DoD/DOE QSM 6.0 Module 8 Industrial Hygiene Testing Checklist

Checklists used for this assessment activity:

- ☐ **M1/M2 PT/QMS**
- ☐ **M3 Asbestos Testing**
- ☐ **M4 Chemical Testing**
- ☐ **M5 Microbiological Testing**
- ☐ **M6 Radiochemical Testing**
- ☐ **M7 Toxicity Testing**
- ☐ **M8 Industrial Hygiene Testing**

This checklist is only a tool, and not considered as the requirements of the standard(s)!

If there is a disagreement between this checklist and the standard(s), the standard(s) shall prevail.

Identify conformity for each requirement along with comments/objective evidence for each clause assessed.

A *clarifying statement* provides additional information to help understand a requirement.

A *permission* is an approach that a conformity assessment body can use to achieve compliance.

Assessment Number:

CAB Name:

Physical Address:

Assessment Date(s):

Assessors(s):

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
M8	Quality Systems for Industrial Hygiene Testing		
M8: 4.0	Proficiency Testing		
M8: 4.0	For all Fields of Testing (FoT) in a laboratory's scope of accreditation, is proficiency demonstrated by completing one of the proficiency demonstrations listed below? The proficiency demonstrations are listed in priority order.		
M8: 4.1	External Proficiency Testing Program		
M8: 4.1	Does the laboratory participate in an external proficiency testing (PT) program in accordance with the American Industrial Hygiene Association Laboratory		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
	Accreditation Programs, LLC (AIHA LAP) policy module on proficiency testing?		
M8: 4.1.1	Are proficiency testing providers accredited to ISO/IEC 17043?		
M8: 4.1.1	If an ISO/IEC 17043 accredited PT provider is not available, and a non-accredited PT provider is used, was approval of the accrediting body obtained?		
M8: 4.1.2	Is proficiency testing performed using the same preparation, analytical procedure, and instrumentation combination used to test customer samples?		
M8: 4.1.3	To obtain initial accreditation, has the laboratory participated in and passed two consecutive rounds of PT per FoT?		
M8: 4.2	External Proficiency Testing Program Not Available		
M8: 4.2.1	When an external PT program is not available, are the PT requirements met by participating in a round robin study in accordance with the AIHA LAP policy module on proficiency testing?		
M8: 4.2.2	Has laboratory submitted in writing to its DoD-ELAP and/or DOECAP-AP accrediting body (AB) a list of items on its scope of accreditation for which an external PT program is not available?		
M8: 4.2.3	Are there procedures for participation in round robin studies?		
M8: 4.2.3	Do(es) the procedure describe the schedule and acceptance criteria for round robin studies?		
M8: 4.2.3	When results are unacceptable, is the nonconforming work procedure implemented?		
M8: 4.2.4	Are records maintained of the round robin studies for each FoT on the scope that uses round robin studies to meet PT requirements?		
M8: 4.2.5	Are these requirements met until an external PT program is available?		
M8: 4.2.6	Is there a history of two successful round robin studies out of the most recent three attempts achieved for each FoT?		
M8: 4.2.6	Note: If the laboratory has two consecutive acceptable round robin studies, a third study is not needed.		Clarifying Statement
M8: 4.2.7	To obtain initial accreditation, has the laboratory participated in and passed two consecutive round robin studies per FoT?		
M8: 4.3	No Round Robin Studies		
M8: 4.3	When an external PT program is not available and a round robin study is prohibited, proprietary, or impractical, does the laboratory shall meet PT requirements by participating in an internal PT program		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
	in accordance with the AIHA LAP policy module on proficiency testing?		
M8: 4.3.1	Has the laboratory submitted in writing to its DoD ELAP AB and/or its DOECAP-AP AB a list of items on its scope of accreditation for which an external PT is not available and a round robin study is prohibited, proprietary, or impractical?		
M8: 4.3.2	Is there a procedure for the internal PT program that includes spiking procedures, frequency, responsibility for implementation, statistical treatment of resultant data, acceptance criteria, and actions to be taken in the event of an unacceptable result?		
M8: 4.3.3	Are records maintained of compliance with the internal PT program for each FoT on the scope that uses an internal PT program to meet PT requirements?		
M8: 4.3.4	Are these requirements met until a round robin study, or an external PT program, is available?		
M8: 4.3.5	To obtain initial accreditation, has the laboratory passed two consecutive rounds of internal PT per FoT?		
M8: 4.4	No Internal PT Program		
M8: 4.4	When an external PT program is not available, a round robin study is prohibited, proprietary, or impractical, and participating in an internal PT program is impractical then the laboratory may be permitted to meet PT requirements by demonstrating proficiency through the implementation of an internal QC program in accordance with the AIHA LAP policy module on proficiency testing.		Permission
M8: 4.4.1	Has the laboratory obtained concurrence from its DoD ELAP AB and/or its DOECAP-AP AB to meet PT requirements by demonstrating proficiency through the implementation of an internal QC program?		
M8: 4.4.2	Is there a procedure for the internal QC program that includes schedule and frequency of evaluation, identification of QC samples evaluated, acceptance criteria, and the actions to be taken in the event of an unacceptable result?		
M8: 4.4.3	Are records maintained of compliance with the internal QC program evaluation for each FoT on its scope that uses an internal QC program meeting PT requirement?		
M8: 4.4.4	To obtain initial accreditation, has the laboratory passed two consecutive rounds of internal PT per FoT?		
M8: 5.0	Method Selection		
M8: 5.0	The requirements in the Module 2 section on “Selection, Verification and Validation of Methods” apply.		Clarifying Statement

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
M8: 5.0	When adding a new analyte to a reference method, does the inclusion of the analyte in the method meet all required calibration requirements and the QC requirements of the method to which the analyte is being added?		
M8: 5.0	If no QC requirements exist in the method, are the requirements outlined in a reference method of the same technology (when available) adhered to?		
M8: 5.0	When adding an analyte, are the requirements of the relevant regulations followed to determine whether the addition of an analyte represents a method modification?		
M8: 6.0	Method Validation		
M8: 6.1	Validation of Methods		
M8: 6.1	Before acceptance and institution of any method for which data will be reported, are all methods validated?		
M8: 6.1.1	Does method validation meet the requirements in the Module 2 Section on “Selection, Verification, and Validation of Methods” as well as all criteria in this Module?		
M8: 6.1.2	Are reference methods validated through the initial determinations of a detection limit (DL) if required, a limit of detection (LOD) if required, and a limit of quantitation (LOQ) as well as an Initial Demonstration of Capability (DOC)? Note: Requirements for DL, LOD and LOQ are contained in this module’s section on “Detection Limits, Limits of Detection, and Limits of Quantitation.”		
M8: 6.1.2	If the reference method has additional validation requirements, are these requirements also met?		
M8: 6.1.3	In addition to the QC procedures for reference methods, are modified reference methods and non-reference methods (including laboratory-developed methods) validated using QC procedures and acceptance criteria that are consistent with those of similar reference methods or technologies, and does the validation include the following?		
M8: 6.1.3.a	Scope?		
M8: 6.1.3.b	Calibration verification?		
M8: 6.1.3.c	Interferences and cross-contamination?		
M8: 6.1.3.d	Analyte identification?		
M8: 6.1.3.e	Analyte quantitation?		
M8: 6.1.3.f	Selectivity?		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
M8: 6.1.3.g	Sensitivity? and		
M8: 6.1.3.h	Precision and bias?		
M8: 6.1.4	Is the use of any modified or non-reference method approved by the customer before use?		
M8: 6.1.5	Are methods validated when substantive modifications are made to reference methods (e.g., stoichiometry, technology, mass tuning acceptance criteria, quantitation ions, compressing digestion or extraction timeframes, reducing reagent or solvent volumes, changing solvents, or compressing instrument runtimes)?		
M8: 6.1.6	When a modification of a method includes changes to bulk sample (e.g., soil, paint chips) preparation steps, does the validation process include analysis of field samples in the matrix of concern?		
M8: 6.1.6	Does validation include, where possible, parallel studies using the reference method versus the modified method?		
M8: 6.1.6.a	Do the field samples contain target analytes either found natively in the samples or spiked into the sample?		
M8: 6.1.6.a	Does the validation include multiple levels of target analyte concentrations?		
M8: 6.1.6.a	In this context, “matrix of concern” means samples that are like, or from specific sampling sites, in which the method will be used.		Clarifying Statement
M8: 6.1.6.b	Where modifications to only the analytical portion of the method are planned, are any effects the matrix may have on the analysis taken into account as part of its risk assessment?		
M8: 6.2	Detection Limit, Limit of Detection, and Limit of Quantitation		
M8: 6.2	For each analyte in each field of testing, are there procedures for determining and verifying DL, LOD, and LOQ that reflect current operating conditions?		
M8: 6.2	DL, LOD, and LOQ determinations are not required for methods such as gravimetric or asbestos. DL and LOD determinations are not required if results are not reported below the LOQ, unless required by regulation or method.		Permission
M8: 6.2	For each preparation method listed on the scope of accreditation, is a DL, LOD, and LOQ determined, unless it falls within one of the stated exceptions?		
M8: 6.2	Although the laboratory is not required to determine a separate DL, LOD and LOQ for all possible combinations of preparation and cleanup techniques in use, is the DL, LOD, and LOQ determined using the combination of		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
	processes most likely to interfere with sensitivity (i.e., preparation method with all applicable cleanup/preparation steps)?		
M8: 6.2	Are the DL, LOD and LOQ reported for each analyte in each field of testing unless it is not applicable to the test or specifically excluded by customer requirements?		
M8: 6.2	Are records of all supporting data for DL, LOD, and LOQ determinations maintained?		
M8: 6.2.1	Determination of the Detection Limit		
M8: 6.2.1	When required to establish a DL, are published methodologies used from recognized entities such as USEPA, USDOE, ASTM, or NIOSH?		
M8: 6.2.1	The DL may be established based on historical data.		Permission
M8: 6.2.2	Initial Determination of the Limit of Detection		
M8: 6.2.2	Does the LOD determination procedure address the following requirements?		
M8: 6.2.2.a	After each DL determination, is the LOD established by spiking a quality system matrix at a concentration greater than or equal to the DL?		
M8: 6.2.2.a	Is the LOD equal to the concentration of this spike?		
M8: 6.2.2.b	Is the apparent signal to noise (S/N) ratio at the LOD at least three?		
M8: 6.2.2.b	Do the results meet all method requirements for analyte identification (e.g., ion abundance, second column confirmation, or pattern recognition)?		
M8: 6.2.2.c	For data systems that do not provide a measure of noise, does the signal produced by the LOD spike produce a response that is at least three standard deviations greater than the mean Method Blank concentration?		
M8: 6.2.2.d	Is the mean Method Blank initially estimated based on a minimum of four Method Blank analyses and later established with a minimum of 20 Method Blank results?		
M8: 6.2.2.e	If the LOD spike response does not meet the requirements, is the DL and/or LOD determination repeated at a higher level, or is the nonconforming work procedure implemented, until the requirements are met?		
M8: 6.2.3	Ongoing Verification of the Limit of Detection		
M8: 6.2.3	Does the LOD verification procedure address the following requirements?		
M8: 6.2.3.a	Is the LOD verified annually, at a minimum?		

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M8: 6.2.3.a	Is the verification made by repeating the LOD spike process at a concentration that is greater than or equal to half the current LOD and less than or equal to double the current LOD (i.e., 1/2x LOD ≤ Ongoing LOD Spike ≤ 2x LOD) provided the ongoing spike concentration is greater than or equal to the DL?		
M8: 6.2.3.a	Does the Ongoing LOD verification meet the same acceptance criteria as the Initial LOD verification for signal-to-noise and analyte identification?		
M8: 6.2.3.a	Is the Initial LOD not considered verified and not continue to be used until acceptance criteria are met?		
M8: 6.2.3.b	In the event the verification fails, is the LOD redetermined and, if necessary, the DL, or is the nonconforming work procedure implemented, until the requirements are met?		
M8: 6.2.3.c	If the method is altered in a way other than routine maintenance, and the change can be expected to elevate the detection limit, is the LOD reverified using the Ongoing LOD verification procedure?		
M8: 6.2.3.d	If there are multiple instruments that will be assigned the same LOD, does the LOD verification spike meet the requirements on each instrument?		
M8: 6.2.3.e	In situations where methods are setup and used on an infrequent basis, and the laboratory chooses to perform ongoing LOD verifications on a one-per-batch basis, before sample analysis, in lieu of annual verification, does the verification data meet the requirements of this section and reported to the customer?		
M8: 6.2.4	Initial and Ongoing Verification of the Limit of Quantitation		
M8: 6.2.4	Does the LOQ verification procedure address the following requirements?		
M8: 6.2.4.a	For methods using multi-level calibration, is an LOQ selected for each analyte that is greater than or equal to the LOD and the lowest non-zero calibration standard, but no greater than 10 times the LOD (i.e., LOD ≤ LOQ < 10x LOD)?		
M8: 6.2.4.a	For methods using a single-point calibration, is the LOQ greater than or equal to the LOD and greater than or equal to the low-level calibration check standard, but no greater than 10 times the LOD?		
M8: 6.2.4.b	Is the LOQ verified through analysis of verification samples?		
M8: 6.2.4.b	Does the LOQ verification sample consist of a spiked quality system matrix greater than or equal to the LOD or one-half the LOQ, whichever is less, and less than or		

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	equal to double the LOQ (i.e., LOD or 1/2 LOQ ≤ LOQ spike ≤ 2x LOQ)?		
M8: 6.2.4.b	Does the LOQ verification meet the same criteria as the initial LOD verification for signal-to-noise and analyte identification and is within the laboratory's stated acceptance criteria?		
M8: 6.2.4.b	Is the acceptance criteria determined based on a maximum of three standard deviations from the mean of historical data, but no wider than the laboratory control sample (LCS) acceptance criteria with an additional 20% allowance above and below?		
M8: 6.2.4.b	Is the lower limit greater than or equal to 10% recovery?		
M8: 6.2.4.c	In the event the verification fails, is the LOQ redetermined and, if necessary, the DL and/or LOD; or is the nonconforming work procedure implemented, until the requirements are met?		
M8: 6.2.4.d	If there are multiple instruments that will be assigned the same LOQ, is verification performed on each instrument?		
M8: 6.2.4.e	Is the LOQ verified annually, at a minimum?		
M8: 6.2.5	Is the following DL, LOD, and LOQ summary information available when requested?		
M8: 6.2.5.a	Indication of which analyte/matrix/prep method/analytical method and instrument used?		
M8: 6.2.5.b	DL?		
M8: 6.2.5.c	Claimed LOD?		
M8: 6.2.5.d	Concentration of initial LOD spike and verification spike, if different?		
M8: 6.2.5.e	Statement of compliance with analyte identification requirements?		
M8: 6.2.5.f	Signal-to-noise value or statement of compliance with requirements?		
M8: 6.2.5.g	Claimed LOQ?		
M8: 6.2.5.h	Concentration of LOQ spike?		
M8: 6.2.5.i	Recovery or result of LOQ spike?		
M8: 6.2.5.j	Acceptance criteria at the LOQ? and		
M8: 6.2.5.k	If specifically requested, raw data to support parameters reported?		
M8: 6.3	Evaluation of Method Precision and Bias		
M8: 6.3.1	Are the precision and bias of a method evaluated for each analyte of concern for each quality system matrix or is a documented alternate procedure followed when		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
	the analyte cannot be spiked into the sample matrix and QC samples are not commercially available?		
M8: 6.3.2	Is there a procedure for determining precision and bias?		
M8: 6.3.3	Are the samples processed through the entire measurement system for each analyte of interest?		
M8: 6.3.4	Do precision and bias measurements evaluate the method across the analytical calibration range of the method?		
M8: 6.3.5	Are results of the precision and bias measurements compared with criteria established by the customer, criteria given in the reference method, and/or criteria established by the laboratory?		
M8: 6.4	Evaluation of Selectivity		
M8: 6.4	Is selectivity evaluated by following the checks established within the method, which may include mass spectral tuning, second column confirmation, inter-element interference checks, chromatography retention time windows, sample blanks, spectrochemical absorption or fluorescence profiles, and electrode response factors?		
M8: 7.0	Demonstration of Capability (DOC)		
M8: 7.1	General		
M8: 7.1.1	Does an individual who performs any activity involved with preparation and/or analysis of samples have constant, close supervision (as defined in the laboratory's training procedure) until a satisfactory initial DOC is completed?		
M8: 7.1.2	Thereafter, does the individual perform ongoing DOC?		
M8: 7.1.3	In cases where an individual has prepared and/or analyzed samples using a method that has been in use by the laboratory for at least one year before applying for accreditation, and there have been no significant changes in instrument type or method, the ongoing DOC shall be acceptable as an initial DOC.		Permission
M8: 7.1.3	Are records maintained to demonstrate that an initial DOC is not required?		
M8: 7.1.4	Are all data applicable to the DOC retained and readily available at the laboratory?		
M8: 7.2	Initial DOC		
M8: 7.2	Does each individual successfully perform an initial DOC before using any method, any time there is a change in instrument type or method that could potentially affect the precision and bias, sensitivity, or selectivity of the output, or any time that a method has		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
	not been performed by the individual in a 12-month period?		
M8: 7.2	Examples of method changes that could potentially affect the precision and bias, sensitivity, or selectivity of the output include a change in the detector, column type, matrix, method revision, or other components of the sample measurement system.		Clarifying Statement
M8: 7.2.1	Is there a procedure for performing an initial DOC?		
M8: 7.2.2	Are records maintained of each initial DOC in a manner such that the following information is readily available for each individual?		
M8: 7.2.2.a	Individual(s) involved in preparation and/or analysis?		
M8: 7.2.2.b	Matrix?		
M8: 7.2.2.c	Analyte(s), class of analyte(s)?		
M8: 7.2.2.d	Identification of method(s) performed?		
M8: 7.2.2.e	Identification of laboratory-specific procedure used for analysis, including revision number?		
M8: 7.2.2.f	Date(s) of analysis? and		
M8: 7.2.2.g	Summary of analyses?		
M8: 7.2.3	If the reference method or regulation does not specify how to perform an initial DOC, the following procedure is acceptable.		Permission
M8: 7.2.3	Are other approaches to initial DOC documented to be adequate?		
M8: 7.2.3.a	The analyte(s) shall be spiked in a volume of clean quality system matrix (i.e., a matrix in which no target analytes or interferences are present at concentrations that will impact the results of a specific method) sufficient to prepare four aliquots at the concentration specified in the reference method, or if unspecified, to a concentration of one to four times the LOQ.		Permission
M8: 7.2.3.b	At least four aliquots shall be prepared and analyzed according to the method.		Permission
M8: 7.2.3.c	Using all the results, calculate the mean recovery in the appropriate reporting units and the standard deviations of the sample (in the same units) for each analyte of interest. When it is not possible to determine mean and standard deviations, such as for presence/absence and logarithmic values, the laboratory shall assess performance against established and documented criteria.		Permission
M8: 7.2.3.d	Compare the information from 7.2.3.c above to the corresponding acceptance criteria for precision and accuracy in the method, if applicable, or in laboratory-generated acceptance criteria if there are not		Permission

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
	acceptance criteria in the method. If all analytes meet the acceptance criteria, the analysis of actual samples may begin. If any one of the analytes does not meet the acceptance criteria, the performance is unacceptable for that analyte.		
M8: 7.2.3.e	When one or more of the tested analytes fail at least one of the acceptance criteria, does the analyst proceed according to i) or ii) below?		
M8: 7.2.3.e.i	The source of the failure is located and corrected, and the DOC procedure is repeated for all analytes of interest?		
M8: 7.2.3.e.ii	The DOC procedure is repeated for all analytes that failed to meet criteria?		
M8: 7.2.3.f	Repeated failure, however, confirms a general problem with the measurement system. If repeated failure occurs, is the source of the failure located and corrected, and the DOC procedure repeated for all analytes?		
M8: 7.2.3.g	When an analyte not currently found on the laboratory's list of accredited analytes is added to an existing accredited method, is an initial demonstration performed for that analyte?		
M8: 7.3	Ongoing DOC		
M8: 7.3.1	Is there a procedure for ongoing DOC that includes how the laboratory will identify data associated with ongoing DOCs?		
M8: 7.3.1	Does the individual demonstrate on-going capability by routinely meeting the QC requirements of the reference method, laboratory procedure, customer requirements, and/or this standard?		
M8: 7.3.1	If the method has not been performed by the individual in a 12-month period, is an initial DOC performed?		
M8: 7.3.1	Are other approaches to ongoing DOC documented to be adequate?		
M8: 7.3.2	Is the on-going demonstration one of the following?		
M8: 7.3.2.a	Acceptable performance of a blind sample (single blind to the individual) or blind PT sample on a similar method using the same technology; Note: Acceptable results for both detected and non-detected analytes are considered acceptable performance.		
M8: 7.3.2.b	Another initial DOC;		
M8: 7.3.2.c	Is there at least four consecutive LCSs with acceptable levels of precision and accuracy?		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
	Does the laboratory determine the acceptable limits for precision and accuracy before analysis? Does the laboratory tabulate or be able to readily retrieve four consecutive passing LCSs or reference samples for each method for each individual performed within the last 12-month period?		
M8: 7.3.2.d	Does the laboratory follow a procedure for reviewing records of QC samples meeting the QC requirements of the method, laboratory procedure, customer requirements, and/or this standard? Is the review of these records used to identify patterns and determine if corrective action or retraining is necessary?		
M8: 7.3.2.e	If a) through d) are not technically feasible, is analysis of real-world samples with results within a pre-defined acceptance criterion (as defined by the laboratory or method) performed?		
M8: 8.0	Technical Requirements		
M8: 8.1	Calibration		
M8: 8.1	This section specifies the essential elements that shall define the procedures and required records for initial calibration and continuing calibration verification for methods that use calibration models including, but not limited to, average response factor or linear or quadratic regression, to ensure that the data shall be of known quality for the intended use.		Clarifying Statement
M8: 8.1	Calibration requirements for auxiliary equipment are specified in Module 2. This section does not specify detailed procedural steps for calibration but does establish the essential elements for selection of the appropriate technique(s). This approach allows flexibility and permits the employment of a wide variety of analytical procedures and statistical approaches currently applicable for calibration.		Clarifying Statement
M8: 8.1	When more stringent standards or requirements are included in a mandated method or by regulation, does the laboratory demonstrate that such requirements are met?		
M8: 8.1	If it is not apparent which requirements are more stringent, are the requirements of the regulation or mandated method followed?		
M8: 8.1.1	Initial Calibration		
M8: 8.1.1	Is each reported analyte associated with an acceptable initial calibration?		

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M8: 8.1.1	If the initial calibration is not acceptable, are corrective actions performed and all associated samples reanalyzed?		
M8: 8.1.1	Are the following items required elements of initial calibration?		
M8: 8.1.1.a	Are the details of the initial calibration including calculations, integrations, acceptance criteria, and associated statistics included or referenced in the procedure?		
M8: 8.1.1.a	When initial calibration procedures are referenced, are the referenced procedures retained by the laboratory?		
M8: 8.1.1.b	Are sufficient raw data records retained to permit reconstruction of the initial calibration (e.g., calibration date, method, unique instrument identification, analysis date, each analyte name, and individual initials or signature; concentration and response, calibration curve or response factor; or unique equation or coefficient used to reduce instrument responses to concentration)?		
M8: 8.1.1.c	Is the most recent initial calibration analyzed prior to the analytical batch used, unless otherwise specified by the method?		
M8: 8.1.1.d	Are standards used for calibration Certified Reference Materials specifically identified as such in an accompanying Certificate of Analysis from a Reference Material Producer (RMP) accredited to ISO 17034 or Standard Reference Materials (SRM) from a National Metrology Institute (NMI), when commercially available?		
M8: 8.1.1.d	If standards are not commercially available from an United States of America or Canada-based RMP, are standards from an authoritative source used?		
M8: 8.1.1.e	Is there a written procedure addressing removal and replacement of calibration standards?		
M8: 8.1.1.e	Does the procedure comply with the following requirements?		
M8: 8.1.1.e.i	The laboratory may remove individual analyte calibration levels from the lowest and/or highest levels of the curve.		Permission
M8: 8.1.1.e.i	Multiple levels may be removed.		Permission
M8: 8.1.1.e.i	Is removal of individual analytes in interior levels not permitted?		
M8: 8.1.1.e.ii	Is removal of an entire single standard calibration level from the interior of the calibration curve only allowed when the instrument response demonstrates that the standard was not properly introduced to the instrument, or an incorrect standard was analyzed?		

<table>
<tr><th>DoD/DOE
QSM 6.0 Clause</th><th>Requirement</th><th>Conformity
C / NC / NA</th><th>Comments/Objective Evidence</th></tr>
<tr><td>M8: 8.1.1.e.ii</td><td>When a calibration level is removed from the interior of the calibration, is that calibration level removed for all analytes?</td><td></td><td></td></tr>
<tr><td>M8: 8.1.1.e.ii</td><td>Is removal of a calibration level from the interior of the curve not to be used to compensate for lack of maintenance or repair to the instrument?</td><td></td><td></td></tr>
<tr><td>M8: 8.1.1.e.iii</td><td>Is the LOQ and quantitation range of the calibration adjusted based on the concentration of the remaining high and low calibration standards?</td><td></td><td></td></tr>
<tr><td>M8: 8.1.1.e.iv</td><td>Are the remaining initial calibration levels ensured to be sufficient to meet the minimum requirements for the number of initial calibration levels as mandated by this standard, the method, and/or regulatory requirements?</td><td></td><td></td></tr>
<tr><td>M8: 8.1.1.e.v</td><td>Is a calibration level replaced provided that the following are met?</td><td></td><td></td></tr>
<tr><td>M8: 8.1.1.e.v.a</td><td>Is the replacement standard analyzed within 24 hours of the original calibration standard analysis for that particular calibration level?</td><td></td><td></td></tr>
<tr><td>M8: 8.1.1.e.v.b</td><td>Are all analytes of the replacement calibration standard replaced if a level within the interior of the calibration is replaced?</td><td></td><td></td></tr>
<tr><td>M8: 8.1.1.e.v.c</td><td>Is the replacement limited to one calibration level?</td><td></td><td></td></tr>
<tr><td>M8: 8.1.1.e.vi</td><td>Is a technically valid reason recorded for either removal or replacement of any interior calibration level?</td><td></td><td></td></tr>
<tr><td>M8: 8.1.1.f</td><td>For regression or average response/calibration factor calibrations, is the minimum number of non-zero calibration standards as specified in the table below?
<table>
<tr><th>Type of Calibration Curve</th><th>Minimum Number of Calibration Standards</th></tr>
<tr><td>Threshold Testing[a]</td><td>1</td></tr>
<tr><td>Average Response</td><td>5</td></tr>
<tr><td>Linear Fit</td><td>5</td></tr>
<tr><td>Quadratic Fit</td><td>6</td></tr>
</table>
[a] The initial one-point calibration shall be at the threshold level provided by the customer and results shall be reported qualitatively with uncertainty, and in compliance with a decision rule.
[b] Fewer calibration standards may be used only if equipment firmware or software cannot accommodate the specified number of standards. Records detailing that limitation shall be maintained by the laboratory.
[c] Ion-selective electrode analyses (e.g., pH, ammonia) are not covered by this table. The laboratory shall use the minimum number of standards as recommended or required in the reference method, or manufacturer’s instructions.</td><td></td><td></td></tr>
<tr><td>M8: 8.1.1.g</td><td>Is the lowest non-zero calibration standard at or below the lowest concentration for which quantitative data are to be reported without qualification?</td><td></td><td></td></tr>
</table>

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
M8: 8.1.1.h	Is the highest calibration standard at or above the highest concentration for which quantitative data are to be reported without qualification?		
M8: 8.1.1.h	When sample responses exceed the calibration range, is the sample diluted and reanalyzed to bring results within the calibration range, if sufficient sample volume and holding time permit?		
M8: 8.1.1.h	If results are outside the calibration range and reanalysis is not possible, is the data reported with appropriate qualifiers?		
M8: 8.1.1.h.i	For methods utilizing inductively coupled plasma analysis, if the laboratory reports a sample result with a response above the calibration range, does it analyze and pass (within 10% of the true value) a high-level check standard that exceeds the sample concentration but is within the linear dynamic range (provided the high-level check standard is analyzed in the same manner as the sample and evaluated with the same calibration)?		
M8: 8.1.1.i	Are sample results quantitated from the initial calibration and not quantitated from any continuing calibration verification unless otherwise required by regulation, method, or program?		
M8: 8.1.1.j	Is criteria for the acceptance of an initial calibration documented (e.g., correlation coefficient or relative standard deviation)?		
M8: 8.1.1.k	When procedures are employed that specify calibration with a single calibration standard and a zero point (blank or zero, however specified by the procedure), are the following met?		
M8: 8.1.1.k.i	Are the zero point and single calibration standard within the linear range analyzed at least daily and used to establish the slope of the calibration?		
M8: 8.1.1.k.ii	To verify adequate sensitivity, is a standard analyzed at or below the lowest concentration for which quantitative data are to be reported without qualification?		
M8: 8.1.1.k.ii	Is this standard analyzed before sample analysis with each calibration?		
M8: 8.1.1.k.ii	Does this standard meet the recovery acceptance criteria at the LOQ established by the method?		
M8: 8.1.1.k.ii	If no method criteria exist, does the procedure specify the criteria?		
M8: 8.1.1.l	For analysis of Aroclors which use a linear through origin model (or average response factor), is an initial multi-level calibration performed for a subset of Aroclors (e.g., a mixture of 1016/1260) and a one-point		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
	initial calibration used for pattern recognition for the remaining Aroclors?		
M8: 8.1.1.l	If one of the remaining Aroclors is identified, is a multi-level calibration performed for the specific Aroclor detected, and the sample extract reanalyzed using the multi-level calibration for quantitation?		
M8: 8.1.1.m	Are all initial calibrations verified with an initial calibration verification standard (ICV) prepared from materials from an authoritative, independent, second source before analyzing samples?		
M8: 8.1.1.m	The use of a calibration material from a second lot obtained from the same manufacturer, independently prepared from different source materials, is acceptable for use as a second-source ICV.		Permission
M8: 8.1.1.m	Is the concentration of the second-source ICV at the midrange or lower?		
M8: 8.1.1.m	When using neat materials for calibration, the second-source ICV may be an independent preparation of the neat material used for calibration.		Permission
M8: 8.1.1.m	Does the calibration verification meet the acceptance criteria of the reference method, or if not specified in the reference method, is the acceptance criteria for continuing calibration verification used?		
M8: 8.1.1.n	For those methods where reporting non-detected analytes based on successful completion of a sensitivity check is allowed (similar to threshold testing but only for non-detects), the requirements of this standard shall not prohibit the practice.		Permission
M8: 8.1.2	Continuing Calibration Verification		
M8: 8.1.2	Is the validity of the initial calibration verified before sample analyses by a calibration verification with each analytical batch?		
M8: 8.1.2	Are the following items essential elements of continuing calibration verification?		
M8: 8.1.2.a	Are the details of the continuing calibration verification procedure, calculations, and associated statistics included or referenced in the procedure?		
M8: 8.1.2.b	Is the calibration verified for each compound, element, or other discrete chemical species, except for multi-component analytes such as Aroclors, chlordane, total petroleum hydrocarbons, or toxaphene, where a representative chemical, related substance or mixture may be used?		
M8: 8.1.2.c	Is the concentration of the continuing calibration verification sample (CCV) greater than or equal to the low calibration standard and less than or equal to the mid-range?		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
M8: 8.1.2.d	Is instrument calibration verification performed at the beginning and end of each analytical batch, and at the frequency defined in the method except for the following?		
M8: 8.1.2.d.i	A second source initial calibration verification that passes the continuing calibration verification criteria may be used in place of CCV.		Permission
M8: 8.1.2.d.ii	A LCS may be used in place of a CCV (but not as a replacement for a failing CCV) for methods where the calibration goes through the same process as the LCS (using the continuing calibration verification acceptance criteria).		Permission
M8: 8.1.2.e	Are sufficient raw data records retained to permit reconstruction of the calibration verification (e.g., method, unique instrument identification, analysis date, each analyte name, concentration and response, calibration curve or response factor, or unique equations or coefficients used to convert instrument responses into concentrations)?		
M8: 8.1.2.e	Do continuing calibration verification records explicitly connect the continuing calibration verification data to the initial calibration.?		
M8: 8.1.2.f	Is criteria for the acceptance of a continuing calibration verification established?		
M8: 8.1.2.f	If the continuing calibration verification results obtained are outside the established acceptance criteria, are the following steps taken?		
M8: 8.1.2.f.i	If a cause for the calibration verification failure is identified that impacts only the CCV (e.g., a missed autosampler injection), does the analysis only proceed if a second CCV is analyzed immediately (within one hour and no samples analyzed) and the result is within acceptance criteria (i.e., passing)?		
M8: 8.1.2.f.i	Are samples previously analyzed considered valid if bracketed by a passing CCV?		
M8: 8.1.2.f.i	Are records maintained of the cause for the failure of the first calibration verification result?		
M8: 8.1.2.f.ii	If a cause for the calibration verification failure is not isolated to the CCV or not identified, is the nonconforming work procedure implemented and the CCV and all associated samples since the last successful CCV repeated?		
M8: 8.1.2.f.iii	Qualifying data for a failed CCV is only appropriate when the affected samples cannot be reanalyzed.		Clarifying Statement
M8: 8.1.2.f.iii	Is the customer notified before reporting data associated with a failed CCV?		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
M8: 8.1.2.f.iv	Is data associated with an unacceptable CCV qualified if reported but not be reported if prohibited by the customer, a regulatory program or regulation?		
M8: 8.1.2.f.iv	Is a different qualifier used for data associated with CCVs that fail under the following special conditions shall still be qualified, only when the following is met?		Permission
M8: 8.1.2.f.iv.a	If the acceptance criteria for the CCV exceeded high (i.e., high bias) and there are associated samples that are non-detects, then are those non-detects are reported with a data qualifier?		
M8: 8.1.2.f.iv.a	Are the samples affected by the unacceptable calibration verification reanalyzed after a new calibration curve has been established, evaluated, and accepted?		
M8: 8.2	Quality Control		
M8: 8.2	Are there QC procedures for monitoring the validity of environmental tests undertaken as specified in this Section?		
M8: 8.2.1	Negative Control – Method Performance: Method Blank		
M8: 8.2.1	For many IH analyses, a media blank takes the place of a method blank.		Clarifying Statement
M8: 8.2.1	For media blanks, is subtraction applied as described in the reference method?		
M8: 8.2.1.a	Is the method blank used to assess the samples in the preparation batch for possible contamination during the preparation and processing steps?		
M8: 8.2.1.b	Is the method blank processed along with and under the same conditions as the associated samples to include all steps?		
M8: 8.2.1.c	Are procedures in place to determine if a method blank is contaminated?		
M8: 8.2.1.d	Are any affected samples associated with a contaminated method blank reprocessed for analysis or the results reported with appropriate data qualifiers?		
M8: 8.2.1.e	Is the method blank analyzed at a minimum of one per preparation batch?		
M8: 8.2.1.f	When no separate preparation method is used (e.g., volatiles in water), is the batch defined as environmental samples that are analyzed together with the same method and personnel, using the same lots of reagents, not to exceed the analysis of 20 environmental samples, not including method blanks, LCS, matrix spikes and matrix duplicates?		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
M8: 8.2.1.g	Does the method blank consist of a quality system matrix that is similar to the associated samples and is known to be free of the analytes of interest?		
M8: 8.2.1.h	Method blanks are not applicable for certain analyses, (e.g., pH, conductivity, flash point, and temperature)?		Permission
M8: 8.2.1.i	For chromatographic analyses, when samples that are extracted together are analyzed on separate instruments or in separate analytical shifts, is the method blank associated with those samples (e.g., extracted with the samples) analyzed on at least one of those instruments?		
M8: 8.2.1.i	Is a method blank, solvent blank, or instrument blank analyzed on all other instruments on which the set of samples was analyzed to demonstrate the instrument is not contributing contaminants to the samples?		
M8: 8.2.2	Positive Control – Method Performance: Laboratory Control Sample		
M8: 8.2.2.a	The LCS is used to evaluate the performance of the total measurement system.		Clarifying Statement
M8: 8.2.2.a	Is the LCS processed along with and under the same conditions as the associated samples and include all steps?		
M8: 8.2.2.b	Is the LCS analyzed at a minimum of one per preparation batch?		
M8: 8.2.2.c	Exceptions are allowed for those analytes for which no spiking solutions are available (e.g., pH, color, odor, temperature, dissolved oxygen, or turbidity)?		Permission
M8: 8.2.2.d	In instances for which no separate preparation method is used (e.g., volatiles in water), is the batch defined as environmental samples that are analyzed together with the same method and personnel, using the same lots of reagents, not to exceed the analysis of 20 environmental samples, not including method blanks, LCS, matrix spikes, and matrix duplicates?		
M8: 8.2.2.e	Is the LCS of a quality system matrix similar to the associated samples, known to be free of analytes of interest, spiked with known concentrations of analytes?		
M8: 8.2.2.f	Alternatively, does the LCS consist of a media containing known and verified concentrations of analytes or a Certified Reference Material.		
M8: 8.2.2.f	Are all analyte concentrations within the calibration range of the methods		
M8: 8.2.2.g	Are the components to be spiked as specified by the reference method or regulation, or as requested by the customer?		
M8: 8.2.2.g	In the absence of specified spiking components, is the spike as follows?		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
M8: 8.2.2.g.i	Are all reported analytes spiked in the LCS (with the exception of Aroclor analysis, which is spiked per the method)?		
M8: 8.2.2.g.i	This may require the preparation of multiple LCSs to avoid interferences.		Clarifying Statement
M8: 8.2.2.g.ii	Is the concentration of the spiked compounds at or below the midrange of the calibration if customer-provided concentrations are not specified? Note: The matrix spike may be used in place of the LCS if the acceptance criteria are as stringent as the LCS acceptance criteria.		
M8: 8.2.3	Sample-Specific Controls		
M8: 8.2.3	Are there documented procedures for determining the effect of the sample matrix on method performance?		
M8: 8.2.3	These procedures relate to the analyses of quality system matrix specific QC samples and are designed as data quality indicators for a specific sample using the designated method. These controls alone are not used to judge laboratory performance.		Clarifying Statement
M8: 8.2.3	Examples of matrix-specific QC include Matrix Spike (MS), Matrix Spike Duplicate (MSD), and Matrix Duplicate (MD).		Clarifying Statement
M8: 8.2.3	Are there procedures in place for tracking, managing, and handling matrix-specific QC criteria, including spiking appropriate components at appropriate concentrations; calculating percent recovery (%R), relative percent difference (RPD), and other appropriate statistical measures; and evaluating and reporting results based on performance of the QC samples?		
M8: 8.2.3.a	Matrix Spikes and Matrix Spike Duplicates		
M8: 8.2.3.a	Matrix-specific QC samples indicate the effect of the sample matrix on the precision and accuracy of the results generated using the selected method. The information from these controls is sample/matrix specific and would not normally be used to determine the validity of the entire batch. A MS and MSD are usually not required in IH methods.		Clarifying Statement
M8: 8.2.3.a.i	Does each preparation batch of samples contain an associated MS and MSD where required by method or regulation using the same matrix collected for the specific project unless specifically exempt by the applicable method or the applicable B-Table?		
M8: 8.2.3.a.i	The requirements for MS/MSD are not applicable to all methods. If adequate sample material is not available,		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
	is the lack of MS/MSDs noted in the case narrative, and a LCS Duplicate (LCSD) used to determine precision?		
M8: 8.2.3.a.i	Additional MS/MSDs may be required by a customer.		Clarifying Statement
M8: 8.2.3.a.ii	Are the MS and MSD spiked with all reported analytes (except for Aroclor analysis, which is spiked per the method)?		
M8: 8.2.3.b	Matrix Duplicates		
M8: 8.2.3.b.i	Does each preparation batch of samples contain a MD when precision is not monitored through the analysis of a MS/MSD pair?		
M8: 8.2.3.b.i	MDs are defined as replicate aliquots of the same sample taken through the entire analytical procedure. The results from this analysis indicate the precision of the results for the specific sample using the selected method. The MD may provide a usable measure of sample homogeneity. It may also provide a measure of precision when target analytes are present. A MD is usually not required in IH methods.		Clarifying Statement
M8: 8.2.3.b.ii	Is the frequency of the analysis of a MD as specified by the customer or method?		
M8: 8.2.3.b.iii	Are matrix duplicates performed on replicate aliquots of actual samples?		
M8: 8.2.3.b.iii	The composition is usually not known.		Clarifying Statement
M8: 8.2.4	Data Reduction		
M8: 8.2.4	Is there a procedure for data reduction (e.g., linear regression), and records maintained?		
M8: 8.2.5	Reagent Quality, Water Quality, and Checks		
M8: 8.2.5.a	In methods where the purity of reagents is not specified, is analytical reagent grade or better used?		
M8: 8.2.5.a	Are reagents of lesser purity than those specified by the method not used?		
M8: 8.2.5.b	Does the quality of water sources meet method specified documented requirements?		
M8: 8.2.5.b	Are the water sources monitored that they meet the requirements?		
M8: 8.2.5.b	Are the water source records maintained?		
M8: 8.2.5.c	Is the concentration of titrants verified in accordance with written laboratory procedures?		
M8: 8.2.5.c	Are titrant concentration verification records maintained?		
M8: 8.2.5.d	Are the quality (e.g., purity) specifications for all standards and reagents (including water) included or referenced in procedures?		
M8: 8.2.6	Selectivity		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
M8: 8.2.6	Is selectivity validated by following the checks established within the method and/or the Appendix B IH Tables?		
M8: 8.2.6.a	For chromatography methods where confirmation is recommended or required in the reference method or by the customer, are all results greater than the DL confirmed?		
M8: 8.2.6.a	Confirmation techniques include further analysis using a second column with dissimilar stationary phase, using a second detector type, or by other recognized confirmation techniques. HPLC UV-Diode Array detectors are not considered confirmation for a UV detector.		Clarifying Statement
M8: 8.2.6.a.i	Do confirmation techniques using the same detector type (e.g., second-column confirmation) meet the same calibration and QC criteria as the initial or primary analysis?		
M8: 8.2.6.a.ii	Are the RPD of results from the primary and confirmation technique using the same detector type less than or equal to 40%?		
M8: 8.2.6.a.iii	If using a second column for confirmation, is the primary column identified for each target analyte?		
M8: 8.2.6.a.iii	If results are reported from the second column due to interference, QC failure, or customer requirements, is it discussed in the case narrative?		
M8: 8.2.6.a.iv	If using a mass spectrometer for confirmation, is there a procedure that includes acceptance criteria for selectivity and sensitivity?		
M8: 8.2.6.a.v	When reporting data for methods that require analyte confirmation, are customer reporting requirements followed?		
M8: 8.2.6.a.v	If customer requirements are not available, are the reporting requirements in the method followed?		
M8: 8.2.6.a.v	If the method does not include reporting requirements, are the results reported from the primary column or detector, unless there is a scientifically valid and documented reason for not doing so, and concurrence is obtained from the customer?		
M8: 8.2.6.a.vi	Is the customer notified of any results that are unconfirmed (e.g., confirmation was not performed, or confirmation was obscured by interference) and the results identified in the test report using data qualifiers and described in the case narrative?		
M8: 8.2.6.a.vi	Is analyte presence only reported if both original and confirmation signals are positive or if confirmation signal cannot be discerned from interference?		
M8: 8.2.7	Desorption Efficiency		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
M8: 8.2.7.a	Are results corrected for desorption efficiency as recommended or required in the reference method for each type of adsorbent media used in the laboratory before or concurrent with sample analysis?		
M8: 8.2.7.b	Unless prohibited by the reference method, the laboratory may meet this requirement by preparing its initial calibration standards on the media used for samples. When this option is used, are sample results quantitated directly from the initial calibration?		
M8: 8.2.7.c	Is the same lot of media used as samples, where possible?		
M8: 8.2.7.d	Where use of the same lot of media as samples or determination of the desorption efficiency is not possible, are results qualified and explained in the case narrative?		
M8: 8.3	Data Acceptance/Rejection Criteria		
M8: 8.3.1	Negative Control – Method Performance: Method Blank		
M8: 8.3.1.a	While the goal is to have no detectable contaminants, each method blank exhibiting potential contamination shall be critically evaluated as to the nature of the interference and the effect on the analysis of each sample within the batch.		Clarifying Statement
M8: 8.3.1.a	Is a method blank considered contaminated if the concentration of any target analyte (chemical of concern) in the blank exceeds the LOQ or 1/10th the amount measured in any associated sample, whichever is greater?		
M8: 8.3.1.b	When a method blank is contaminated and background contamination is not subtracted from field sample results, are all affected QC and field samples processed with the contaminated blank reprepared and analyzed, if sufficient sample material is available?		
M8: 8.3.1.b	Are samples affected if they have any detections less than 10X the amount detected in the MB?		
M8: 8.3.1.b	If the affected samples cannot be reprepared and analyzed, are results reported with a data qualifier applied to specific analytes in all samples in the associated preparatory batch?		
M8: 8.3.2	Positive Control – Method Performance: Laboratory Control Sample		
M8: 8.3.2.a	Are results of the individual batch LCS calculated in %R or other appropriate statistical technique that allows comparison to established acceptance criteria?		
M8: 8.3.2.a	Is the calculation included in the procedure?		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
M8: 8.3.2.b	Is the LCS recovery evaluated against acceptance criteria provided by the customer or listed in the reference method?		
M8: 8.3.2.b	For analytes that are not listed in the reference method, is the LCS evaluated against its laboratory-developed acceptance criteria?		
M8: 8.3.2.c	When LCS results are outside of acceptance criteria, does the laboratory reprepare and analyze the LCS and all affected QC samples and field samples in the associated preparation batch for failed analytes, if sufficient material is available?		
M8: 8.3.2.c	If the samples cannot be reanalyzed, are results reported with appropriate data qualifiers applied to specific analytes in all samples in the associated preparatory batch.		
M8: 8.3.2.c.i	When the acceptance criteria for the positive control are exceeded high (i.e., high bias) and there are associated samples that are non-detects, are those non-detect results reported with a data qualifier (and sample repreparation and analysis is not necessary).		
M8: 8.3.2.d	Regardless of which limits are used for LCS evaluation, is acceptance criteria developed for all analytes on the laboratory's scope of accreditation that meet the following?		
M8: 8.3.2.d.i	Are statistically derived based on the laboratory's historical data, using scientifically valid and documented procedures?		
M8: 8.3.2.d.ii	Meet the limits within the reference method if available?		
M8: 8.3.2.d.iii	Are updated on at least an annual basis or as stated in the reference method, whichever is more frequent, and re-established after major changes in the measurement system (e.g., new instrumentation)?		
M8: 8.3.2.d.iv	Are based on at least 20 data points generated under the same measurement system?		
M8: 8.3.2.d.v	Do not exclude failed LCS recovery data and statistical outliers from the calculation, unless there is a scientifically valid and documented reason (e.g., incorrectly made standard, instrument malfunction)?		
M8: 8.3.2.d.vi	Are not outside ± 3 times the standard deviation of the mean LCS recovery?		
M8: 8.3.2.d.vii	Are used for trend analysis? and		
M8: 8.3.2.d.viii	Are used for batch control, if applicable?		
M8: 8.3.2.e	Are control charts or data analysis software maintained and used to detect trends and prevent out-of-control conditions?		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
M8: 8.3.2.e	Are control limits monitored at least quarterly for shifts in mean recovery, changes in standard deviation, and development of trends?		
M8: 8.3.2.e	If laboratory chooses representative compounds for control charts for the purpose of trend analysis, is the basis for selecting representative compounds documented and scientifically valid?		
M8: 8.3.2.f	Are control charts reviewed at a specified frequency for out-of-control conditions and corrective actions initiated when appropriate?		
M8: 8.3.2.f	Data analysis software may also be used for the statistical evaluation of data for trends.		Permission
M8: 8.3.2.g	Are laboratory-developed LCS control limits used for the purpose of trend analysis?		
M8: 8.3.2.g	Laboratory-developed LCS control limits may be used as a component in estimating measurement uncertainty.		Permission
M8: 8.3.2.h	Laboratory Control Sample Duplicates		
M8: 8.3.2.h.i	Are the LCSD recovery and RPD evaluated using acceptance criteria provided by the customer, or if customer requirements are not provided, using the appropriate Appendix B Table?		
M8: 8.3.2.h.i	If these acceptance criteria are not available, are the LCSD recovery and RPD evaluated using the reference method, or if not specified in the reference method, using laboratory-developed limits?		
M8: 8.3.2.h.ii	If LCSD results are outside of acceptance criteria, is the data evaluated to determine if the source of the failure is analytical error?		
M8: 8.3.2.h.ii	If the source of the failure is analytical error, is the sample reprepared and analyzed for failed analytes in all affected QC samples and field samples in the associated preparation batch, if sufficient material is available?		
M8: 8.3.2.h.ii	Otherwise, are all specific analytes in all samples qualified in the associated preparatory batch?		
M8: 8.3.3	Sample-Specific Controls		
M8: 8.3.3.a	Matrix Spike; Matrix Spike Duplicate		
M8: 8.3.3.a	The results from matrix spike/matrix spike duplicate are primarily designed to assess the precision and accuracy of analytical results in a given matrix and are expressed as percent recovery (%R), RPD, or other appropriate statistical technique that allows comparison to established acceptance criteria.		Clarifying Statement
M8: 8.3.3.a	Is there a procedure for the calculation of %R, RPD or other statistical treatment used?		

DoD/DOE QSM 6.0 Clause	Requirement	Conformity C / NC / NA	Comments/Objective Evidence
M8: 8.3.3.a.i	Are the MS/MSD recoveries evaluated using the same acceptance criteria used for the LCS?		
M8: 8.3.3.a.ii	Is the MS/MSD RPD evaluated against customer requirements, or if customer requirements are not provided, the reference method, or if not provided by the customer or reference method, the laboratory-developed limits?		
M8: 8.3.3.a.iii	If MS or MSD results or MS/MSD RPD are outside the acceptance criteria, is the data evaluated to determine if the source(s) of failure is analytical error?		
M8: 8.3.3.a.iii	If the source(s) of failure is analytical error, are the MS and MSD reprepared and analyzed if sufficient sample material is available?		
M8: 8.3.3.a.iii	If the MS and MSD cannot be reprepared and analyzed, are specific analytes qualified in the parent sample?		
M8: 8.3.3.b	Matrix Duplicates		
M8: 8.3.3.b	The results from matrix duplicates are primarily designed to assess the homogeneity of the particular sample chosen. If that sample is homogenous, it may also describe the precision of analytical results in a given matrix. These may be expressed as RPD or another statistical treatment (e.g., absolute differences).		Clarifying Statement
M8: 8.3.3.b.i	Is there a procedure for the calculation for RPD or other statistical treatments?		
M8: 8.3.3.b.ii	Is the MD RPD evaluated against customer requirements, or if not specified, the reference method, or if not specified, with its laboratory-developed limits?		
M8: 8.3.3.b.iii	If the MD RPD is outside the acceptance criteria, is the data evaluated to determine if the source of failure is analytical error?		
M8: 8.3.3.b.iii	If the source of failure is analytical error, is the MD reprepared and analyzed if sufficient sample material is available?		
M8: 8.3.3.b.iii	If the MD cannot be reprepared and analyzed, are specific analytes qualified in all samples in the associated preparatory batch?		