

Measurement Assurance and Certification Scotland

Performance Standard MACS-WAT-02
Sample and data management

Version 3
March 2019



Record of amendments

Version	Date	Amendment(s)
1	October 2016	First issue.
2	August 2017	<p>4 - insertion of definitions for 'additional sample', 'CAR authorisation', 'composite sample', 'spot sample'.</p> <p>5.1.1 - amendment of 'accrediting body' to 'body providing recognition'.</p> <p>5.2.1 - insertion of briefing note 2, requirement for annual review of sub-contracting arrangements.</p> <p>6.1.6 - amendment of briefing note 2, liaise with operator when alternative delivery of AMP available.</p> <p>6.1.7 - relocation and amendment of 'Monitoring requirement amendments' section; previously 6.3.4.</p> <p>6.3.1 - amendment of 'Assigning dates to surveys' to 'Assigning sampling dates' and 'sampled on the same day' to 'scheduled for collection on the same date'.</p> <p>6.3.2 - insertion of 'Unless an operator's authorisation specifies otherwise'.</p> <p>6.3.3 - reassignment of clause number.</p> <p>6.3.4 - reassignment of clause number.</p> <p>6.4 - insertion of 'Sampling management' section.</p> <p>6.5 - previously 6.4.</p> <p>6.5.1 - insertion of provision of 'Operator specific criteria' document.</p> <p>6.5.2 - updated to reflect content of 'Operator specific criteria' document.</p> <p>6.5.4 - amended for clarity; specifically timing of result submission requirements and notification to SEPA of unavailable data.</p> <p>6.5.5 - reassignment of clause number.</p> <p>6.5.9 - insertion of 'Unavailable parameter results' section; including incorporation of amended previous clause 6.3.3.</p> <p>Further minor alterations throughout to rectify typographical errors and improve consistency of application within and across MACS performance standards.</p>
3	March 2019	<p>7.3.4 - insertion of 'Spacing requirements do not apply to the collection of additional samples'; for clarity.</p> <p>7.4.5 - insertion of 'Intermittent discharges' section; incorporating amended Addendum B (March 2018).</p> <p>7.5.2 - briefing note 1 amended; for clarity.</p> <p>7.5.9 - insertion of briefing note 3, no requirement to collect additional influent samples. Subsequent briefing notes renumbered incrementally.</p> <p>Document content reformatted and reordered to reflect ISO/IEC 17025:2017 update.</p> <p>Further minor alterations throughout to rectify typographical errors and improve consistency of application with ISO/IEC 17025:2017 and across MACS performance standards.</p>

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1 Introduction

As Scotland's principal environmental regulator, the Scottish Environment Protection Agency (SEPA) is responsible for protecting and improving Scotland's environment.

SEPA issues a range of authorisations designed to control operator activities which could lead to pollution or environmental damage. Compliance with these authorisations is important to ensure that the environment is protected. An operator's compliance is assessed by SEPA from information gathered from observations, sampling and analysis. These activities may be carried out by an operator under self-monitoring arrangements.

SEPA has established Measurement Assurance and Certification Scotland (MACS) to provide a range of performance standards which ensure data provided by self-monitoring operators is robust, and provides stakeholders with confidence that data is reliable.

Where an operator complies with the requirements of MACS, they will be deemed competent to supply self-monitoring data to SEPA.

SEPA requires all operators and associated organisations certified under MACS to be accredited by the United Kingdom Accreditation Service (UKAS) to ISO/IEC 17025.

Please direct questions regarding the MACS certification process to UKAS at:

United Kingdom Accreditation Service
2 Pine Trees
Chertsey Lane
Staines-upon-Thames
TW18 3HR

Tel: 01784 429 000

Email: info@ukas.com

Website: www.ukas.com

2 Scope

- 2.1 This performance standard lays out the detailed requirements that operators and laboratories must adhere to when producing data for submission to SEPA under MACS.

NOTE: SEPA requires that all data submitted by an operator is produced in accordance with specific analytical criteria. Performance standard MACS-WAT-01 documents the detailed sampling and chemical testing requirements of MACS (ref. 3.2 a).

- 2.2 Accreditation to international standard ISO/IEC 17025 is a prerequisite for inclusion in MACS. All sampling and testing methods used by an operator or laboratory whilst producing data for submission to SEPA must be listed on the schedule of accreditation issued by UKAS.

NOTE 1: The requirements detailed in MACS performance standards are in addition to those prescribed in ISO/IEC 17025, which must be complied with.

NOTE 2: Annex A of this document tabulates the cross references between this performance standard and ISO/IEC 17025.

NOTE 3: The numbering of this document does not directly align with that of ISO/IEC 17025.

3 References and bibliography

3.1 Normative references

- a. BS EN ISO/IEC 17025:2017 – General Requirements for the Competence of Testing and Calibration Laboratories, ISBN 978 0 580 88466 5.

3.2 Text references

- a. MACS Performance Standard: Sampling and Chemical Testing of Water, Scottish Environment Protection Agency, MACS-WAT-01, 2019.

3.3 Bibliography

- a. BS EN ISO 5667-3:2018 – Water quality - Sampling. Part 3: Preservation and handling of water samples, ISBN 978 0 580 96052 9.

4 Terms and definitions

For the purpose of this MACS performance standard, and unless the context requires otherwise, the following definitions shall apply:

additional sample – a sample collected for the purpose of providing parameter results or values identified as otherwise not available to report from a scheduled sample collected previously at a monitoring location, i.e. to ensure that as a minimum the quota of parameter results required by the AMP at a monitoring location are reported to SEPA for the sampling year.

annual monitoring plan (AMP) - the plan of monitoring SEPA requires an operator to undertake during a specified calendar year.

body providing recognition – a body carrying out audits to ensure that the requirements of supporting quality standards, accreditation or certification are adhered to by an operator undertaking activities within the scope of MACS, e.g. UKAS.

CAR authorisation (or authorisation) – an operator's authorisation to carry out a controlled activity under the Water Environment (Controlled Activities) (Scotland) Regulations 2011.

composite sample – time or flow based multiple aliquot sample referred to in an operator's CAR authorisation

field data – information acquired on site at a monitoring location. May include observations, field based testing or measurements.

laboratory – a laboratory, or sub-contracting laboratory, that undertakes the chemical testing of samples. A laboratory may also undertake sampling activities.

laboratory manager - a person responsible for managing a laboratory.

location code - the unique numeric location identifier used by SEPA to define a monitoring location. Each location code is associated with a location description.

location description – a name assigned by SEPA to a monitoring location.

monitoring location - a geographically specific location where SEPA requires sampling or observations to be collected from (also see definition of location code).

monitoring purpose - this identifies the reason for undertaking sampling and testing at a monitoring location. The monitoring purpose may be regulatory or non-regulatory and defines the sampling frequency and analytical requirements. Each monitoring location may have one or more monitoring purposes.

monitoring site – a location encompassing an operator's installation or plant monitored and may include one or more monitoring locations.

observations – this includes observations that sampling personnel are required to record at a monitoring location or site, typically when collecting samples, e.g. weather, time of sampling, overflow flow status.

operator – a person or company who is responsible for the operation of an installation or plant monitored under MACS arrangements. In the context of this performance standard the term encompasses a body, company or person appointed or sub-contracted by an installation or plant's responsible person or company, including in all cases analytical laboratories undertaking related testing.

NOTE: In relation to monitoring or assessment required by an authorisation under the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR), the operator is the 'responsible person' defined and identified as such in the CAR authorisation.

organisation – in the context of this performance standard the term 'organisation' encompasses an operator or a body appointed (or sub-contracted) by the operator, including in both cases analytical laboratories undertaking related testing.

parameter – is a measured (or derived) chemical analyte, compound or groups of compounds within a sample which require determination; or a measurable physico-chemical characteristic of a sample (or entity derived or calculated thereof); or an observation relating to a sample or a monitoring location.

sample – a volume of water collected from a monitoring location and identified for the assessment or measurement of specific parameters.

sampled date – the actual date a sample was collected on.

sampling frequency – the number of samples required to be collected from a monitoring location during the course of a sampling year.

sampling run - see definition of 'survey'.

sampling year – a year commencing 1 January and ending 31 December.

scheduled sampling date - the date agreed by SEPA with an operator on which each survey is scheduled to be undertaken.

spot sample – an instantaneous sample referred to in an operator's CAR authorisation

supporting parameter – a chemical parameter, the assessment of which may be required in order to mitigate the interference, or other effects, that chemical parameter may have upon the determination of another chemical parameter, so that the integrity of all chemical parameter results is assured in this respect.

survey - is a series of monitoring locations which are intended to be visited on a single day for the purposes of collecting samples, and may be referred to as a 'sampling run'. A given survey may be undertaken multiple times during the sampling year in order to collect the number of samples for a given monitoring location required by the AMP. Surveys will have a survey code and may have a survey description.

survey schedule – comprises the survey code and the scheduled sampling dates, assigned to each item on the AMP, indicating when a survey is intended to be undertaken during the sampling year.

weekend – consecutive two day period comprising of a Saturday and a Sunday.

5 Structural requirements

- 5.1 It is the responsibility of the operator to ensure that sample management and the reporting of data to SEPA are conducted in such a way as to meet the requirements of this performance standard, and satisfy both the needs of SEPA and the body providing recognition.
- 5.2 Provisions for the structural requirements of laboratories are laid out in ISO/IEC 17025. Organisations conducting sample management and data reporting activities shall:
- a. Have arrangements in place to ensure that management and personnel conducting these activities are free from any undue commercial, financial and other pressures and influences that may adversely affect the quality of their work.
 - b. Have policies and procedures to avoid involvement in any sampling or operational activities that would diminish confidence in its competence, impartiality, judgement or operational integrity.

NOTE: It is not acceptable for an organisation to manipulate the operation of their treatment plant, or effluent inputs/outputs to/from their treatment plant to take into account sampling dates. The sampling programme must be representative of the normal operation of that treatment plant.
 - c. Ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to achieving the objectives of this MACS performance standard.
 - d. Provide adequate supervision of personnel undertaking sample and data management activities, including trainees, by persons competent in and authorised to undertake those activities.
- 5.3 For data to be submitted to SEPA under MACS, the organisation must ensure that methods for sample and data management and the process of reporting data to SEPA are clearly and unambiguously defined and documented.

6 Resource requirements

6.1 Externally provided services

- 6.1.1 An operator may sub-contract sampling and/or chemical testing to another organisation. It is the responsibility of the operator to ensure that the sub-contracted organisation is certified under MACS for the scope of work sub-contracted. Sub-contracting to an organisation not certified under MACS is only permitted where an operator has obtained the prior written approval of SEPA.

NOTE 1: The organisation may or may not be aware that the data it generates will be submitted to SEPA. However, the organisation's customer or procurer of the sampling and analytical service should be aware that if it wishes to submit the data to SEPA, then the requirements of this performance standard need to be satisfied.

NOTE 2: An annual review of the suitability of existing sub-contracting arrangements must be performed by an operator whilst establishing their survey schedule for the following sampling year (see section 7.2 for further information on survey schedule establishment). In practice, this will require the

operator to re-submit all sub-contracting request(s) to SEPA for assessment and approval by 1 December in the year preceding the start of a specified sampling year.

7 Process requirements

7.1 Process to establish an operator's monitoring programme

- 7.1.1 An annual monitoring plan (AMP) will be prepared by SEPA for an operator.
- 7.1.2 The AMP will specify the monitoring locations at which SEPA requires an operator to collect samples and/or observations from during a specified sampling year.
- 7.1.3 Each monitoring location on the AMP will include details of, but is not limited to:
- SEPA location code and location description.
 - Monitoring purpose(s), e.g. Controlled Activity Regulation (CAR).
 - Frequency of sampling, for the monitoring purpose identified.
 - Parameters, including units of measurement (where relevant) and observations, to be monitored and reported (chemical and non-chemical).

NOTE: Monitoring locations may have more than one monitoring purpose directing sampling activity. Monitoring purposes may relate to regulatory or non-regulatory activities; have different analysis requirements; and may have differing sampling frequencies. Consequently a monitoring location may have multiple entries on the AMP. Parameters required for reporting to SEPA may include supporting parameters.

- 7.1.4 The AMP as held by SEPA is the definitive record of the sampling and parameter assessment to be undertaken by an operator.
- 7.1.5 The content of the AMP will be reviewed annually by SEPA.
- 7.1.6 SEPA shall provide a copy of the AMP to an operator by 1 October in the year preceding the start of a specified sampling year.

The operator must, within 3 calendar days of receiving the AMP, confirm its receipt in writing to SEPA.

NOTE 1: SEPA shall provide the whole AMP annually (not only the changes from the previous year). The AMP content is non-negotiable and there will only be exceptional changes to the plan permitted, i.e. to correct errors or omissions.

NOTE 2: SEPA shall provide the AMP to an operator in an Excel spreadsheet file format. SEPA shall liaise with an operator when an alternative mechanism for delivering the AMP is available.

NOTE 3: It is acceptable for an operator to confirm receipt of the AMP by email sent to the email address the AMP was issued from by SEPA.

NOTE 4: For monitoring locations associated with an Urban Waste Water Treatment Directive (UWWTD) monitoring purpose, SEPA cannot complete compliance assessment and advise operators of any required change to sampling frequencies until the prevailing sampling year ends. SEPA shall inform operators of these changes by 31 January in the year of implementation. For locations where a monitoring frequency is less than 12 per annum, it is recommended that sampling events be scheduled to complete by the end of November in the sample plan year, so that in the event of sampling frequency being increased in the subsequent sampling year, the operator can comply with sampling event spacing criteria.

7.1.7 **Monitoring requirement amendments**

SEPA will notify an operator of any in-year changes to monitoring requirements, e.g. following a change to authorisation conditions. Within the timescale specified by SEPA in the notification, the operator shall:

- Implement changes to ensure the required number of samples or parameters are reported within the sampling year (pro rata where a change is required during the course of a sampling year).
- Provide any information requested by SEPA during this process.

7.2 **Process requirements for establishing the survey schedule**

7.2.1 **Creation of surveys** (by the operator)

The creation of surveys is essential as monitoring locations may have multiple entries on the AMP. Samples may therefore need to be collected on more than one survey. Each survey must have a unique survey code and may have an associated survey description to aid identification of the survey run. The operator must create survey codes and allocate these to each entry on the AMP supplied by SEPA. This identifies the survey that will achieve the sampling and parameter assessment requirements associated with each AMP item listed.

7.2.2 **Assigning sampling dates to surveys** (by the operator)

Adhering to the scheduling rules detailed in section 7.3, the operator must assign scheduled sampling dates to each survey.

NOTE: Each survey code will have a list of scheduled sampling dates associated with it. The survey codes and the scheduled sampling dates for each survey will be cumulatively known as the 'survey schedule'. Each survey code in the survey schedule must be assigned to at least one item listed in the AMP.

7.2.3 **Return of AMP & survey schedule to SEPA** (by the operator)

Within 30 calendar days of the date SEPA sent the AMP to an operator, the operator must return to SEPA (in Excel format unless otherwise specified by SEPA):

- the AMP; including
- the survey codes assigned (and survey descriptions where provided);
- the survey schedule for the full sampling year.

SEPA shall confirm in writing the receipt of the AMP and scheduling information from the operator.

7.2.4 **Survey schedule approval** (by SEPA)

SEPA shall check the survey schedule for completeness and ensure that the operator has complied with scheduling rules. Any issues identified by SEPA during the checking process will be discussed with the operator until resolution is achieved. SEPA shall confirm approval of the finalised survey schedule with the operator within 30 calendar days of receiving the survey schedule from the operator.

NOTE 1: It is essential that the finalised survey schedule for an operator is loaded into SEPA systems before commencement of the sampling year. Discussions between SEPA and the operator must not delay this and SEPA reserves the right to make the final decision on survey schedule details where agreement with the operator cannot be secured.

NOTE 2: The actual sampled date of a collected sample may differ from the scheduled sampling date but the scheduled sampling date identifier approved by SEPA must not be changed by an operator.

7.2.5 **Survey schedule upload (by SEPA)**

SEPA shall upload the finalised survey schedule into SEPA information management systems by 31 December in the year preceding commencement of the designated sampling year.

7.3 **Rules for establishing the survey schedule**

7.3.1 **Assigning scheduled sampling dates**

Where an influent monitoring location is associated with an effluent monitoring location at a monitoring site, samples must be scheduled for collection on the same date.

7.3.2 Unless an operator's authorisation specifies otherwise, samples must be collected in such a manner and at varying times to ensure they are representative of the operator's works; at the time of sampling; throughout a week and throughout a sampling year. The assignment of dates to sampling events must be independent of plant operations and operatives at a monitoring site. Sampling dates must be unpredictable to operatives at a monitoring site, i.e. samples must not be collected at the same time of day on the first Monday of each month.

7.3.3 It is a requirement that a portion of samples assigned for collection at a monitoring location be collected during weekends on the basis detailed in Table 1, and that these samples be representative of the operation of the operator's works during weekends:

Table 1: Proportion of sampling events to assign for collection during a weekend at a monitoring location during a sampling year

Annual sample frequency	Minimum number of samples to collect during a weekend
< 12	no requirement for weekend sample collections
≥ 12	approximately 10%

7.3.4 The following spacing between sampling dates for a given location and monitoring purpose must be achieved:

Table 2: Spacing criteria for establishing sampling dates at a monitoring location during a sampling year

Annual sample frequency	Sampling frequency rule	Minimum spacing	Maximum spacing
4	One sample per quarter	8 weeks	16 weeks
12	One sample per month	2 weeks	6 weeks
24	One sample per two week period	1 week	3 weeks

Spacing requirements apply to both scheduled sampling dates and actual sampled dates of scheduled samples. They apply to the calendar year only. There is no cross year boundary requirement to meet these sample spacing rules. Spacing requirements do not apply to the collection of additional samples.

NOTE: SEPA shall monitor the actual sampled date spacing for scheduled samples during the course of the sampling year to ensure that the operator is complying with the scheduling rules.

7.4 Sampling management

7.4.1 When organising sample collection, the operator must adhere to the rules governing the assignment of sampling dates (see 7.3) to ensure that, within the sampling year, as a minimum the annual quota of samples and parameters required by the AMP at each monitoring location are collected and reported to SEPA.

7.4.2 An operator is expected to collect scheduled samples on the scheduled sampling date approved by SEPA.

7.4.3 Scheduled samples may be collected up to 7 calendar days before the scheduled sampling date.

NOTE: The operator must notify SEPA within 3 calendar days of the actual sampled date and include the reason for early sample collection. Notification to SEPA must be in writing to the email address specified by SEPA.

7.4.4 When an operator fails to collect a scheduled sample on or before the scheduled sampling date, except in circumstances described in notes 2 and 3 below, the operator must ensure that the sample is collected within 7 calendar days of the scheduled sampling date.

NOTE 1: The operator must notify SEPA of the sampling delay within 3 calendar days of the scheduled sampling date, including the reason for the sampling delay. Notification to SEPA must be in writing to the email address specified by SEPA.

NOTE 2: An operator is not required to reorganise collection of an unavailable influent composite sample if the associated, date-paired effluent composite sample has been successfully collected. It is recognised that this exception may result in the operator being unable to fulfil the requirement at an influent monitoring location to collect the full annual quota of samples or report the full annual quota of parameters within the sampling year.

NOTE 3: Where analytical parameter data has been submitted to SEPA from a monitoring site, but a required observation was not undertaken at an associated monitoring location, the operator is not required to reorganise a monitoring visit for the sole purpose of acquiring uncollected or unavailable observation data. However, where SEPA identifies that an operator repeatedly fails to collect or submit observation data at a monitoring site this may lead to SEPA undertaking enforcement action.

NOTE 4: The actual sampled date of a collected sample may differ from the scheduled sampling date but the scheduled sampling date identifier approved by SEPA must not be changed by an operator.

7.4.5 Intermittent discharges

If a required effluent discharge sample cannot be collected because flow conditions have resulted in insufficient sample volume availability, then the operator is required to reorganise sample collection in compliance with clause 7.4.4. If there continues to be no sample available for collection at the reorganised sampling visit, the monitoring location is termed an 'intermittent discharge'.

In these situations, the operator is not required to continue to reorganise sample collection at that monitoring location in order to fulfil the monitoring requirements associated with the original scheduled sampling event. For any affected parameter, the operator shall proceed to submit to SEPA a delay reason of 'No discharge' whilst identifying the parameter as unavailable to report; ensuring that all mandatory requirements listed in their data specification (see 7.5.1) are also submitted as normal.

NOTE 1: This guidance also applies to the collection of additional samples (see 7.5.9), with the exception of reference to 'scheduled' sampling event.

NOTE 2: This guidance does not apply when failure to collect a sample was not caused by absence of flow (e.g. malfunctioning automatic sampling device, no site access etc.).

7.5 Data reporting by the operator

7.5.1 SEPA shall provide each operator with an 'Operator specific criteria' document, detailing requirements for:

- Specific performance characteristics, for analytical testing.
- Data reporting, including data transfer specifications.

7.5.2 In addition to the reporting requirements laid down in international standard ISO/IEC 17025, all required data provided to SEPA by the operator must comply with the requirements of the operator's 'Operator specific criteria' document.

NOTE 1: Where an operator submits to SEPA data which is additional to the requirements of their AMP, SEPA reserves the right to use that data for the purposes of compliance assessment.

NOTE 2: The parameter name and units of measurement submitted by an operator must be that as specified by SEPA in the AMP issued to the operator.

7.5.3 The operator is responsible for ensuring the quality of all data. The operator must correct data errors or omissions before submission to SEPA.

7.5.4 To permit SEPA to identify at the earliest opportunity a parameter non-compliant with an authorisation limit, rule or other condition, the operator must submit each parameter result or value to SEPA as soon as possible, but **only** after the operator has completed all reasonable quality assurance checks relating to the parameter.

The operator must ensure that there is no undue or unreasonable delay in:

- commencing or completing an analytical parameter's analysis;
- undertaking necessary and reasonable quality assurance checks to ensure the quality of a parameter result or value;
- reporting parameter results or values to SEPA;
- notifying SEPA of unavailable parameter data (see 7.5.9).

7.5.5 In conformity with the requirements of clause 7.5.4, the operator must also ensure that all quality assured parameter results or values associated with a sample are reported to SEPA in order to meet the reporting time targets laid out in Table 3.

The targets specify the percentage of samples, on a rolling monthly basis, where all required data associated with a sample is received by SEPA. Targets are expressed in calendar days:

- from a sample's actual sampled date; to
- the date the final and correct parameter data item required for a sample is received by SEPA.

Table 3: Sample reporting targets

Percentage of samples	Reporting Target
not less than 80%	≤ 14 days
not less than 100%	≤ 56 days

NOTE 1: SEPA shall regularly monitor the operator's performance against the stated reporting targets. SEPA shall take into account any issues arising with SEPA systems or processes that may affect an operator's compliance with the reporting target.

NOTE 2: Where SEPA identifies a parameter result or value as unreceived from an operator more than 56 calendar days from its sampling date, SEPA shall:

- Consider it a failure of the operator to meet the reporting target.
- Consider that the parameter result or value for the sample will not be available at any time.
- Cancel the parameter in SEPA systems.
- Require the operator to organise the collection of an additional sample (see 7.5.9).

7.5.6 The operator must notify SEPA without delay, and in any case by the next working day, after identification of any incident, malfunction, breakdown or failure of laboratory equipment, processes or functions which has had, or could have, an adverse impact on the operator reporting data to SEPA within the reporting target times specified in clause 7.5.5. This notification shall include:

- the date and duration of the incident;
- a description of the cause of the incident;
- the effect on the data or the reporting of data to SEPA;
- measures taken to prevent or minimise a recurrence.

NOTE: Notification to SEPA must be in writing to the email address specified by SEPA.

7.5.7 Parameter data reported to SEPA by the operator must permit SEPA to assess the operator's compliance with authorisation limits or conditions without ambiguity, e.g. where the operator's authorisation limit for BOD is ≤ 20 mg/L, the operator providing a BOD result of >15 mg/L or <25 mg/L is not acceptable as this does not allow SEPA to determine if the operator's activities are compliant with the authorisation limit.

7.5.8 Whenever possible, individual compounds must be analysed and individual results reported. Where a group of similar compounds is analysed and the combined concentrations of these compounds are expressed as the sum of individual concentrations, the laboratory shall record the number and identity of each compound analysed.

7.5.9 Unavailable parameter results

When a parameter result or value associated with a collected sample will not be available to report to SEPA, the operator must:

- Notify SEPA within 3 calendar days of identifying that the result will not be available for reporting, including the reason.
- Organise the collection of an additional sample.

When organising the collection of an additional sample, the operator must adhere to the rules governing the assignment of sampling dates (see 7.3) to ensure that,

within the sampling year, as a minimum the annual quota of samples and parameters required by the AMP at each monitoring location are collected and reported to SEPA.

NOTE 1: Notification to SEPA must be in writing to the email address specified by SEPA.

NOTE 2: All additional samples must include the requirement to report to SEPA all parameter data, for all monitoring purposes detailed in the operator's AMP, associated with the original sampling event.

NOTE 3: Where a parameter result or value associated with a collected influent composite sample is not available to report to SEPA, and provided that all data from the associated, date-paired effluent composite sample has been successfully reported, an operator is not required to arrange collection of an individual additional influent sample. It is recognised that this exception may result in the operator being unable to fulfil the requirement at an influent monitoring location to report the full annual quota of parameters within the sampling year.

NOTE 4: Where analytical parameter data has been submitted to SEPA from a monitoring site, but a required observation was not undertaken at an associated monitoring location, the operator is not required to organise an additional monitoring visit for the sole purpose of acquiring uncollected or unavailable observation data. However, where SEPA identifies that an operator repeatedly fails to collect or submit observation data at a monitoring site this may lead to SEPA undertaking enforcement action.

NOTE 5: Where individual parameter result(s) are unavailable for reporting on a sample requiring the submission of multiple test parameter results, and unless a reason acceptable to SEPA arises for not proceeding with the analysis or determination of any remaining analytical parameter, the analysis of all remaining parameters must proceed and results or values be reported to SEPA.

NOTE 6: Parameter results or values associated with an additional sample will not overwrite or supersede any results from the associated original sample. As such, it is recognised that additional samples may lead to more test parameter results being reported to SEPA for a monitoring location than is required by an operator's AMP.

NOTE 7: The protocol for informing SEPA of unavailable parameter result(s) is specified in an operator's 'Operator specific criteria' document.

7.5.10 In the event of SEPA querying any aspect of a sample or parameter result or value with an operator, the operator must acknowledge receipt of the query within 3 calendar days, and provide an estimate of the date by which the operator anticipates to provide an answer to the query raised. If SEPA agrees with the advised response date SEPA will expect resolution by that date.

7.5.11 Failure of the operator to comply with AMP requirements, data reporting specifications or any other requirement of a MACS performance standard may be considered to be a breach of authorisation conditions and as such may lead to SEPA undertaking enforcement action.

7.6 Handling of test items

7.6.1 It is a requirement that analytical data reported to SEPA by operators is accredited to international standard ISO/IEC 17025.

7.6.2 In exceptional circumstance, SEPA will accept analytical parameter data associated with sample handling or analysis that has not been undertaken according to documented procedures. In each case, the operator must record a non-conformance and obtain from SEPA a concession to report results.

The concession request shall include full assessment and justification that the non-conformance has had no impact on the quality of the data submitted to SEPA.

If it is not possible to justify a non-conformance, then the results will not be accepted by SEPA.

7.6.3 Data submitted to SEPA by the operator must clearly and unambiguously identify analytical parameter data associated with a sample where sample handling or analysis was not undertaken according to documented procedures.

7.6.4 Data submitted to SEPA must clearly and unambiguously identify parameter results determined by a sub-contracting laboratory.

7.7 Auditing by a body providing recognition

7.7.1 SEPA reserves the right to send a SEPA officer to act as an observer at audits carried out by a body providing recognition to the operator under MACS.

8 Management system requirements

8.1 Control of records

8.1.1 The organisation shall retain records for a period of time of not less than six years. When requested, an organisation shall submit copies of these records to SEPA within 28 calendar days from the date requested.

9 MACS document review and control

All MACS documentation will be subject to review and amendment. For the latest versions of all MACS performance standards, please refer to the SEPA website:

www.sepa.org.uk

Annex A

Nominal cross references with ISO/IEC 17025:2017

The table below cross references the clauses in this MACS performance standard with the clauses of ISO/IEC 17025.

This MACS Performance Standard	ISO/IEC 17025
2	1
3.1	2
4	3
5	5
5.1	5.1
5.1.1	5.4
5.1.2	5.6
5.2	6.6
5.3	8.4
5.3.1	8.4.2
6	6