



SPECIALISTS IN FLOW MEASUREMENT AND HYDRAULIC SURVEYS

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Guide to MCERTS

Flowcheck is accredited by the Environment Agency to perform MCERTS surveys on open channel flowmeters, closed pipe flowmeters and site process configuration.

What is MCERTS?

The Environment Agency has established a Monitoring Certification Scheme, referred to as MCERTS, to provide a framework within which environmental measurements can be made to its quality requirements. MCERTS covers the product certification of instruments, the competency certification of personnel, the accreditation of laboratories and the quality of on-site inspections.

On 1st April 2003 the scheme was extended to include the flow measurement of effluent into controlled waters. The Environment Agency has appointed the organisation Sira Environmental Certification Ltd (SIRA) to operate the MCERTS scheme for the monitoring of effluent flow.

Implications

If flow measurement is a condition on an Environment Agency discharge permit, it is now a statutory requirement for the flow monitoring arrangements to be inspected by a certified MCERTS inspector. Water Utilities must have their flow monitoring arrangements inspected on sites where they discharge more than 50m³/day.

An MCERTS inspection needs to establish:

- If the point of flow measurement is representative of the total discharge from site
- If the flow measurement system is capable of measuring the total daily volumetric flow to an uncertainty of better than $\pm 8\%$
- If the permit holder has an adequate quality assurance system * [See Note 1](#)

If the discharge from site is derived from the summation of more than one flowmeter, each meter needs to be surveyed and a combined uncertainty value calculated.

Permit holders must have their flow monitoring arrangements inspected by an MCERTS inspector on a frequency of every five years or following any works that may affect the performance of the flow measurement device.

Note 1

The Consent holder's quality assurance system is considered separately from the inspection of their flow measurement system. It is only when the Consent holder has satisfied the requirements of both aspects of the scheme that an MCERTS Site Conformity Inspection Certificate will be issued. Site certification will therefore require the services of:

1. An MCERTS inspector certified to inspect the site process configuration and the particular type of flow measurement device used
2. A person with approval under the MCERTS scheme to audit the adequacy of the quality assurance system

MCERTS inspectors

An MCERTS inspector may be self employed or an employee of an independent organisation; MCERTS inspectors are not employed directly by the Environment Agency.

The individual will hold a certificate on which his scope of appointment will be stated e.g. open channel flow systems, closed pipe flow systems and site process configuration. There is no fixed charge for an MCERTS inspection. Inspectors operate in a commercially competitive market; costs are subject to market forces.

Method of calculating the overall uncertainty

Uncertainty in flow measurement is inversely proportional to the rate of discharge; the lower the flow rate the higher the uncertainty and vice-versa. This feature is particularly pronounced on open channel flow measurement installations.

On open channel flowmeters some factors vary with the flow rate e.g. uncertainty in the discharge coefficients, and some are fixed e.g. uncertainty in zero level. There are a further three factors that have to be considered within each uncertainty calculation:

1. Uncertainty within the gauging structure due to the standard and construction of its finish
2. Uncertainty within the secondary device that measures level and converts it into units of flow
3. Uncertainty in the calibration and measurement devices used to perform the survey

Flowcheck measure a gauging structure as accurately as possible in order to minimise the uncertainty introduced by Item 3, 'Uncertainty in the calibration and measurement devices used within the survey'. By minimising the uncertainty introduced by our measurement equipment we improve the chance of borderline installations achieving an uncertainty of better than $\pm 8\%$.

The survey works and corrective measures Flowcheck undertake enable us to obtain the maximum performance from a flow measurement device. This can make the difference between pass and fail where it is necessary to meet the $\pm 8\%$ uncertainty target.

Overall uncertainty based on diurnal flow

To obtain a figure for the overall uncertainty in the total daily volume discharged, a calculation can be performed based on the diurnal flow pattern.

Over a twenty four hour period the uncertainty in flow rate is calculated at fifteen minute intervals using a formula specific to the type of flow measurement device used. The overall uncertainty in total daily volume is then calculated from the results of all the fifteen minute computations.

Summary

Flowcheck are specialists in flow measurement, we have no commercial links to any manufacturer or supplier; our surveys and reports are therefore completely impartial.

Flowcheck perform

- Detailed surveys of flowmeter installations
- MCERTS certification of both open channel and closed pipe flowmeters
- Open channel flowmeter calibration calculations to BS3680
- Calibration and commissioning of flowmeters
- In situ verification of flowmeters by comparison to our own metering equipment
- Installation and hire of temporary flow metering equipment
- Flowmeter service contracts

Contact us

To discuss your specific requirements contact [Flowcheck Ltd](#)

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