

## Forensic Science Standards Board – Standards and Technical Guidance Documents Review Rubric Questions

Subcommittee, SAC, and Standards Review Panel Questions Included Below.

### RUBRIC SCORING SCALE:

5 - Meets or exceeds all elements of the requirement with excellent detail and support.

3 - Meets most of the elements of the requirement with adequate/sufficient detail and support.

1 - The topic is addressed; does not meet the majority of the elements of the requirement; lacks adequate/sufficient detail & support.

0 - An applicable topic has not been addressed, was not addressed appropriately, or does not contain any detail or support.

### **SUBCOMMITTEE RUBRIC - Section 1 [1]**

### **SAC and SRP RUBRIC - Section 2 [2]**

### **SUBCOMMITTEE RUBRIC [3]**

#### **Training, Competency, and Continuing Education Standards**

Which section(s) of the document addresses educational requirements for the discipline? (e.g., Degree Type, Appropriate Major, Specific Courses)

Which section(s) of the document addresses information on licensing for the discipline?

Which section(s) of the document addresses information on certification for the discipline?

Which section(s) of the document addresses details on competency testing to include methods of testing and criteria for assessment?

Which section(s) of the document addresses the requirements stated in ASTM E-2917?

#### **Performance Monitoring Standards**

Which section(s) of the document addresses different methods of performance monitoring (e.g., proficiency testing, inter/intralaboratory testing) and their application to the discipline?

Which section(s) of the document addresses how results, interpretations, or opinions are reported (e.g., qualitative, quantitative, binary, use of opinion/interpretation scales, or reported as in casework)?

Which section(s) of the document addresses requirements for details on the scope, nature, and frequency of performance monitoring?

Which section(s) of the document addresses limitations of performance monitoring for the discipline?

Which section(s) of the document addresses the types of performance monitoring activities (PMA) and how they are applied to the discipline?

Which section(s) of the document addresses the scope of the monitoring activity to include:

-- Written acknowledgement that PMAs are only a single part of a quality system

-- The limitations of the PMA program inherent to the discipline

-- List common discipline-specific knowledge, skills and abilities, methods, equipment, technology, and item types that are expected to be monitored for performance.

-- Discuss the acceptable level of diversity of these items to achieve comprehensive performance monitoring.

-- Require FSPs to conduct PMAs on the types of testing they perform or are accredited to perform as listed on their Scope of Accreditation (or however named).

-- Direct FSPs to conduct PMAs only on activities for which they have validated methods and procedures

Which section(s) of the document addresses the appropriate selection or creation of materials used in non-observation-based PMAs to include:

-- A statement that selected or created materials should be verified against the preliminary assigned value and maintain homogeneity and stability throughout the PMA

-- Guidance on acceptable digitization or duplication methods in the production of materials for the PMA (e.g., photographic reproductions)

-- Discipline-specific guidance for the selection of appropriate components to be monitored during observation-based PMAs, both staged and casework

-- Description of the intended participants (e.g., supervisors, technical leaders, and active examiners), their roles, and discipline-specific expectations in the PMA

-- Guidance that PMAs are performed following case-like or prescribed conditions relevant to the FSP level, analysis type, or individual as the focus of the PMA

-- Guidance on the incorporation of consultation, verification, and technical review in the PMA

Which section(s) of the document addresses the expected frequency of performance of PMAs to include:

-- Define a period of time over which the PMA would include a representative sample of routine case and item types

-- Define the type of activities and number of examinations to be completed by a single FSP or individual within a defined period of time for comprehensive performance monitoring

Which section(s) of the document addresses the administrative expectations for PMAs to include:

-- Methods to ensure that PMAs are conducted with strict impartiality and confidentiality

-- Requirement that PMAs have a defined timeline of events that is communicated to the participants
-- Address any specific topics that are required or inherent limitations for the administration of a blind PMA
-- Require that PMA programs be reviewed annually to determine effectiveness, consistency in application, validity, and the capability or resources to meet the needs of the FSP
Which section(s) of the document criteria to establish successful performance criteria and methods for the evaluation of the results received during the PMAs to include:
-- Require that the criteria for successful performance be established and communicated prior to conducting the PMA
-- Require the PMAs assigned value be determined prior to the evaluation of participant performance
-- Define how PMA results are evaluated, to include external criteria and the FSP's internal policies and procedures
-- Direction to the FSP for when a participant result does not meet the criteria for successful performance on how to evaluate how that result was achieved and to document the evaluation
-- Direction to the FSPs to consider differences in different requirements regarding reporting, training, and competency when evaluating results of interlaboratory comparisons or similar activities involving multiple organizations
Which section(s) of the document address common human factors considerations in PMAs to include:
-- Define the discipline-specific contextual information necessary for the determination of what methods and instruments to use during a PMA
-- Provide guidance on the design and use of blind PMAs
Which section(s) of the document addresses requirements for the documentation and retention of PMA records to include:
-- Requirements for all documentation to be generated and retained following FSP policies and any applicable laws, contractual agreements, or regulation activities
-- The proficiency test plan, to include how they meet the scope and frequency requirements of the available discipline-specific standard(s)
-- If a PMA is sourced internally or externally
-- Notification to participants of results
-- Evaluation of PMA selection and administration
-- Information documented by the participant during the PMA regarding the method or procedures used during the PMA, data generated from those actions, as well as the results, interpretations, opinions, or other report contents
-- Information documented by the participant during the PMA regarding any methods or procedures required to be used during the PMA are clearly stated and the PMA results forms provide appropriate means to return the generated information
-- Information documented by the participant during the PMA regarding any deviations from established procedures

### **Evidence Collection and Handling Standards**

Which section(s) of the document addresses recognition and collection of evidence?
Which section(s) of the document addresses considerations to protect the evidence from change, loss, or deleterious change?
Which section(s) of the document addresses requirements for receipt, chain of custody, and disposition by the FSP?
Which section(s) of the document addresses requirements for any labeling, handling, transporting, storing, and preparation of items?
Which section(s) of the document addresses requirements for safety measures to be observed?
Which section(s) of the document addresses requirements for the preservation of evidence for re-analysis or future analysis with new or improved technologies?
Which section(s) of the document addresses procedures and requirements for labeling, handling, transporting, storing, and preparation of evidential items?
Which section(s) of the document addresses requirements for sample handling, preparation, preservation, and storage?

### **Instrumental Test Method Development Standards**

Which section(s) of the document addresses the minimum requirements and recommendations for addressing development of laboratory-developed instrumental test methods?
Which section(s) of the document addresses requirements for development of a method development plan to be established, approved, and authorized before initiating method development activities?
Which section(s) of the document addresses requirements for the method development plan to have a statement that defines the question(s) the method is intended to answer (e.g., type(s) of item(s) tested or calibrated, specific analytes included)?
Which section(s) of the document addresses requirements for the method development plan to define any customer needs of the method?
Which section(s) of the document addresses requirements for the method development plan to specify the equipment and basic parameters that will be used?
Which section(s) of the document addresses requirements for the method development plan to define automation that will be evaluated?
Which section(s) of the document addresses requirements for the method development plan to indicate the sample preparation approaches that will be evaluated?
Which section(s) of the document addresses requirements for the method development plan to address how interpretation of observations, data, and calculations will be performed?
Which section(s) of the document addresses requirements for identification of individuals assigned to conduct the method development activities?
Which section(s) of the document addresses requirements for the results of method development activities to be expressed in a written procedure for validation activities?
Which section(s) of the document addresses requirements for the data from method development activities to be retained for a defined period of time?
If a quantitative method:
Which section(s) of the document addresses requirements for the method development plan to state how metrological traceability will be established (e.g., equipment calibration, certified reference materials)?
Which section(s) of the document addresses requirements for the method development plan to indicate the concentration ranges and the calibration models that will be evaluated?

### **Test Method Validation and Verification Standards**

For validation of manufacturer-developed/laboratory-developed/published methods that are not SDO-published standard test methods:
Which section(s) of the document addresses requirements for development of a method validation plan to be established, approved, and authorized before initiating method validation activities?
Which section(s) of the document addresses requirements for method validation activities to use the same sample preparation and instrumental parameters throughout the entire validation?
Which section(s) of the document defines the method validation parameters to be evaluated and the minimum sample size required to evaluate each parameter? (Note: <i>minimum sample size could mean an actual number OR a description of the approach of calculating an appropriate sample size</i> )
Which section(s) of the document addresses requirements for method validation to address method performance and limitations (e.g., sensitivity, specificity, selectivity, measurement bias, precision)
Which section(s) of the document addresses requirements for method validation to use known materials (e.g., known source, known identity, known concentration) that represent the range of materials for which the method will be used?
Which section(s) of the document addresses requirements for evaluation of modifications made to a previously validated method?
For the verification of SDO-published standard test methods:
Which section(s) of the document addresses requirements for development of a method verification plan to be established, approved, and authorized before initiating method verification activities?
Which section(s) of the document states the title and source of the standard test method to be verified?
Which section(s) of the document addresses the scope of the method verification?
Which section(s) of the document addresses where the experiment is to be conducted?
Which section(s) of the document addresses the minimal sample size for evaluation of each verification parameter?
Which section(s) of the document addresses requirements for method verification activities to use the same sample preparation and instrumental parameters throughout the entire verification?
Which section(s) of the document addresses requirements for method verification to address method performance and limitations (e.g., sensitivity, specificity, selectivity, measurement bias, precision)?
Which section(s) of the document addresses requirements for method verification to use known materials (e.g., known source, known identity, known concentration)?
Which section(s) of the document addresses requirements for evaluation of modifications made to a previously verified method?

### **Testing, Examination, or Analysis Standards**

Which section(s) of the document addresses the suitable sample types for the method described?
Which section(s) of the document addresses the necessary equipment required to perform the method?
Which section(s) of the document addresses the operating parameters of the equipment used in the method?
Which section(s) of the document addresses any quality control measures (e.g., equipment checks; environmental conditions, controls) that must be present for the method to be performed?
Which section(s) of the document addresses appropriate controls and defines specific criteria for controls to ensure the quality of test results (e.g., frequency of control measurements, acceptance limits)?
Which section(s) of the document addresses any calibrations or checks of equipment that need to be employed before or during sample analysis?
Which section(s) of the document addresses the frequency of calibration?
Which section(s) of the document addresses intermediate checks that the equipment continues to work properly?
Which section(s) of the document addresses the steps for interpretation of the observations, data, or calculations?
Which section(s) of the document addresses health and safety measures to be observed?
Which section(s) of the document addresses what factors an examiner should consider when determining results?
If examiners are expected or allowed to consider information beyond the characteristics of the physical or digital evidence submitted for examination (such as investigative facts of the underlying case), which section(s) of the document addresses:
a) how and when examiners should access that information and
b) what disclosures examiners should make when they rely on such information?
Which section(s) of the document addresses steps to reduce potential contextual bias (e.g., <i>unwanted influence of task-irrelevant information</i> )?
Which section(s) of the document address the effects of operator skill and other human factors on measurements?
Which section(s) of the document addresses any specific factors or data that need to be recorded to ensure repeatability of results?
Which section(s) of the document address either:
a) studies regarding the performance of the standard and results reported
b) a statement to the effect that no studies have been completed on the performance of the standard
For documents that include examination or analysis methods that result in quantitative measurements that affect the outcome of the analysis or interpretation, which section(s) of the document addresses the measurement uncertainty or the procedure for estimating measurement uncertainty? (Note: Could be satisfied by a reference to an external publication(s) on this topic)
For documents that include examination or analysis methods that result in qualitative results or a decision that affect the outcome of the analysis or interpretation, which section(s) of the document addresses how to describe the populations and samples used to assess error rates? (Note: Could be satisfied by a reference to an external publication(s) on this topic)

### **Quality Management Systems Standards**

Which section(s) of the document addresses the quality system attributes (e.g., responsible person(s), documentation, retention)?
Which section(s) of the document addresses the quality system review procedures?

Which section(s) of the document addresses any concerns for calibrations or checks of equipment that need to be employed as part of quality assurance?
Which section(s) of the document addresses calibration or function checks to be conducted before equipment is placed into or returned to service before the initial work is started?
Which section(s) of the document addresses intermediate checks that the equipment continues to work properly?
Which section(s) of the document addresses an interval of calibration?
Which section(s) of the document addresses requirements for maintenance of metrological traceability?
Which section(s) of the document addresses requirements for risk management?
Which section(s) of the document addresses requirements for nonconforming casework?
Which section(s) of the document addresses requirements for internal audits?
Which section(s) of the document addresses the review of results (e.g., technical review, administrative review, verification)?
Which section(s) of the document addresses:
a) Blind verification or
b) Documentation to clearly indicate that blind verification was not used?
Which section(s) of the document addresses quality control (e.g., the type of control, criteria for acceptability, or frequency for maintaining quality)?

#### **Opinion Standards**

What section(s) of the document addresses the factors and external information an examiner may or should consider when determining an opinion?
What section(s) of the document addresses the basis for the opinion, including what, if any, information beyond the observations, data, calculations, and interpretations that may be considered in forming the opinion?
What section(s) of the document addresses the steps to assure that the opinion is supported by the observations, data, calculations, interpretations, and task-relevant contextual information?
What section(s) of the document requires that opinions be clearly identified?

#### **Interpretation Standards**

Which section(s) of the document defines the scale?
Which section(s) of the document defines objective criteria distinguishing between the steps of the scale?
Which section(s) of the document defines limitations on the use of the scale?
Which section(s) of the document provides either:
-- performance data supporting the type of scale
-- references to other documents containing performance data
-- a statement disclosing the current lack of performance data supporting the scale?
Which section(s) of the document addresses the factors an examiner should consider when using the scale?
Which section(s) indicate the type of scale is prescribed in the document?
-- probability of the evidence given the proposition [1-step]
-- probability of the proposition given the evidence [2-step]

**\*\*\* NOTE \*\*\*: If 1-STEP is described in the document, respond to the NEXT QUESTION.**

**\* If 2-STEP is described, no action is required.**

**\*\* If the document prescribes a probability of the evidence given the proposition [1-step] scale, is "exclusion" included in the document and, if so, in what section(s)?**

#### **Reporting Results and Testimony Standards**

Which section(s) of the document addresses requirements to ensure that laboratory reports are clearly written, accurate, unambiguous, and objective?
Where does the document address the inclusion of the following administrative information in Reports, in the Case File, or available through some other means:
-- Manner of receipt of test items (e.g., FedEx, hand delivery)
-- Descriptive identification of all items received
-- Any abnormal conditions of test item(s) upon receipt
-- Name(s) of person(s) responsible for observations, data, calculations, and interpretations in the report
-- Name, address, and affiliation of each person who generated data contained in the report
-- Dates that observations, data, calculations, and interpretations were made
-- Chain-of-Custody
-- Log of communications related to the case
-- Name of verifier and date of verification of results, if applicable
-- Name of all reviewers and dates of review. Otherwise indicate "none" or provide an explanation as to why a review was not done
-- Final disposition of evidence (e.g., <i>evidence consumed, returned to contributor, retained</i> )
Where does the document address the inclusion of the following results-related information in Reports, in the Case File, or available through some other means:
-- Description of all pertinent data, observations, statistics, or results, including measurement uncertainty or error rates in sufficient detail for independent expert review
-- Description of assumptions underlying statistical analysis
-- Documentation of all features relied upon when making an association

-- Documentation of substantive consultations (as defined by subcommittees) and disagreements between analysts occurring during verification and review regarding the reported results/opinions that were resolved between the disagreeing parties without mediation
-- Description and justification for any re-analysis, changes to data, or changes to interpretations for evidence items made after initial testing of the evidence and comparison of data or features to a known or reference
-- Record of any features that were not identified in the initial examination of evidence that are subsequently identified after comparison to a reference sample
-- All calculations
Where does the document address the inclusion of the following limitation-related information in Reports, in the Case File, or available through some other means?
-- Explanation of or justification for any deviations
-- Any other common discipline-specific limitations that are likely to impact the data, observations, or results?
Where does the document address the inclusion of the following information related to the underlying information relied upon to form an opinion in Reports, in the Case File, or available through some other means?
-- References consulted in forming the opinion
-- Relevant internal validation summaries

#### **Reporting Results and Testimony Standards: Reports of Observations, Data, Calculations, and Interpretations**

Where does the document address the inclusion of the following administrative information in reports of observations, data, calculations, and interpretations:

-- Name, address, and contact information of the FSP
-- Requester's name, if applicable
-- Any unique case identifier assigned (e.g., requester case number)
-- Unique identification of the test report (e.g., laboratory number)
-- Location where the tests were carried out, if different from the FSP's address
-- Date of report
-- Date of receipt of test items
-- Unambiguous descriptive identification of all items sampled, examined, or tested
-- All relevant requests made to the unit within a FSP, including those that were not conducted or completed;
-- Indication when the report contains results performed by subcontractors
-- Indication when the report contains preliminary results, supplemental results, or amends an earlier report
-- Statement that makes it clear that the report does not contain all documentation associated with the work performed (e.g., "Supporting documentation is maintained separate from this report and is necessary for independent evaluation of the work, interpretation of the data, and drawing of conclusions.")
-- Disposition of evidence (e.g., additional examinations pending, evidence transferred, evidence consumed, returned to contributor, retained)
-- Disclosure statement in the event the FSP is not accredited in the discipline reported on, or the procedure used is outside their scope of accreditation
-- Page numbers on each page with an indication of the total number of pages for the report
-- Printed name, title, and signature of author of report and date of signature
-- Printed name of verifier, if applicable
-- Printed name of technical reviewer. Otherwise indicate "none" or provide an explanation as to why a technical review was not done.

Where does the document address the inclusion of the following results-related information in reports of observations, data, calculations, and interpretations:

-- Scope or purpose of the work being reported
-- Statement of what was tested or observed
-- Summary of method(s) used
-- Disclosure statement in the event of non-conformities in the performance of the analysis that includes an indication of how the nonconformities were resolved or, if in progress, provide the status
-- Summary of pertinent equipment used to include measuring instruments
-- Summary of pertinent (as defined by subcommittees) computing hardware; operating system; databases; and software used
-- Description of sampling plans used, if applicable
-- Documentation of disagreements between analysts occurring during verification and review that require mediation through laboratory protocols regarding the final reported results

-- Interpretations of data, observations, and calculations reported in accordance with discipline-defined language

-- Clear description of what is meant when the results are deemed unsuitable for comparison, inconclusive, or uninterpretable

Where does the document address the inclusion of the following limitation-related information in reports of observations, data, calculations, and interpretations:

-- Method performance limitations (e.g., uncertainty of all reported quantitative measurements, established repeatability and reproducibility metrics, accuracy metrics, error rates) with references. The subcommittees are expected to determine which performance characteristics best describe each method and technique.
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-- Disclosure of the absence of citable empirical measures of performance

-- Disclosure of deviations in the FSP's analytical SOP, normal test procedure, quality assurance procedures, or from a published method;

-- Disclosure of any abnormal environmental or sample conditions that may impact the results

-- Limitations of databases (e.g., size, representation), if used

#### **Reporting Results and Testimony Standards: Reports of Specialist/Diagnostic Opinions**

Where does the document address the inclusion of the following administrative information in reports of specialist/diagnostic opinions:

-- Name, address, and contact information of the FSP
-- Requester's name, if applicable
-- Any unique case identifier assigned (e.g., requester case number)
-- Unique identification of the opinion report (e.g., laboratory number)
-- Date of report
-- Indication when the report contains results performed by subcontractors or consultant
-- Indication when the report supplements or amends an earlier report
-- Page numbers on each page with an indication of the total number of pages for the report
-- Names of person(s) responsible for the opinions
-- Printed name of verifier, if applicable
-- Printed name of technical reviewer. Otherwise indicate "none" or provide an explanation as to why a technical review was not done.
Where does the document address the inclusion of the following opinion-related information in Reports of Specialist/Diagnostic Opinions:
-- Statement clearly explaining that the report is an opinion report
-- Specialist/diagnostic opinion statement
-- Documentation of disagreements between analysts occurring during verification and review that require mediation through laboratory protocols regarding the final reported opinion
Where does the document address the inclusion of the following information related to the underlying information relied upon to form an opinion in Reports of Specialist/Diagnostic Opinions:
-- Summary of data, observations, calculations, interpretation, investigative activities performed, and other information reviewed to develop the reported opinion
-- Statement that makes it clear that the opinion report may be subject to change based upon new information that becomes available
Where does the document address the inclusion of the following administrative information in Reports, in the Case File, or available through some other means:
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#### Terminology

Terminology topics have been addressed in the Overall General Document section.

#### SAC and SRP RUBRIC [4]

##### Training, Competency, and Continuing Education Standards

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-- Discuss the acceptable level of diversity of these items to achieve comprehensive performance monitoring.

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-- Requirement that PMAs have a defined timeline of events that is communicated to the participants

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-- Require that PMA programs be reviewed annually to determine effectiveness, consistency in application, validity, and the capability or resources to meet the needs of the FSP

How well does the document address criteria to establish successful performance criteria and methods for the evaluation of the results received during the PMAs to include:

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-- Require the PMAs assigned value be determined prior to the evaluation of participant performance

-- Define how PMA results are evaluated, to include external criteria and the FSP's internal policies and procedures

-- Direction to the FSP for when a participant result does not meet the criteria for successful performance on how to evaluate how that result was achieved and to document the evaluation

-- Direction to the FSPs to consider differences in different requirements regarding reporting, training, and competency when evaluating results of interlaboratory comparisons or similar activities involving multiple organizations

How well does the document address common human factors considerations in PMAs to include:

-- Define the discipline-specific contextual information necessary for the determination of what methods and instruments to use during a PMA

-- Provide guidance on the design and use of blind PMAs

How well does the document address requirements for the documentation and retention of PMA records to include:

-- Requirements for all documentation to be generated and retained following FSP policies and any applicable laws, contractual agreements, or regulation activities

-- The proficiency test plan, to include how they meet the scope and frequency requirements of the available discipline-specific standard(s)

-- If a PMA is sourced internally or externally

-- Notification to participants of results

-- Evaluation of PMA selection and administration

-- Information documented by the participant during the PMA regarding the method or procedures used during the PMA, data generated from those actions, as well as the results, interpretations, opinions, or other report contents

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How well does the document address requirements for any labeling, handling, transporting, storing, and preparation of items?  
How well does the document address requirements for safety measures to be observed?  
How well does the document address requirements for the preservation of evidence for re-analysis or future analysis with new or improved technologies?  
How well does the document address procedures and requirements for labeling, handling, transporting, storing, and preparation of evidential items?  
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How well does the document address requirements for the results of method development activities to be expressed in a written procedure for validation activities?  
How well does the document address requirements for the data from method development activities to be retained for a defined period of time?  
If a quantitative method:  
How well does the document address requirements for the method development plan to state how metrological traceability will be established (e.g., equipment calibration, certified reference materials)?  
How well does the document address requirements for the method development plan to indicate the concentration ranges and the calibration models that will be evaluated?

### **Test Method Validation and Verification Standards**

For validation of manufacturer-developed/laboratory-developed/published methods that are not SDO-published standard test methods:  
How well does the document address requirements for development of a method validation plan to be established, approved, and authorized before initiating method validation activities?  
How well does the document address requirements for method validation activities to use the same sample preparation and instrumental parameters throughout the entire validation?  
How well does the document define the method validation parameters to be evaluated and the minimum sample size required to evaluate each parameter? (Note: minimum sample size could mean an actual number OR a description of the approach of calculating an appropriate sample size)  
How well does the document address requirements for method validation to address method performance and limitations (e.g., sensitivity, specificity, selectivity, measurement bias, precision)  
How well does the document address requirements for method validation to use known materials (e.g., known source, known identity, known concentration) that represent the range of materials for which the method will be used?  
How well does the document address requirements for evaluation of modifications made to a previously validated method?  
For the verification of SDO-published standard test methods:  
How well does the document address requirements for development of a method verification plan to be established, approved, and authorized before initiating method verification activities?  
How well does the document state the title and source of the standard test method to be verified?  
How well does the document address the scope of the method verification?  
How well does the document address where the experiment is to be conducted?  
How well does the document address the minimal sample size for evaluation of each verification parameter?  
How well does the document address requirements for method verification activities to use the same sample preparation and instrumental parameters throughout the entire verification?  
How well does the document address requirements for method verification to address method performance and limitations (e.g., sensitivity, specificity, selectivity, measurement bias, precision)?  
How well does the document address requirements for method verification to use known materials (e.g., known source, known identity, known concentration)?  
How well does the document address requirements for evaluation of modifications made to a previously verified method?

### **Testing, Examination, or Analysis Standards**

How well does the document address the suitable sample types for the method described?
How well does the document address the necessary equipment required to perform the method?
How well does the document address the operating parameters of the equipment used in the method?
How well does the document address any quality control measures (e.g., equipment checks; environmental conditions, controls) that must be present for the method to be performed?
How well does the document address appropriate controls and defines specific criteria for controls to ensure the quality of test results (e.g., frequency of control measurements, acceptance limits)?
How well does the document address any calibrations or checks of equipment that need to be employed before or during sample analysis?
How well does the document address the frequency of calibration?
How well does the document address intermediate checks that the equipment continues to work properly?
How well does the document address the steps for interpretation of the observations, data, or calculations?
How well does the document address health and safety measures to be observed?
How well does the document address what factors an examiner should consider when determining results?
If examiners are expected or allowed to consider information beyond the characteristics of the physical or digital evidence submitted for examination (such as investigative facts of the underlying case), how well does the document address:
a) how and when examiners should access that information and
b) what disclosures examiners should make when they rely on such information?
How well does the document address steps to reduce potential contextual bias (e.g., unwanted influence of task-irrelevant information)?
How well does the document address the effects of operator skill and other human factors on measurements?
How well does the document address any specific factors or data that need to be recorded to ensure repeatability of results?
How well does the document address either:
a) studies regarding the performance of the standard and results reported
b) a statement to the effect that no studies have been completed on the performance of the standard
For documents that include examination or analysis methods that result in quantitative measurements that affect the outcome of the analysis or interpretation, how well does the document address the measurement uncertainty or the procedure for estimating measurement uncertainty? (Note: Could be satisfied by a reference to an external publication(s) on this topic)
For documents that include examination or analysis methods that result in qualitative results or a decision that affect the outcome of the analysis or interpretation, how well does the document address how to describe the populations and samples used to assess error rates? (Note: Could be satisfied by a reference to an external publication(s) on this topic)

### **Quality Management Systems Standards**

How well does the document address the quality system attributes (e.g., responsible person(s), documentation, retention)?
How well does the document address the quality system review procedures?
How well does the document address any concerns for calibrations or checks of equipment that need to be employed as part of quality assurance?
How well does the document address calibration or function checks to be conducted before equipment is placed into or returned to service before the initial work is started?
How well does the document address intermediate checks that the equipment continues to work properly?
How well does the document address an interval of calibration?
How well does the document address requirements for maintenance of metrological traceability?
How well does the document address requirements for risk management?
How well does the document address requirements for nonconforming casework?
How well does the document address requirements for internal audits?
How well does the document address the review of results (e.g., technical review, administrative review, verification)?
How well does the document address:
a) Blind verification or
b) Documentation to clearly indicate that blind verification was not used?
How well does document address quality control (e.g., the type of control, criteria for acceptability, or frequency for maintaining quality)?

### **Opinion Standards**

How well does the document address the factors and external information an examiner may or should consider when determining an opinion?
How well does the document address the basis for the opinion, including what, if any, information beyond the observations, data, calculations, and interpretations that may be considered in forming the opinion?
How well does the document address the steps to assure that the opinion is supported by the observations, data, calculations, interpretations, and task-relevant contextual information?
How well does the document address the requirement that opinions be clearly identified?

### **Interpretation Standards**

How well does the document define the scale?
How well does the document define objective criteria distinguishing between the steps of the scale?
How well does the document define limitations on the use of the scale?
How well does the document provide either:

- performance data supporting the type of scale
- references to other documents containing performance data
- a statement disclosing the current lack of performance data supporting the scale?

How well does the document address the factors an examiner should consider when using the scale?

How well does the document indicate the type of scale is prescribed in the document?

- probability of the evidence given the proposition [1-step]
- probability of the proposition given the evidence [2-step]

**\*\*\* NOTE \*\*\*: If 1-STEP is described in the document, respond to the NEXT QUESTION.**

**\* If 2-STEP is described, no action is required.**

**\*\* If the document prescribes a probability of the evidence given the proposition [1-step] scale, is "exclusion" included in the document and, if so, in what section(s)?**

#### **Reporting Results and Testimony Standards**

How well does the document address requirements to ensure that laboratory reports are clearly written, accurate, unambiguous, and objective?

How well does the document address the inclusion of the following administrative information in Reports, in the Case File, or available through some other means:

- Manner of receipt of test items (e.g., FedEx, hand delivery)
- Descriptive identification of all items received
- Any abnormal conditions of test item(s) upon receipt
- Name(s) of person(s) responsible for observations, data, calculations, and interpretations in the report
- Name, address, and affiliation of each person who generated data contained in the report
- Dates that observations, data, calculations, and interpretations were made
- Chain-of-Custody
- Log of communications related to the case
- Name of verifier and date of verification of results, if applicable
- Name of all reviewers and dates of review. Otherwise indicate "none" or provide an explanation as to why a review was not done
- Final disposition of evidence (e.g., *evidence consumed, returned to contributor, retained*)

How well does the document address the inclusion of the following results-related information in Reports, in the Case File, or available through some other means:

- Description of all pertinent data, observations, statistics, or results, including measurement uncertainty or error rates in sufficient detail for independent expert review
- Description of assumptions underlying statistical analysis
- Documentation of all features relied upon when making an association
- Documentation of substantive consultations (as defined by subcommittees) and disagreements between analysts occurring during verification and review regarding the reported results/opinions that were resolved between the disagreeing parties without mediation
- Description and justification for any re-analysis, changes to data, or changes to interpretations for evidence items made after initial testing of the evidence and comparison of data or features to a known or reference
- Record of any features that were not identified in the initial examination of evidence that are subsequently identified after comparison to a reference sample
- All calculations

How well does the document address the inclusion of the following limitation-related information in Reports, in the Case File, or available through some other means?

- Explanation of or justification for any deviations
- Any other common discipline-specific limitations that are likely to impact the data, observations, or results?

How well does the document address the inclusion of the following information related to the underlying information relied upon to form an opinion in Reports, in the Case File, or available through some other means?

- References consulted in forming the opinion
- Relevant internal validation summaries

#### **Reporting Results and Testimony Standards: Reports of Observations, Data, Calculations, and Interpretations**

How well does the document address the inclusion of the following administrative information in reports of observations, data, calculations, and interpretations:

- Name, address, and contact information of the FSP
- Requester's name, if applicable
- Any unique case identifier assigned (e.g., *requester case number*)
- Unique identification of the test report (e.g., *laboratory number*)
- Location where the tests were carried out, if different from the FSP's address
- Date of report
- Date of receipt of test items
- Unambiguous descriptive identification of all items sampled, examined, or tested
- All relevant requests made to the unit within a FSP, including those that were not conducted or completed;
- Indication when the report contains results performed by subcontractors
- Indication when the report contains preliminary results, supplemental results, or amends an earlier report

-- Statement that makes it clear that the report does not contain all documentation associated with the work performed (e.g., "Supporting documentation is maintained separate from this report and is necessary for independent evaluation of the work, interpretation of the data, and drawing of conclusions.")
-- Disposition of evidence (e.g., <i>additional examinations pending, evidence transferred, evidence consumed, returned to contributor, retained</i> )
-- Disclosure statement in the event the FSP is not accredited in the discipline reported on, or the procedure used is outside their scope of accreditation
-- Page numbers on each page with an indication of the total number of pages for the report
-- Printed name, title, and signature of author of report and date of signature
-- Printed name of verifier, if applicable
-- Printed name of technical reviewer. Otherwise indicate "none" or provide an explanation as to why a technical review was not done.
How well does the document address the inclusion of the following results-related information in reports of observations, data, calculations, and interpretations:
-- Scope or purpose of the work being reported
-- Statement of what was tested or observed
-- Summary of method(s) used
-- Disclosure statement in the event of non-conformities in the performance of the analysis that includes an indication of how the nonconformities were resolved or, if in progress, provide the status
-- Summary of pertinent equipment used to include measuring instruments
-- Summary of pertinent (as defined by subcommittees) computing hardware; operating system; databases; and software used
-- Description of sampling plans used, if applicable
-- Documentation of disagreements between analysts occurring during verification and review that require mediation through laboratory protocols regarding the final reported results
-- Interpretations of data, observations, and calculations reported in accordance with discipline-defined language
-- Clear description of what is meant when the results are deemed unsuitable for comparison, inconclusive, or uninterpretable
How well does the document address the inclusion of the following limitation-related information in reports of observations, data, calculations, and interpretations:
-- Method performance limitations (e.g., <i>uncertainty of all reported quantitative measurements, established repeatability and reproducibility metrics, accuracy metrics, error rates</i> ) with references. The subcommittees are expected to determine which performance characteristics best describe each method and technique.
-- Disclosure of the absence of citable empirical measures of performance
-- Disclosure of deviations in the FSP's analytical SOP, normal test procedure, quality assurance procedures, or from a published method;
-- Disclosure of any abnormal environmental or sample conditions that may impact the results
-- Limitations of databases (e.g., <i>size, representation</i> ), if used

#### **Reporting Results and Testimony Standards: Reports of Specialist/Diagnostic Opinions**

How well does the document address the inclusion of the following administrative information in reports of specialist/diagnostic opinions:

-- Name, address, and contact information of the FSP
-- Requester's name, if applicable
-- Any unique case identifier assigned (e.g., <i>requester case number</i> )
-- Unique identification of the opinion report (e.g., <i>laboratory number</i> )
-- Date of report
-- Indication when the report contains results performed by subcontractors or consultant
-- Indication when the report supplements or amends an earlier report
-- Page numbers on each page with an indication of the total number of pages for the report
-- Names of person(s) responsible for the opinions
-- Printed name of verifier, if applicable
-- Printed name of technical reviewer. Otherwise indicate "none" or provide an explanation as to why a technical review was not done.

How well does the document address the inclusion of the following opinion-related information in Reports of Specialist/Diagnostic Opinions:

-- Statement clearly explaining that the report is an opinion report
-- Specialist/diagnostic opinion statement
-- Documentation of disagreements between analysts occurring during verification and review that require mediation through laboratory protocols regarding the final reported opinion

How well does the document address the inclusion of the following information related to the underlying information relied upon to form an opinion in Reports of Specialist/Diagnostic Opinions:

-- Summary of data, observations, calculations, interpretation, investigative activities performed, and other information reviewed to develop the reported opinion
-- Statement that makes it clear that the opinion report may be subject to change based upon new information that becomes available

How well does the document address the inclusion of the following administrative information in Reports, in the Case File, or available through some other means:

-- Manner of receipt of test items (e.g., FedEx, hand delivery)
-- Descriptive identification of all items received
-- Any abnormal conditions of test item(s) upon receipt
-- Name(s) of person(s) responsible for observations, data, calculations, and interpretations in the report

-- Dates that observations, data, calculations, and interpretations were made

-- Chain-of-Custody

-- Log of communications related to the case

-- Name of verifier and date of verification of results, if applicable

-- Name of all reviewers and dates of review. Otherwise indicate "none" or provide an explanation as to why a review was not done

-- Final disposition of evidence (e.g., *evidence consumed, returned to contributor, retained*)

How well does the document address the inclusion of the following results-related information in Reports, in the Case File, or available through some other means:

-- Description of all pertinent data, observations, statistics, or results, including measurement uncertainty or error rates in sufficient detail for independent expert review

-- Description of assumptions underlying statistical analysis

-- Documentation of all features relied upon when making an association

-- Documentation of substantive consultations (as defined by subcommittees) and disagreements between analysts occurring during verification and review regarding the reported results/opinions that were resolved between the disagreeing parties without mediation

-- Description and justification for any re-analysis, changes to data, or changes to interpretations for evidence items made after initial testing of the evidence and comparison of data or features to a known or reference

-- Record of any features that were not identified in the initial examination of evidence that are subsequently identified after comparison to a reference sample

-- All calculations

How well does the document address the inclusion of the following limitation-related information in Reports, in the Case File, or available through some other means?

-- Explanation of or justification for any deviations

-- Any other common discipline-specific limitations that are likely to impact the data, observations, or results

How well does the document address the inclusion of the following information related to the underlying information relied upon to form an opinion in Reports, in the Case File, or available through some other means?

-- References consulted in forming the opinion

-- Relevant internal validation summaries

## Terminology

Terminology topics have been addressed in the Overall General Document section.

- [1] To view the rubric criteria for each section, click the + next to the appropriate category.
- [2] To view the rubric criteria for each section, click the + next to the appropriate category.
- [3] To view the rubric criteria for each section, click the + next to the appropriate category.
- [4] To view the rubric criteria for each section, click the + next to the appropriate category.