



Competency Standard for MCERTS Inspectors & Assistant Inspectors – Effluent Flow Monitoring

**Environment Agency
Version 3
July 2007**



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; and
- accrediting laboratories and on-site inspections in line with European and international standards.

If your consent or your permit says that you must monitor the flow of liquid waste, you must have your arrangements to monitor the flow independently assessed against the MCERTS standard 'Minimum requirements for the self monitoring of effluent flow'. MCERTS inspectors must assess how you monitor the flow of liquid waste on-site. The standard we focus on in this document sets out the skills MCERTS inspectors and assistant inspectors need. These inspectors must meet the conditions set out in this document.

The benefits of this standard

- The standard makes sure that you, the public and other organisations involved in measuring the flow of liquid waste can be confident that the information you provide is reliable.
- Everybody in the competitive market of measuring the flow of liquid waste will be working towards meeting the same standard.
- The standard sends a message that measuring the flow of liquid waste 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 staff and organisations involved in measuring the flow of liquid waste.

If you meet the standard, Sira, who run the scheme on our behalf, will appoint you as a MCERTS inspector or assistant inspector.

If you have any questions about the appointment process, please contact:

Sira Certification Service
12 Acorn Industrial Park
Crayford Road
Crayford
Dartford
Kent
DA1 4AL.
Phone: 01322 520520
E-mail: mcerts@siraenvironmental.com

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

If you have any general questions about MCERTS, please contact:

Environment Agency

Releases Monitoring

Industry Regulation

PO Box 519

Preston

PR5 8GD.

Phone: 01772 714362

E-mail: paul.wiggins@environment-agency.gov.uk

Plain English Campaign's Crystal Mark applies to the foreword only.



Competency Standard for MCERTS Inspectors & Assistant Inspectors – Effluent Flow Monitoring

Contents

| | | |
|------------|---|----------|
| 1. | Introduction | 1 |
| 2. | Outline of the scheme | 1 |
| 2.1 | Operation of the scheme | 1 |
| 2.2 | The inspection process | 2 |
| 3. | The Competency Standard | 3 |
| 3.1 | General requirements | 3 |
| 3.2 | Scope of appointment | 4 |
| 3.3 | Qualifications/experience requirements | 4 |
| 3.4 | Knowledge requirements | 4 |
| 3.5 | Calibration of survey/test equipment | 5 |
| 3.6 | Integrity and impartiality | 5 |
| 4. | Appointment of MCERTS Inspectors and Assistant Inspectors | 6 |
| 4.1 | Conformance assessment | 6 |
| 4.2 | Appeals and complaints | 6 |
| 4.3 | Status of appointment | 6 |
| 4.4 | MCERTS register | 7 |
| 5. | Reassessment of MCERTS Inspectors and Assistant Inspectors | 7 |
| 6. | Status of this document | 7 |
| | Appendix: MCERTS Code of Conduct | 8 |

Record of amendments

| Version number | Date | Amendment |
|-----------------------|-------------|-------------------------------|
| 3 | July 07 | QMS assessment added to scope |
| 3 | June 07 | Modified inspection process |
| 3 | June 07 | Amendment to Code of Conduct |

Competency Standard for MCERTS Inspectors & Assistant Inspectors - Effluent Flow Monitoring

1 Introduction

- 1.1 The effective environmental protection and management of water bodies receiving effluent discharges requires knowledge about the mass release rate of pollutants. This is achieved by combining flow-measurement data (volume/time) with pollutant concentration (mass/volume). The MCERTS Standard: *Minimum requirements for the self-monitoring of effluent flow* specifies the Environment Agency's requirements on Operators for monitoring effluent flow, including metering installations and associated quality-assurance systems. The Environment Agency requires these self-monitoring arrangements to be independently assessed and certified as conforming to this Standard.
- 1.2 Sira Certification Service (Sira) operate this scheme on behalf of the Environment Agency. Sira operates to ISO/IEC 17020 for an Inspection Body.
- 1.3 Sira appoints personnel as either MCERTS Inspectors or Assistant Inspectors. This document defines the appointment procedures and competency requirements for MCERTS Inspectors and Assistant Inspectors.
- 1.4 MCERTS Inspectors are technical specialists who can demonstrate considerable experience and expertise. A key role of MCERTS Inspectors is to apply professional judgement to assessments. They will be able to assess potential effects of deviations in flow monitoring arrangements and quantify these as part of an uncertainty calculation. MCERTS Inspectors can work in isolation or may supervise the work of others.
- 1.5 Assistant Inspectors have specific technical expertise, primarily in obtaining dimensional measurements of effluent flow monitoring structures. They will have the necessary competence to undertake these measurements unsupervised. Data and information recorded by Assistant Inspectors must be quality checked and controlled by an MCERTS Inspector. Any subsequent professional judgement must be applied by an MCERTS Inspector. The Assistant Inspector role will provide a potential career progression route towards the appointment as an MCERTS Inspector.

2 Outline of the scheme

2.1 Operation of the scheme

- 2.1.1 Sira operates the scheme on behalf of the Environment Agency through a number of service providers, operating in a commercially competitive market.
- 2.1.2 MCERTS Inspectors and Assistant Inspectors are assessed and appointed by Sira in

accordance with the MCERTS Standard: *Competency Standard for MCERTS Inspectors & Assistant Inspectors – effluent flow monitoring*. Contact details for these service providers are available at www.sira.co.uk/mcerts_effluent.html

- 2.1.3 MCERTS Inspectors assess effluent flow monitoring arrangements in accordance with the MCERTS Standard: *Minimum Requirements for the Self-monitoring of Effluent Flow*. Sira also provides bulletins (additional detailed procedures and guidance) which are available at www.sira.co.uk/download.html

2.2 The inspection process

Step 1

The Operator chooses an MCERTS Inspector from the list of Service Providers maintained on the Sira web site at www.sira.co.uk/mcerts_effluent.html

The MCERTS Inspector undertakes an inspection of the site process configuration/flow monitoring arrangements and prepares an Inspection Report. The MCERTS Inspector provides the Operator with a copy of the Inspection Report.

An audit of the MCERTS QMS requirements for effluent flow monitoring shall also be conducted.

Step 2

Provided that the MCERTS requirements are met, the Operator makes an application to Sira for an MCERTS Site Conformity Inspection Certificate. The MCERTS Inspector may make the application on behalf of the Operator.

The MCERTS Inspector shall use on-site and other evidence to ensure that the flow monitoring installation is being satisfactorily maintained. Installations with, for example, restricted access shall have specific maintenance procedures detailing how maintenance can be carried out. A MCERTS Site Conformity Inspection Certificate cannot be issued unless there is evidence that the installation can be maintained.

The application must include the Inspection Report, evidence that the MCERTS QMS requirements have been met and the appropriate fee.

Step 3

Sira reviews the evidence included in the application. Provided that the MCERTS requirements are met, Sira issues the MCERTS Site Conformity Inspection Certificate to the Operator. Inspection Certificates are valid for five years. Sira maintains a database of all Inspection Certificates.

3 The Competency Standard

3.1 General requirements

3.1.1 MCERTS Inspectors shall have:

- appropriate qualifications, training and experience
- appropriate knowledge of inspection requirements
- the ability to make professional judgements regarding conformity with the inspection requirements
- appropriate knowledge of the technologies employed
- an understanding of the significance of deviations found with regard to normal use.

3.1.2 MCERTS Assistant Inspectors shall have:

- appropriate training and experience
- appropriate knowledge of inspection requirements
- appropriate knowledge of the technologies employed.

3.1.3 MCERTS Inspectors and Assistant Inspectors shall be able to demonstrate to the satisfaction of the MCERTS Inspection Body that they:

- operate within an acceptable quality system, for example, BS EN ISO 9001
- have relevant knowledge of effluent treatment processes
- can apply relevant knowledge of the Agency's policy on flow monitoring of effluent discharges
- appreciate safety issues connected with on-site inspection work
- are able to use appropriately calibrated and traceable instrumentation and measuring systems
- understand and comply with the MCERTS Code of Conduct attached as an appendix to this standard
- be able to demonstrate that they operate procedures and calculations for determining measurement uncertainty.

3.1.4 MCERTS Inspectors or Assistant Inspectors may be:

- self-employed
- an employee of a company, independent of the consent holder
- an employee of the consent holder or an associated company of the consent holder provided that he/she is able to demonstrate impartiality, for example, organisational independence from the design, installation and operational functions to the satisfaction of Sira.

3.2 Scope of appointment

3.2.1 The scope of appointment of an MCERTS Inspector or Assistant Inspector may be limited to certain technical areas, which shall be defined on the Inspector's certificate of appointment. Applicants are required to list on their application those specific technical areas that they consider lie within their field of competence, and any areas which they wish to exclude from their scope.

3.2.2 Appointment of an MCERTS Inspector or Assistant Inspector shall be based on one or more of the subjects from the following list, each of which can be made more specific to reflect a particular Inspector's competence:

- site process configuration
- open channel flow systems
- closed pipe flow systems
- other flow measurement systems
- simplified quality management systems (see section 4.3 of the MCERTS Standard *Minimum Requirements for the self monitoring of effluent flow*)

3.3 Qualifications/Experience requirements

3.3.1 MCERTS Inspectors are normally expected to have relevant academic training (for example, in the fundamentals of liquid flow, calculation of measurement uncertainty, principles of open-channel measurement and the principles of flow meters used for part-filled and closed conduit effluent flow monitoring). MCERTS Inspectors shall have relevant experience of flow measurement acceptable to Sira. Typically, this is likely to include a minimum of five years experience in effluent flow measurement, and 20 joint inspections with an appointed MCERTS Inspector.

3.3.2 Assistant Inspectors are expected to have relevant experience and technical training in the physical measurement of flow monitoring arrangements. Typically, this is likely to include a minimum of one years experience in effluent flow measurement.

3.4 Knowledge requirements

MCERTS Inspectors shall demonstrate their competence in the following areas according to their scope (see 3.2.2).

3.4.1 The Environment Agency's flow-monitoring policy and its requirements for demonstrating compliance.

3.4.2 Relevant MCERTS procedures and their application.

3.4.3 Knowledge of BS, CEN and ISO publications for flow measurement in open channels and/or closed conduits.

- 3.4.4 Knowledge of interpreting uncertainty due to deviations in the flow monitoring arrangements and aggregating such individual deviations to estimate uncertainty.
- 3.4.5 Procedures for calculating uncertainty.
- 3.4.6 Applicable engineering standards.
- 3.4.7 Effluent and wastewater treatment processes and installing effluent flow monitoring installations.
- 3.4.8 Installation and commissioning of effluent-flow monitoring systems.
- 3.4.9 In-situ calibration of instruments and relevant techniques.
- 3.4.10 Data logging and telemetry.
- 3.4.11 Health and safety.
- 3.4.12 Data validation and archiving.
- 3.4.13 Quality management systems.
- 3.4.14 Maintenance and verification procedures.
- 3.4.15 Assistant Inspectors are only expected to satisfy the above knowledge requirements, where necessary for the limited technical scope sought for their application.

3.5 Calibration of survey/test equipment

MCERTS Inspectors or Assistant Inspectors shall be able to demonstrate that any equipment used for relevant on-site inspections is fit for purpose. The calibration of all equipment used shall be traceable to national standards to the satisfaction of Sira.

3.6 Integrity and impartiality

MCERTS Inspectors or Assistant Inspectors shall be able to appreciate the potential for conflicts of interest during the inspection of Operator's effluent-flow monitoring arrangements. Inspectors shall, at all times, adhere to the MCERTS Code of Conduct attached to this standard as an Appendix.

4 Appointment of MCERTS Inspectors and Assistant Inspectors

4.1 Conformance assessment

4.1.1 Applications for appointment as an MCERTS Inspector or Assistant Inspector shall be submitted on an application form available from Sira.

4.1.2 Applicants shall submit supporting written evidence of their experience and formal training. All records of experience shall be signed by a person deemed to be competent to assess the individual's performance. This signature shall confirm the satisfactory performance of the individual in carrying out the recorded work.

4.1.3 Sira shall decide whether an applicant complies with this Standard by:

- assessing written records of experience
- observing a practical on site assessment

In addition, for appointment as an MCERTS Inspector the applicant shall attend an interview with a technical panel appointed by Sira.

4.1.4 The applicant shall demonstrate the suitability of any software or spreadsheets that they intend to use for data handling and manipulation during inspections. Applicants for MCERTS Inspector will be expected to undertake calculations necessary to indicate compliance of the effluent-flow monitoring arrangements with the uncertainty target specified in the MCERTS Standard: *Minimum requirements for the self-monitoring of effluent flow*. Applicants for MCERTS Inspector will also be expected to interpret data produced and be able to explain the content of the spreadsheet to Sira.

4.2 Appeals and complaints

4.2.1 Sira will handle appeals and complaints related to Inspector appointments in accordance with its procedures.

4.2.2 MCERTS Inspectors, Assistant Inspectors or their employers shall keep a record of all complaints made against them relevant to the scope of this Standard. They must notify Sira of these within 10 working days.

4.3 Status of appointment

4.3.1 MCERTS Inspectors and Assistant Inspectors are appointed for five years. Sira will undertake ongoing surveillance throughout this period.

4.3.2 The appointment shall be awarded to an applicant, on a personal basis, for work with a specified employer.

4.3.3 An Inspector's appointment may be transferable for work with another employer (for example, if an Inspector changes jobs). Sira shall ensure that the Inspector is competent to use any different measurement equipment or computer software used by the new employer.

4.4 MCERTS register

Sira shall maintain a publicly available register of all companies that employ appointed MCERTS Inspectors and Assistant Inspectors at:

www.sira.co.uk/mcerts_effluent.html

5 Reassessment of MCERTS Inspectors and Assistant Inspectors

5.1 MCERTS Inspectors and Assistant Inspectors shall undergo reassessment before the end of the five-year period to maintain their appointment. This reassessment shall take account of the latest version of this Standard and an Inspector's ongoing experience. It will confirm that they have retained their technical knowledge and are aware of any relevant new developments in flow-measurement techniques.

5.2 To be eligible for reappointment, an Inspector shall demonstrate that they have:

- carried out inspections of flow-measurement systems on a regular and frequent basis over the five-year period - typically on at least 50 occasions
- not had a gap of more than two continuous years from inspecting effluent flow-measurement arrangements
- kept themselves up to date with relevant developments in the effluent flow-monitoring field, for example, by participating in a documented continual professional development programme
- acted in accordance with the MCERTS Code of Conduct.

6 Status of this document

6.1 This MCERTS standard may be subject to review and amendment following publication. The latest version is available on the Environment Agency website at: www.mcerts.net

6.2 Sira will, from time to time issue bulletins that provide updates on additional guidance and/or instructions. These are available at: www.sira.co.uk/download.html

6.3 If you have any questions regarding the inspection process, please contact Sira at the address given in the Foreword to this document.

Appendix

MCERTS Code of Conduct

MCERTS Inspectors and Assistant Inspectors shall adhere to the MCERTS Code of Conduct.

- A.1** The Inspector shall be impartial. Any potential conflict of interest shall be discussed with Sira.
- A.2** The Inspector shall comply with the confidentiality, independence, impartiality and integrity requirements of ISO IC 17020 as specified by Sira.
- A.3** MCERTS Inspectors shall provide feedback to Operators on inspection findings in the form of a written report. The feedback shall be generic, for example, identifying the areas requiring attention but not providing a detailed design solution.
- A.4** In no circumstances shall the Inspector suggest or recommend a single company to carry out remedial work to the detriment of potential competitors.