MCERTS Competency Standard

Three competency levels are proposed based of qualifying levels of experience, training, practical skills and examination as follow:

- **Stack Monitoring Technician**
 - minimum 6 months as a trainee;
 - competently performed monitoring of at least 10 stacks;
 - a personal record of training and experience;
 - successful examination and practical skills assessment at a basic level of competency and understanding of safety, equipment, basic measurements, ancillary techniques, legislation and QA/QC.

- **Team Leader**
 - minimum 12 months experience as a Stack Monitoring Technician;
 - competently performed monitoring on at least 20 stacks;
 - one or more endorsements in appropriate categories for the scope of certification being sought;
 - a personal record of training and experience;
 - successful examination and practical skills assessment at an advanced level of competency and understanding of health & safety, industrial processes, legislation, QA/AC, pre-monitoring reconnaissance visits, monitoring protocols reporting and team management.

- **Project Leader**
 - minimum 24 months experience as a Team Leader;
 - competently performed monitoring for a comprehensive range of pollutants and industrial processes on at least 40 stacks;
 - endorsements in all categories;
 - a personal record of training and experience;
 - successful examination and practical skills assessment at an extensive level of competency and understanding of management, documentation, reporting and auditing.

Progression beyond Stack Monitoring Technician will involve the achievement of one or more endorsements in addition to further experience, training and examination at a more advanced level. Endorsements are evidence that a Stack Monitoring Technician has the necessary knowledge, skills and experience to perform certain types of measurements. Endorsements will cover the following categories:

- particulates: by isokinetic sampling including size fractionation e.g. PM₁₀, and PM_{2.5} ;
- combustion and acid gases e.g. CO, CO₂, O₂, water vapour, SO_x, NO_x and total organics;
- organic compounds e.g. VOCs;
- trace organic micro pollutants (TOMPS) and metals e.g. dioxins, PAHs, PCBs, speciated VOCs, halides and halogens; and metals which may be present as both particulates and gases.

In order to achieve endorsement in a category, individuals must have:

- achieved certification as a Stack Monitoring Technician;
- competently performed manual emission monitoring on at least a further 5 stacks in the relevant category;
- demonstrated advanced competence and understanding by passing an examination, including on-site assessment of practical skills relevant to the endorsement category.

Certification

Certification will be awarded for Stack Monitoring Technicians, Team Leaders and Project Leaders by SCS operating under MCERTS. SCS will assess whether an applicant complies with the MCERTS personnel competency standards on the basis of:

- a personnel record, documenting the applicants training and experience;
- evidence of passing the relevant competency level examination and if appropriate endorsements;
- a practical skills assessment report.

If satisfied that the applicant meets the MCERTS personnel competency standard SCS will issue a Certificate of Competence to the named person. The Certificate will identify the level of competency (ie Stack Monitoring Technician, Team Leader, Project Leader) and endorsements. The certificate would be awarded to the person, on a personal basis and not to his/her employer. Certificates would be valid for 5 years by which time monitoring techniques may be expected to have developed and re-assessment would be required for re-certification.

SCS will maintain on going surveillance of the certificated personnel to provide assurance that they continue to satisfy the MCERTS personnel competency standard. This may include periodic examination of documentation, seeking statements from referees, evidence of maintenance of up-to-date professional knowledge eg attendance at relevant courses, and field inspections.

SCS will exercise proper control over the use of MCERTS Competency Certificates. Suitable actions will be taken where incorrect references to the certification system or misleading use of certificates is found eg in advertisements.

MONITORING ORGANISATIONS

European Standard EN 45001 specifies general criteria for the status and technical competence of testing laboratories, including on-site measurements. The Standard recognises that the specified general criteria may have to be supplemented when applied to a particular sector. The Agency's proposals would do this for organisations carrying out manual stack emissions monitoring by establishing a MCERTS performance standard to be used by the UK Accreditation Service (UKAS) for accreditation.

MCERTS Performance Standard

The main elements of the proposed MCERTS performance standard for monitoring organisations cover:

- ethical requirements for independence and environmental awareness;
- use of MCERTS qualified personnel;
- pre-monitoring preparation including reconnaissance visits to check site information, process conditions, health & safety requirements and the sampling workstation;
- selection of 'fit for purpose' Standard methods and production of implementation guidelines and protocols;
- completion of a safety risk assessment;
- choice, calibration and maintenance of equipment;
- use of MCERTS standard report forms;
- participation in proficiency testing schemes;
- estimation of measurement uncertainty.

Accreditation

An organisation may seek accreditation in the UK directly from UKAS. In order for this to qualify for acceptance under MCERTS the accredited procedures would have to conform with the proposed MCERTS performance standard and the organisation must conduct its monitoring in accordance with the requirements of that standard. Organisations, which decide to achieve MCERTS recognition by the UKAS accreditation route will have to produce their own documentation and apply to UKAS in accordance with their standard arrangements. UKAS will follow their established procedures and appoint an expert assessor to assess whether the applicants documentation and practices conform with the MCERTS standard for organisations. If satisfied UKAS will issue a Certificate of Accreditation stating that the named organisation is accredited to carry out specified stack emissions monitoring. UKAS will also carry out periodic audits of the organisation to ensure continuing conformance with the accreditation.

As an alternative to each organisation seeking its own accreditation by UKAS they could operate as a member of a UKAS accredited Group Scheme. This would be operated by a Group Provider: an organisation accredited by UKAS as meeting the MCERTS performance standards. A Group Scheme can provide significant financial benefit for its members by sharing the cost of preparing procedural documentation, initial assessment and on-going surveillance costs. Organisations wishing to achieve MCERTS recognition by means of a Group Scheme would then apply to work as approved signatories of the accredited Group Provider which would act as the Group interface with UKAS. The Group Provider would be

responsible for establishing the Group Scheme based on a Membership Agreement. This would define the roles and obligations of the Group Provider and Group Members.

MCERTS REGISTRATION

An organisation which has achieved accreditation by UKAS or has been accepted to operate under the Membership Agreement of a Group Scheme would then apply to SCS for Registration under MCERTS. If satisfied SCS would register the organisation thereby confirming conformity with the Agency's MCERTS standard for the particular scope of determinands for which it has gained accreditation. The monitoring organisation would then be eligible to market its services for its accredited scope under the MCERTS Scheme and use MCERTS reporting forms.

CONCLUSIONS

The Agency's proposals to establish a Register of MCERTS qualified personnel and organisations carrying out manual stack emissions monitoring would:

- provide independent and impartial arrangements for establishing a MCERTS register;
- achieve formal recognition in the UK and internationally;
- establish a level playing field;
- provide a powerful driver to improve quality and reliability;
- improve confidence in self-monitoring regimes.

REFERENCES

- 1 The Establishment of a Monitoring Certification Scheme. Proposed Certification Scheme, Performance Standards and Laboratory and Field Test Procedures for Continuous Stack Emission Monitoring Instruments, April 1996
 - 2 Proposals to Extend MCERTS to Manual Stack Emissions Monitoring. Environment Agency, June 1999
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BIOGRAPHICAL DETAILS

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After graduating from the University of Bradford with a degree in Chemistry Stuart started his career with the United Kingdom Atomic Energy Authority. Following several years working on nuclear fuels Stuart joined the Radiochemical Inspectorate, a distant forerunner of the Environment Agency, with responsibilities for regulating the nuclear industry. Now after many reorganisations of the environmental regulators in the UK Stuart manages the Environment Agency's National Compliance Assessment Service. This Service manages the Agency's regulatory monitoring of industrial processes and nuclear sites in England and Wales and is taking forward several important strategic initiatives including the Monitoring Certification Scheme: MCERTS.