MCERTS Bulletin 6 – Inspection Report Format

This bulletin specifies the information an MCERTS Site Inspection Report shall contain to be compliant with the Environment Agency's MCERTS Standard `Minimum Requirements for the Self-Monitoring of Flow'. This standard specifies the evidence required for the issue of an MCERTS Site Conformity Inspection Certificate. It is the same evidence that is required by Consent/Permit holders to permit them to hold technical discussions with the Environment Agency about the basis for the compliance of their flow monitoring arrangements with the Agency's regulations.

All MCERTS Site Inspection reports prepared after 1 December 2017 must comply with these requirements.

New requirements, added since the last version of this bulletin (issue 7, April 2016) are highlighted in YELLOW.

General requirements & report content

On each page of the report, include a page No. and the total number of pages (page x of y)

The following information shall be reproduced on the **front page** of the inspection report as shown in **Appendix 1**

- MCERTS Inspector's name, address and postcode
- Consent/Permit holder name
- Consent/Permit No.
- site name
- site contact (name & telephone/email)
- site address
- site reference or postcode
- National Grid reference for site entrance
- a unique inspection report number. *Where a report is revised or amended, it shall be uniquely identified and contain a reference to the original that it replaces e.g. Report 12345-**rev1***
- date(s) of inspection
- Statement of compliance – include a reference to the version No. of the MCERTS standard
- Calculated total uncertainty expressed as % total daily volume
- Number and type(s) of flowmeter(s)
- Serial number(s) of the flowmeter(s)
    - Serial number XXX of sensor/transducer
    - Serial number XXX of control unit/transmitter

The following information shall be reproduced on the **second page** of the inspection report as shown in **Appendix 2**

- Site description (a brief description of the site)
- Location of flowmeter(s)
- Emission point(s) requiring flow measurement (taken from the permit)
- Flow related Permit conditions (e.g. max daily volume and/ or instantaneous flow)
- Method of secondary verification

- Reference to MCERTS certificate number for flowmeter(s) if applicable, including acknowledgment of MCERTS certification range
- Confirmation (or otherwise) of the adequacy of **site maintenance arrangements**. Any evidence of inadequate maintenance should be recorded for subsequent investigation during the management system audit.

The remainder of the report should include the following sections:

Site review

Broadly describe the flow monitoring arrangements and include the following:

- a process flow line drawing showing the location of each flowmeter
- **a photograph of each flowmeter showing its location and (where possible) a close-up photograph showing the flowmeter Serial No.**
- a description of how flow monitoring arrangements measure total discharge flow
- details of all known returns, bypasses, etc, that could affect the flow measurement
- identification and qualification of any risks that might jeopardise the integrity of the flow monitoring arrangements (e.g. comment on any security arrangements for bypass valves, maintenance issues etc.

Site information – provided by the Consent/Permit holder

- diurnal flow data – representative dry weather average flow data for every 15 minutes in a 24 hour period, as required by the MCERTS standard. The date the data was taken shall be reported, together with any other relevant information, e.g. whether data was recorded on a weekday or at a weekend. Diurnal flow data to be provided for each flow meter on a multi-flowmeter site.

  Note: ***Where representative dry weather flow is not available, a standard diurnal flow curve may be applied by the MCERTS Inspector.***

  Note: ***For some industrial applications, diurnal flow data based on dry weather flow is not appropriate. In this case a "typical" discharge flow value should be reported.***

Inspection of flow monitoring system(s)

- relevant details of all primary and secondary instrumentation, including the flow computer (e.g. manufacturer, model, serial number, size, range, etc)
- confirmation that all calibration factors/data programmed into instrumentation have been verified by the MCERTS Inspector for relevance and consistency
- a record of all critical dimensions of the flow measurement system (primary and secondary device)
- details of any in-situ calibration undertaken (e.g. by use of verification, drop-tanks, dilution techniques, etc)
- description of installation noting any hydraulic disturbances upstream or downstream, including relevant dimensions and any estimated measurements made (eg for buried meters/pipework), whether any evidence that air entrainment can occur, whether velocity is sufficient to avoid fouling, etc
- description of relevant telemetry systems and where possible confirmation (or otherwise) of its correct operation, with an outline of the method used. Any significant differences between the expected value and the telemetered value should be highlighted.

Measuring equipment used

All measuring equipment used by the MCERTS Inspector shall be listed in the report, together with its identification/serial No.

Comparison with published standards

Provide evidence of compliance of a flowmeter/flow measurement structure with MCERTS standards (preferably in a tabular format with a `pass/fail' statement to assist ease of use). Whenever a parameter which exceeds a published `failure' limit is accepted by an MCERTS Inspector the basis for exercising professional judgement shall be reported, together with a statement of any additional element to be included in the calculation of the overall uncertainty

Calculation of flow -v- uncertainty curve

The derivation of the discharge-uncertainty curve shall be reported showing:

- the data used for the development of any head/discharge curve
- any uncertainty associated with the calibration of a flowmeter or use of calibration factors, etc
- the data used for estimating the uncertainty associated with each influence condition (e.g. ambient temperature effect, drift, etc)
- what uncertainty has been allowed for assumptions made (e.g. for hydraulic disturbances)
- the uncertainties allowed for each deviation from published acceptance criteria

Recommendations

Where recommendations for improvements to the flow monitoring arrangements are included in an MCERTS Site Inspection Report, the following disclaimer (or similar) shall be included in the report.

"These recommendations are provided, based on information gathered during the site inspection and are not to be considered as detailed design consultancy or as the basis of design or a scope of works to bring this facility into conformity with current MCERTS requirements."

To ensure there is no conflict of interest, where an MCERTS Inspector provides detailed design consultancy, an alternative MCERTS Service Provider shall undertake any subsequent MCERTS Inspection.

Appendix 1 Example front page of inspection report

MCERTS Site Inspection Report

Report prepared by:	*Flowcheck*
Inspector:	*Mark Thomas*
Consent/Permit holder:	*Dow Agrochemical Ltd*
Consent/Permit No:	*TP 3137 SZ*
Site Name:	*Kings Lynn Chemical Works*
Site Contact:	*Fred Bloggs 01322 520500*
Site Address:	*Estuary Lane* *Kings Lynn* *Norfolk*
Site Ref or Postcode:	*PE30 2SD* *(Water Utility Site Ref or Postcode for EPR site)*
National Grid ref for Site Entrance:	*SK 0782 2403*
Type of Flowmeter(s):	*Siemens Electromagnetic flowmeter x 2*
Serial number(s) of Flowmeters (s):	*911601601 (sensor1)* *911601602 (sensor2)* *911601852 (transmitter)*
Statement of Compliance:	*The flow monitoring arrangements meet the requirements of the Environment Agency's "Minimum requirements for The Self Monitoring of Flow, V 4.0, February 2013"*
Uncertainty:	*±5.2%*
Inspection report No:	*12345-rev 1* *(Unique inspection report Number)*
Date(s) of Inspection:	*29-Feb-11* *(If more than one visit include most recent date)*

Appendix 2 – example second page of inspection report

Site description
The 75 acre site runs three manufacturing plants: Building materials (fabricated products such as Styrofoam); emulsion polymers (Dow Latex) and insecticides and fungicides. All three manufacturing plants are served by a single ETP on the Dursban Site which discharges directly to the river Cam.

Location of flowmeter(s)
The electromagnetic flowmeter is installed in a 2 meter deep chamber covered by a metal grating The chamber is located approximately 200 meters South of the storage lagoon emission point. A winch system is required for access as there is no access ladder. *Flowmeter 911601601/911601852 is certified according to current MCERTS certificate SIRA MC 100123/45. The flowmeter in use is suitable for this installation based on the MCERTS certified ranges.* *Flowmeter 911601602/911601852 was installed prior to the site's introduction to the MCERTS scheme and remains fit for purpose. MCERTS certification is not mandatory until a replacement system is required (section 3.1.2 of SMoF standard V4.0).*

Emission point(s) requiring flow measurement	
W1 Lagoon	*Maximum daily flow : 1800m3/day* *Maximum instantaneous flow : 30 L/sec*
S1 Process effluent	*Maximum daily flow : 500m3/day* *Maximum instantaneous flow : 15 L/sec*

Method of secondary verification
A Clamp-on ultrasonic flowmeter was installed on the same section of pipe as the site flowmeter. Flow measurements were compared at three points within the normal operational range of the meter.

Site maintenance arrangements
Flowmeter maintenance log shows routine cleaning on a monthly basis. A considerable build-up of biological growth was seen on the sides of flume. *Due to the considerable amount of heavy particulate material in the effluent, it is recommended that the electromagnetic flowmeter is checked every year for build up of solids within the flow tube.*