

# Air Emission Monitoring Certification

The science and application of atmospheric emissions monitoring (source testing) and control covers a very wide technological field. It is therefore important that the technology, science and operating procedures are matched carefully. Failure in any aspect of this process can result in errors in data and cause potentially expensive mistakes.

With technology advancing at a rapid pace in the world of electronics and computing, the science and practice of source testing has continued to improve. Members of the STA are committed to providing a high quality of service and, since its inception; the Association has been striving to achieve this objective.

Reliable source testing is a key element of regulatory control of industrial processes. It can provide evidence of compliance with legislative limits and information on actual releases to the environment.

The Source Testing Association (STA) was established in 1995 and now has a corporate membership of over 200 companies from process operators, regulators, equipment suppliers and test laboratories. Its aims and objectives are;

- (i) contribute in the development of industry standards, codes, safety procedures and operating principles;
- (ii) encourage the personal and professional development of practicing source testers and students;
- (iii) maintain a body of current sampling knowledge;
- (iv) assist in maintenance of a high level of ethical conduct;
- (v) seek co-operative endeavours with other professional organisations, institutions and regulatory bodies, nationally and internationally, that are engaged in source emissions testing.

The STA has been working very closely with the Environment Agency, who regulates England and Wales, over the last 10 years in the development of Agency's Monitoring Certification (MCERTS) scheme for Manual Monitoring. The scheme was launched in February 2002 and is now accepted by the industry as one of the major contributors in improving quality. The MCERTS schemes have been expanded to cover all aspects emission monitoring. In this issue of IET we will concentrate on the MCERTS schemes for Air Emission Monitoring

## Environment Agency Monitoring Certification Scheme (MCERTS)

The Environment Agency has established its Monitoring Certification Scheme: MCERTS to deliver quality environmental measurements. The scheme provides for the product certification of instruments, the competency certification of personnel and the accreditation of organisations based on international standards. The term 'organisation' is used generically. It includes commercial 'test houses', laboratories, and industrial operators' in-house monitoring arrangements. MCERTS is progressively being extended to cover all regulatory monitoring activities.

## Background to the scheme

The Agency requires operators of regulated processes to deliver monitoring results that are valid, reliable, accurate and appropriate. Good quality monitoring data depends on using:

- the correct methods;
- approved standards;
- trained personnel;
- accredited organisations;
- effective planning;
- equipment which is suitable.

To this end, the Agency has established its



Monitoring Certification Scheme (MCERTS) to improve the quality of monitoring data. MCERTS delivers:

- Agency performance standards and test house procedures for continuous emissions monitoring systems (CEMS);
- Agency performance standards and test house procedures for continuous ambient air quality monitoring systems (CAMS);
- a product certification scheme to European Standard EN 45011 and ISO/IEC 17025;
- Agency performance standard for organisations carrying out manual stack emission monitoring to supplement ISO/IEC 17025 accreditation;
- Agency performance standard for personnel carrying out manual stack emission monitoring, delivering formal certification of competency under ISO/IEC 17024 to meet the requirement for organisations to use certified staff;
- an expanding scheme to cover all areas of regulatory monitoring, including water quality monitoring, flow measurements, chemical testing of soils, data recording, and operators' on-site monitoring arrangements.

Ultimately MCERTS provides a comprehensive framework for industry for choosing suppliers of monitoring systems and services that meet the Agency's performance standards.

## Structure of the scheme

MCERTS is operated formally to European and international standards eg ISO/IEC Guide 65, ISO/IEC 17024, ISO/IEC 17025.

The Agency has appointed Sira as the certification body to operate MCERTS on its behalf. SIRA is an independent certification body accredited by UKAS to ISO/IEC Guide 65 for product certification and ISO/IEC 17024 for the certification of personnel.

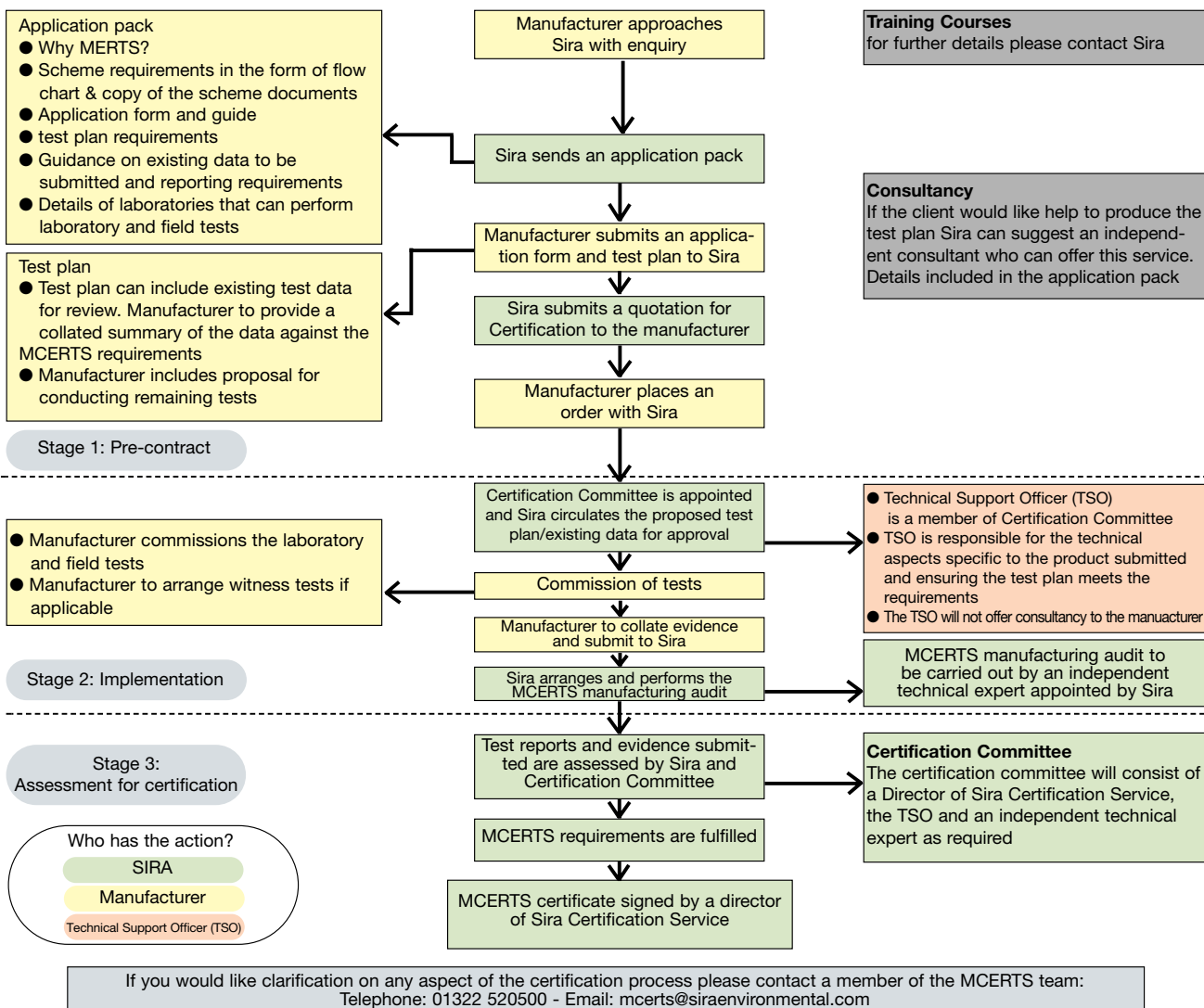
Under MCERTS product certification SIRA evaluates the laboratory and field test results with technical support from the STA.

Under MCERTS for stack emission monitoring SIRA sets the examinations and evaluates and certifies emission monitoring personnel using a group of independent, qualified people known as the Examination Committee.

Organisations carrying out stack



## MCERTS product certification process



3. Product realisation
4. Measurement, analysis and improvement
5. Assessment

### Part 3: Performance criteria and test procedures for automated measuring systems for monitoring emissions from stationary sources covers;

1. General requirements
2. Performance criteria common to all AMS for laboratory testing
3. Performance criteria common to all AMS for field testing
4. Performance criteria specific to measured components General test requirements
5. Test procedures for laboratory tests
6. Requirements for field tests
7. Test procedures common to all AMS for field tests
8. Test procedures for particulate AMS

### Part 4: Performance specifications and test procedures for automated measuring systems for monitoring ambient air quality covers;

1. General requirements for ambient AMS systems
2. General requirements for laboratories
3. Type approval of AMS
4. Performance characteristics and performance criteria of for ambient air gas monitoring AMS
5. Performance characteristics and performance criteria of AMS for ambient air particulate matter (pm10 and pm2.5)

It is anticipated that part 3 will be published in 2007 with parts 1, 2 and 4 following in 2008

The Environment Agency is working towards implementation of the various parts of the standards as and when they are published. This will mean modification to the MCERTS schemes for CEMS and CAMS.

Schemes that are not covered by European standards are;

### MCERTS - Manual stack emission monitoring

The scheme covers manual stack emission monitoring and was developed in collaboration with the Source Testing Association (STA), the Scottish Environment Protection Agency (SEPA) and the Environment and Heritage Service, Department of Environment, Northern Ireland. The scheme consists of two components – the certification of personnel and the accreditation of organisations.

emission monitoring are required to be accredited by UKAS to ISO/IEC 17025 for the MCERTS standard for organisations that includes a requirement to use certified personnel.

### Benefits of the scheme

- Delivers a certification scheme that is both accepted and formally recognised within the UK and internationally.
- Provides assurance to regulatory authorities that equipment and services approved to MCERTS standards are suitable, and capable of producing results of the required quality and reliability.
- Gives users of monitoring equipment confidence that equipment approved by MCERTS is robust and conform to performance standards related to current international Standards.
- Supports the delivery of accurate and reliable data to regulators and the public.
- Provides the framework whereby further monitoring instrumentation and other aspects of compliance monitoring can be formally certified.
- Meets the growing requirements of EC Directives, which increasingly specify that monitoring systems must meet minimum performance requirements.

### The European Standards under development.

There have been various schemes and approval of instruments in some European Counties for a number of years for example TUV approval in Germany, MCERTS in UK, approval and testing of equipment by INERIS, France and CESI, Italy. The CEN (Comite European de Normalisation) technical committee (TC

264, which looks after air quality issue, formed a working group (WG22) in 2001 to develop a standard for a European certification scheme for automatic measurement systems for ambient and stack mounted equipment. The standard will be published in four parts;

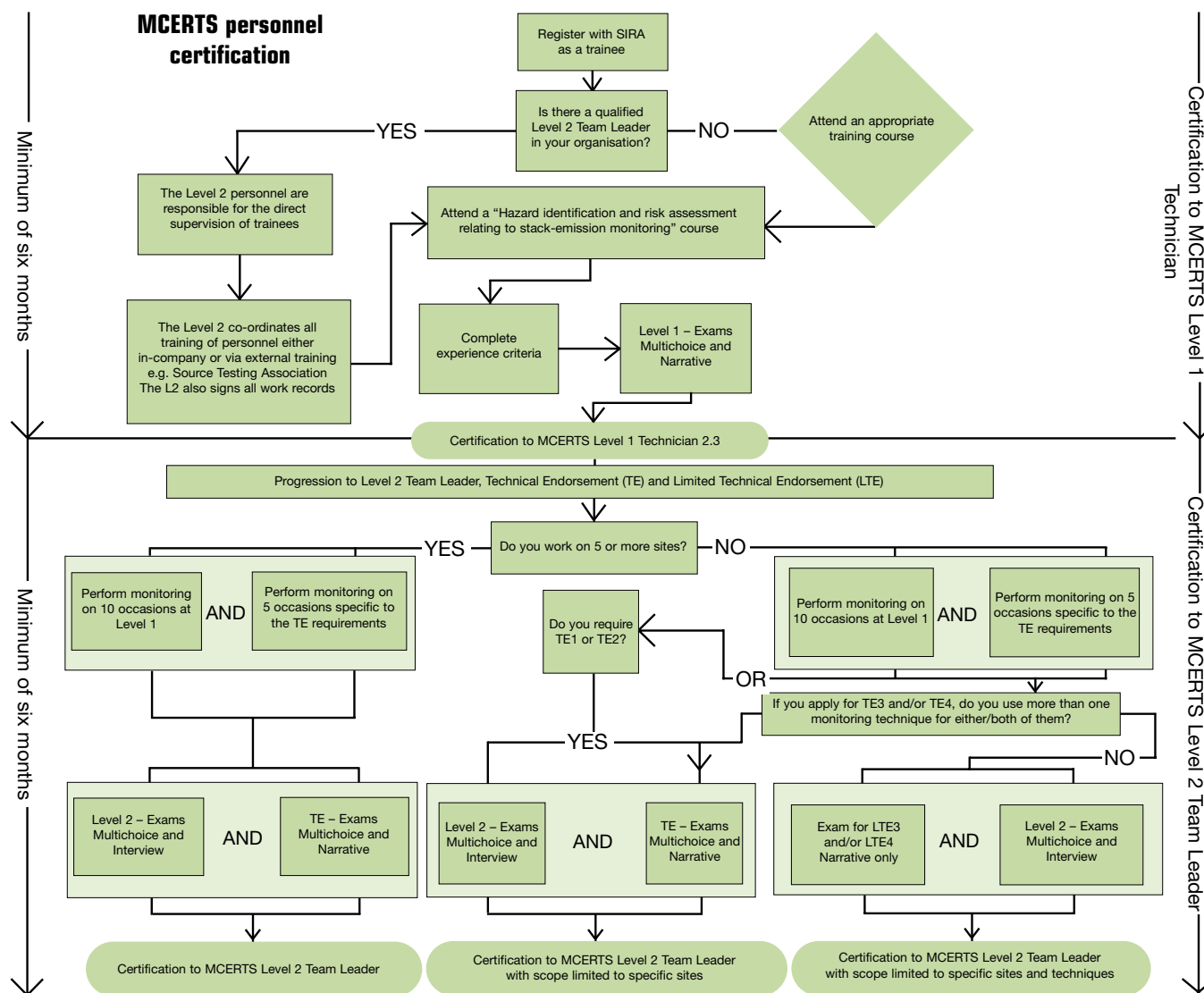
### Part 1: General Aspects covers;

1. Roles and responsibilities
2. Certification procedure

### Part 2: Minimum requirements for product quality assurance, initial assessment and post certification surveillance covers;

1. Management responsibility
2. Resource management





### Contacts for scheme operators and technical support for the MCERTS schemes

For general information visit [www.mcerts.net](http://www.mcerts.net)

#### MCERTS air schemes for:

- Continuous emissions monitoring systems
- Portable systems for air emissions monitoring
- Continuous ambient air quality monitoring systems
- Manual stack emission monitoring

#### SIRA Environmental Ltd

[www.sira.co.uk](http://www.sira.co.uk)  
 Telephone +44 (0) 1322 520500  
 UKAS for Manual stack monitoring organisation accreditation  
<http://www.ukas.com/>  
 Tel +44 (0) 20 89178400  
 Technical support  
**Source Testing Association**  
[www.s-t-a.org](http://www.s-t-a.org)  
 Tele +44 (0) 1462 450705

#### MCERTS water schemes for;

- Continuous water monitoring equipment
- Portable water monitoring equipment
- Self-Monitoring of effluent flow

#### SIRA Environmental Ltd

[www.sira.co.uk](http://www.sira.co.uk)  
 Telephone +44 (0) 1322 520500  
 Technical support  
**WRC**  
[www.wrcplc.co.uk](http://www.wrcplc.co.uk)  
 Tele +44 (0) 1793 865000

#### MCERTS - Chemical testing of soils

Scheme operator  
**UKAS**  
<http://www.ukas.com/>  
 Tel +44 (0) 20 89178400

### Certification of stack emission monitoring personnel

The MCERTS personnel competency standard enables stack emission monitoring personnel to be formally certified as competent based on experience, training and examination. The associated MCERTS examination syllabuses specify the topics covered at the various levels of competency. At the present time there are over 800 registered personnel with over 400 that hold current certificates at Level 1 and Level 2.

### Accreditation of stack emission monitoring organisations

The Agency requires organisations who wish to undertake MCERTS approved monitoring to be accredited by UKAS to the international standard ISO/IEC 17025 for the MCERTS performance standard for organisations. The MCERTS standard provides an application of ISO/IEC 17025 in the specific field of stack emission monitoring.

### MCERTS - Portable systems for air emissions monitoring

Portable equipment is often used to monitor pollution from industrial chimney stacks, landfill sites and for fugitive emissions. The performance of monitoring equipment is certified under the MCERTS Portable Emission Monitoring Systems scheme.

### AUTHOR DETAILS

**Dave Curtis, STA,**  
 Tel: +44 (0) 1462 457535  
 Website: [www.s-t-a.org](http://www.s-t-a.org)

## Measuring Hazardous Emissions

The measurement of hazardous emissions is becoming more and more important for today's businesses. Regulatory standards are getting stricter and manufacturers have an environmental commitment to society. **ABB** (UK) offers Continuous Emissions Systems that provide high quality measurements & data whilst being highly cost effective at the same time, Pre-engineered systems with compact and modular design, Low cost of ownership during whole life cycle, Powerful NDIR and FTIR analyser technology, Self & remote monitoring capabilities, MCERTS approved for use on UK installations, Nationwide support services.

ACF NT – Setting the standard for complex Continuous Emissions Monitoring applications. Based on Powerful FTIR technology it can simultaneously measure up to 12 components such as HCl, CO, NO, SO<sub>2</sub>, NO<sub>2</sub>, N<sub>2</sub>O, NH<sub>3</sub>, H<sub>2</sub>O, CO<sub>2</sub>, HF, O<sub>2</sub> and Total Hydrocarbons.

ACN – An economically - priced system for standard Continuous Emissions Monitoring applications it allows the simultaneous measurement of CO, SO<sub>2</sub>, NO, NO<sub>x</sub>, Total Hydrocarbons and O<sub>2</sub>.