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g) Change to (provide suggested text where appropriate; comments not including suggested text will not be considered)
h) Basis for change
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Model Quality Assurance Manual for Digital Evidence Laboratories

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Model Quality Assurance Manual

Appendix A: Forms

Appendix B: Administrative Procedures
1. Purpose
The purpose of this document is to provide a model Quality Assurance Manual (QAM) for use by any entity performing digital and multimedia forensic examinations.

2. Scope
The document proposes minimum requirements pertaining to all quality assurance aspects for a forensic laboratory. This document is applicable to an organization of any size, including a single examiner.

3. References

ASCLD/LAB-International 2006 Supplemental *Requirements for the Accreditation of Forensic Science Testing Laboratories*, January 24, 2006

American Association for Laboratory Accreditation “*Explanations for the ISO/IEC 17025 Requirements*”

4. Discussion
The following discussion will be directly related to each section within the Model Quality Assurance Manual as included in Appendix A. This document may be used in totality or by a specific section as needed by the organization. It should be noted that in a small organization, one person could fill multiple roles and there may not be as many levels between examiner and lab manager.

a. General Notations
b. Any text entries that reference information that is organizational or laboratory specific will be notated with the “<” and “>” symbols around the text. These entries must be replaced with the relevant information, title, text that is specific to your organization or lab. The following is a list of such markings:
   - `<Organization>` - this entry should be replaced with your organization’s title
   - `<Lab>` - this entry should be replaced with your organization’s lab, unit, or function name; it would be the name of the highest organizational unit for which the QAM is being written
   - `<Lab Director or Manager>` or `<LM>` - this references the personnel position which is the highest authority for the `<Lab>` entity
   - `<Division>` - refers to the next lower organizational level between `<Organization>`
5. Document Specifics and Section Discussions

Section numbers referenced in the following discussion refer specifically to elements of the ISO/IEC requirements and the ASCLD/LAB Supplemental Requirements for International Certification. Other accrediting bodies may have different supplemental requirements and schema. SWGDE does not endorse one accreditation body over another. Authors of this document had access only to the ASCLD/LAB supplemental requirements.

It should be important to note that not all sections contained in the model QAM are required to fulfill accreditation requirements. Specifically only sections 4 and 5 are required. However, for a more thorough document and better explanatory purposes, all additional sections are included to provide a one-to-one match with all sections of the ISO/IEC Accreditation Manual. All sections are modifiable to suit your agency’s purposes.

a) Title Page
The title page must include a Revision number and Issue Date. The Issue Date is defined as the date the policy goes into effect. The issue date and revision number should also be included in a footer or header of each page throughout the entire document.

b) Table of Contents

c) Forward
The forward may be used to introduce the document and policy scope. If used, it is usually signed and dated by the lab manager. If a forward is not included in the QM, a signature must be included elsewhere in the document to show organizational approval.

d) Section 1 - About This Document

1. Document Conventions
   i) Use of the Term “Shall” - Terms That Must Be Addressed in Writing
      This entry is not a requirement but is inserted to define the specific intention behind the term “shall.” A section such as this is recommended when you’re QAM will utilize terms that can be misconstrued by readers. All terms used that can be misconstrued should have their intent specifically defined. Examples of other terms that may be misconstrued are “may”, “might”, “must”, etc.
   ii) Responsibility and Authority
      A requirement of the accreditation system is to list the person/persons who are responsible for a specific requirement or standard. It has been found from experience that to maintain an ever-changing list of specific persons requires constant updating to the quality documents. Instead, what is utilized in this Model is the appearance of bracketed notations which reference the responsible party by job category. For example, [LD] refers to Lab Director and [UC] refers to Unit Chief. Section 1.1.2 of the Model
iii) Document Control Markings
This section discusses how the various versions of the document will be controlled by your agency. The model included in Appendix A defines an electronic version as being the master controlled document, and therefore specifically addresses paper versus electronic documents. There must be only one master document which must be controlled at all times by appropriate personnel. Any others, such as printed versions must be marked as uncontrolled documents and handled as such, and all must contain appropriate markings.

iv) External Disclosure of Quality Documents
This section is included to define whether or not your agency will allow for external disclosures of controlled documents and how they will be handled and marked, who can authorize release or any other policy issues that deal with their release.

e) Section 2 – References
This section should list all documents or information that is discussed, included or referenced by your QAM. Those included in the model QAM are there for example only and should be modified or deleted as necessary – many names have been changed to no longer refer to a real specific document but are generalized to be more of a description of the types of documents that may be referenced.

f) Section 3 – Definitions
All terms that require a definition should be included. A reference to a published definition list such as the SWGDE/SWGIT Digital and Multimedia Evidence Glossary may also be included in Section 2 in lieu of specific definitions here, as long as that publication covers all the terms required for your use.

g) Section 4 - Management Requirements – REQUIRED
This section (along with Section 5) and all elements within it are required to meet the level of accreditation under ISO/IEC 17025. SWGDE strongly recommends that whether your organization will seek accreditation or not that all elements are addressed within your QAM.

4.1 Organization
4.1.1 Legal Entity
Here you must define what persons or entities within your agency must adhere to the requirements defined by your QAM and the agency or level within the agency that will hold the legal responsibility for the laboratory
4.1.2 **Responsibilities to provide Customer Service**

This section summarily states the service the laboratory will provide and to whom.

4.1.3 **Scope of Quality System**

This section defines who/what entities the QAM will apply to.

4.1.4 **Potential Conflicts of Interest**

This section must describe all potential conflicts of interests and how your system intends to manage those conflicts.

4.1.5 **Organization**

The section must define numerous elements and the model QAM has broken them out into separate subsections for ease of use. These elements are:

- **How the organization has the authority and resources to carry out the services provided to include the implementation, maintenance and improvement of the quality system**
- **Identify the occurrence of any departures from the quality system or from any requirements/procedures outlined in the QAM (including any SOPs), and what actions will be initiated to prevent or minimize such departures**
- **Define procedures in place to ensure management and personnel are free from undue internal and external pressures that may adversely affect the quality of their work such as commercial or financial influences etc.**
- **Define the policies in place to ensure the security of customer’s confidential information and proprietary rights including protection of any electronic storage or transmission of results**
- **Define policies in place to avoid participation in any activities that would diminish confidence in the laboratory’s competence, impartiality, judgment or operational integrity**
- **Define the organizational structure of the laboratory, its place in any parental organization, and the relationship between the quality management, technical and support services**
- **Define the personnel and their relationships of individuals responsible for the management, performance or verification affecting the quality of work; define supervision responsibilities of all personnel, including trainees, by personnel knowledgeable in the areas of examination**
- **Appoint a staff member as Quality Manager who shall have defined responsibility and authority for ensuring the QA system is implemented and followed; this person shall have direct access to the highest level or management responsible for decision making in the laboratory system**
- **Ensure personnel are aware of the relevance and importance of their activities**

4.1.6 **Top Management Communication**
4.2 Quality System
This section and its subsections define how the system has been implemented and maintained appropriate to the scope of activities.

4.2.1 Documenting the Quality System
This section addresses how the Lab documents its policies and procedures to the extent necessary to assure the quality of the forensic results. Additionally, how its documentation shall be communicated to, understood by, made available to, and implemented by the appropriate personnel.

4.2.2 Quality Policy Statement
This section defines how the laboratory's policies related to quality shall be defined in a quality manual. The overall objectives shall be established, reviewed and a quality policy statement shall be issued addressing such items as the commitment to professional practices and quality of service to its customers, the standard of service to be expected, that all personnel implement the policies and procedures in their work and the lab's commitment to continually improving the effectiveness of the system.

4.2.3 Continually Improving Effectiveness
This section defines how management shall confirm commitment to the development and implementation of the quality system and to continually improving its effectiveness.

4.2.4 Meeting Customer Requirements
This section states management shall communicate with lab personnel the importance of meeting customer requirements as well as statutory and regulatory requirements.

4.2.5 Documentation Structure
This section outlines what documentation constitutes the primary components of the quality system to include any supplemental documentation. It also addresses whether other documents have precedence over the quality manual and related, such as those issued at higher organizational levels.

4.2.6 Roles and Responsibilities
This section defines the roles and responsibilities of laboratory personnel including management and the quality manager, and their responsibility for ensuring compliance with the chosen standard (for example, the model QAM is based on the ISO/IEC International Standard) which must be included in the QAM.

4.2.7 Integrity of the Quality System
This section addresses how management shall ensure the integrity of the
quality system is maintained when changes to the system are planned and implemented.

4.3 Document Control
This section addresses how document control is implemented and maintained on all documents that define or form the quality system. The term ‘document’ can mean policies, procedures, specifications, calibration requirements, books, software, drawings, etc.

4.3.1 Document Control Procedures
This section defines the procedures the laboratory will use to control all documents that form its quality system (from internal or external sources). These may be on various media, whether hard copy or electronic, and they may be digital, analog, photographic or written. (Note the control of data related to examinations and calibration is covered in 5.4.7, and the control of records is covered in 4.13.)

4.3.2 Document Approval and Issue Procedures
This section addresses how all quality system documentation shall be reviewed and approved for use by authorized personnel prior to issue. Additionally it defines that quality documents shall be uniquely identified to include the date of issue and/or revision identification, page numbering, the total number of pages or a mark to signify the end of the document, and the issuing authority(ies).

4.3.3 Document Change Procedures
This section addresses how document changes shall be performed, reviewed and approved, and the designated personnel that have the authority to do so.

4.4 Reviews of Requests, Tenders and Contracts
This section defines procedures for handling requested or contracted services related to examination activities.

4.4.1 Request Review Procedures
The section defines the procedures for reviewing customer requests and ensuring they are understood and can be met. The procedures should include the requirements for the review of legal authority, by whom, or the documentation of no review.

4.4.2 Records
This section is to define all records and documentation that are required to be maintained.

4.4.3 Review of Subcontracted Work
This section specifies how subcontracted work shall be reviewed.

4.4.4 Notifying Customer of Deviations from the Request
This section addresses how customers will be informed about any deviations from the request.

4.4.5 Amendments to the Request
This section addresses how amendments to any request shall be handled.

4.5 Subcontracting Examinations
This section deals with efforts related to subcontracting of laboratory activities, how the subcontractor is determined to be competent and how they comply with any laboratory policies and procedures to include accreditation requirements if necessary.

4.6 Purchasing Services and Supplies
This section deals with the procurement of services and supplies that may affect the quality of any service.

4.6.1 Service and Supply Procurement Procedure
This section specifies the policy and procedures for the selection and purchase of services, to include the reception and storage of materials relevant for forensic examinations.

4.6.2 Procedure for Inspecting Supplies and Consumable Materials
This section specifies how materials that may affect the quality of examinations are verified as meeting specifications or requirements prior to their use. Records of actions taken to check compliance shall be maintained.

4.6.3 Purchasing Documents
This section defines the documents and their contents required to be maintained, and their approval/review process, when purchasing items affecting the quality of operations.

4.6.4 Procedure for Evaluating Suppliers of Critical Supplies and Services
This section specifies how the lab shall evaluate suppliers of critical materials and services which can impact the quality of examinations, and how records of these evaluations shall be maintained.

4.7 Service to the Customer
This section defines how the laboratory will cooperate with its customers and their requests for service, and the monitoring of the laboratory’s performance in relation to the requested work.

4.7.1 Clarifying Customer’s Request
This section defines how the lab works with customers in clarifying the request, monitors the lab’s performance in relation to the work performed, and ensures confidentiality.

4.7.2 Customer Feedback
This section defines how the laboratory shall seek feedback, both positive and negative, from its customers, and how the feedback shall be used and analyzed to improve the quality system, forensic activities and customer service.
4.8 Complaints
The laboratory shall have a policy for addressing complaints.

4.8.1 Policy for Complaints from Laboratory Employees
This section defines the policy and procedures for the resolution of internal complaints related to aspects of the quality system.

4.9 Control of Non-Conforming Work
The section defines the laboratory’s policy for addressing any aspect of its services that do not comply with its own requirements, procedures or customer’s requested work.

4.9.1 Policy for Actions When Non-Conforming Work or Procedures Are Identified
This section defines the policy and procedures that shall be implemented when any aspect of its work does not conform to its own procedures or the agreed requirements of the customer. The policy and procedures shall ensure that:

- the responsibilities and authorities for the management of nonconforming work are designated and actions (including halting of work and withholding of reports as necessary) are defined and taken when nonconforming work is identified;
- an evaluation of the significance of the nonconforming work is made;
- corrective action is taken immediately, together with any decision about the acceptability of the nonconforming work;
- where necessary, the customer is notified and work is recalled;
- the responsibility for authorizing the resumption of work is defined.

NOTE: Identification of problems with the quality system can occur at various places. Examples are customer complaints, quality control, instrument calibration, checking of consumable materials, staff observations or supervision, management reviews and internal or external audits.

4.9.2 Possibility of Recurrence or Doubt of Compliance
This section defines that the corrective action procedures given in 4.11 shall be promptly followed when non-conforming work or non-compliance could recur.

4.10 Improvement
This section shall address how the QA system will continue to make improvements to the system through the use of audits, corrective and preventive actions and management review.

4.11 Procedure for Corrective Action
4.11.1 Authority for Corrective Action
This section defines the procedures and designates authorities for implementing corrective actions.
4.11.2 Root Cause Determination
This section defines the procedure for determining the root cause(s) of the problem. **NOTE:** Cause analysis is the key and sometimes the most difficult part in the corrective action procedure. Often the root cause is not obvious and thus a careful analysis of all potential causes of the problem is required. Potential causes could include customer requirements, methods and procedures, staff skills and training, consumables, or equipment and its calibration.

4.11.3 Corrective Action Steps
This section defines the steps to be taken when a corrective action is needed. It shall implement the action(s) most likely to eliminate the problem and to prevent recurrence. Corrective actions shall be to a degree appropriate to the magnitude and the risk of the problem. The laboratory shall document and implement any required changes resulting from corrective action investigations.

4.11.4 Monitoring and Verifying Corrective Actions
This section states that the laboratory shall monitor the results to ensure that the corrective actions taken have been effective.

4.11.5 Additional Audits
This section identifies when additional audits are required, and what procedures those audits are to follow. Such additional audits often follow the implementation of the corrective actions to confirm their effectiveness. An additional audit should be necessary only when a serious issue or risk to the business is identified.

4.12 Preventive Action
4.12.1 Identifying Improvement Opportunities
This section specifies how improvement opportunities are identified and what action plans are to be utilized to reduce the likelihood of the occurrence of non-conformities.

4.12.2 Actions and Controls for Preventive Actions
This section defines the procedures to be taken as preventive actions and the application of controls to ensure the actions are effective. **NOTE:** Preventive action is a pro-active process to identify opportunities for improvement rather than a reaction to the identification of problems or complaints. The preventive action might involve analysis of data, including trend and risk analyses and proficiency-testing results.

4.13 Control of Records
4.13.1 General
This section defines the procedures for the identification, collection, indexing, access, filing, storage, maintenance and disposal of quality and
technical records. Quality records shall include reports from internal audits and management reviews as well as records of corrective and preventive actions. Additionally it should define how records are secured and protected and backed-up to prevent unauthorized access to or amendment of these records.

4.13.2 Technical Records (Case Record)
This section defines the technical (or case) records that are to be maintained and the defined period of retention. This should include records of original observations, derived data and sufficient information to establish an audit trail. The records shall include the identity of personnel responsible for the performance of each examination and checking of results. It is also imperative that any required modifications to records be addressed - how they may be performed, proper notations used, etc.

NOTE: It may be impossible or impractical to retain records of all original observations. Technical records are accumulations of data (see 5.4.7) and information which result from the examination procedures. They may include forms, contracts, work sheets, work books, check sheets, work notes, control graphs, external and internal test reports and calibration certificates, customers' notes, papers and feedback.

4.14 Internal Audits
4.14.1 Procedure for Internal Audits
This section defines the procedures for internal audits to include defined time period, to verify that the lab’s operations continue to comply with the requirements of the quality system. The internal audit shall address all elements of the quality system, including the testing and/or calibration activities. It is the responsibility of the quality manager to plan and organize audits as scheduled and requested by management. The recommended schedule is on a yearly basis. Such audits shall be carried out by trained and qualified personnel who are, wherever resources permit, independent of the activity to be audited.

4.14.2 Timely Corrective Actions in Response to Audit Findings
This section defines how the lab will take timely corrective actions, and notify customers of any results that may have been affected.

4.14.3 Procedure for Documenting the Audit Results
This section defines the procedures for documenting audit results.

4.14.4 Verifying Implementation and Effectiveness of Corrective Actions
This section defines how corrective actions will be verified and their effectiveness determined.

4.14.5 Annual Accreditation Audit Report
In cases where lab accreditation has been obtained, this section defines the submission requirements of any required documentation to the
4.15 Management Reviews
This section relates to the required management review process, how often it is completed, by whom and implementation of resulting modifications.

4.15.1 Procedure for Annual Management Quality System Review
This section defines the procedures for an annual management review of the QMS which is used to ensure its continuing suitability and effectiveness, and to introduce necessary changes or improvements. The review shall take account of:

- the suitability of policies and procedures;
- reports from managerial and supervisory personnel;
- the outcome of recent internal audits;
- corrective and preventive actions;
- assessments by external bodies;
- the results of inter-laboratory comparisons or proficiency tests;
- changes in the volume and type of the work;
- customer feedback;
- complaints;
- recommendations for improvement; and
- other relevant factors, such as quality control activities, resources and staff training.

NOTE: A typical review is conducted yearly. Results should feed into the laboratory planning system and should include the goals, objectives and action plans for the coming year.

4.15.2 Review Findings
This section defines how findings from management reviews shall be handled and recorded.

h) Section 5 Technical Requirements – REQUIRED

5.1 General
This section addresses factors that determine the correctness and reliability of the technical procedures, and the extent to which factors contribute to the total uncertainty of measurement. The laboratory shall take account of these factors in developing examination methods and procedures, in the training and qualification of personnel, and in the selection and calibration of the equipment it uses.

5.2 Personnel
5.2.1 Competence of Personnel
This section addresses how management shall ensure the competence of all personnel impacting the forensic processes.

NOTE: In some technical areas personnel may be required to hold specific...
certifications. The laboratory is responsible for fulfilling specified personnel certification requirements. The requirements for personnel certification might be regulatory, included in the standards for the specific technical field, or required by the customer. The personnel responsible for the opinions and interpretation included in forensic reports should, in addition to the appropriate qualifications, training, experience and satisfactory knowledge of the examinations carried out, also have:

- Relevant knowledge of the technology used or the way they are used or intended to be used, and of the defects or degradations which may occur during or in service.
- An understanding of the significance of deviations found with regard to the normal use of the items, materials, products, etc. concerned.

5.2.2 Education, Training and Skills
This section addresses how management shall formulate goals with respect to the education, training and skills of the lab personnel. The laboratory shall have a policy and procedures for identifying training needs and providing training of personnel. The training program shall be relevant to the present and anticipated tasks of the laboratory and its effectiveness shall be evaluated.

5.2.3 Employees and Contractors
This section addresses how the laboratory shall use personnel who are employed by, or under contract to, the laboratory. Where contracted and additional technical and key support personnel are used, the laboratory shall ensure that such personnel are supervised and competent and that they work in accordance with the laboratory's quality system.

5.2.4 Job Descriptions
This section addresses the various job descriptions for managerial, technical and key support personnel involved in the laboratory functions. As a minimum, the following should be defined:

- responsibilities with respect to performing forensic examination procedures,
- responsibilities with respect to the planning of examinations and evaluation of results,
- responsibilities for reporting opinions and interpretations,
- responsibilities with respect to procedure modification and development and validation of new methods,
- expertise and experience required,
- qualifications and training programs, and
- managerial duties.

5.2.5 Training Records and Authorizations
This section addresses how management shall authorize specific personnel to perform particular types of examination procedures, issue reports, give
opinions and interpretations, and to operate particular types of equipment. It should also address how lab records of relevant authorization(s), competence, educational and professional qualifications, training, skills and experience of all technical personnel, including contracted personnel shall be maintained.

5.2.6 Technical Personnel Qualifications

This section is a supplemental requirement (for our model manual, it follows the ASCLD/LAB accreditation requirements supplemental to the ISO/IEC international standard) and addresses the technical qualifications including education and competency testing that personnel must have prior to being authorized to perform examinations in specific technical fields of duty.

5.2.6.1 Education

Specific to Digital and Multimedia Evidence, the current supplemental international requirement merely states that personnel "shall meet the educational requirement(s) specified in the job description." However, it notes that the "laboratory should require a baccalaureate degree with science courses for any analyst (however named) working in…"Digital & Multimedia Evidence.” The attached model QAM follows these recommendations.

5.2.6.2 Competency Testing

This section addresses competency testing requirements for all laboratory personnel regardless of discipline, to include minimum knowledge to be addressed, how often testing is completed, pass/fail requirements and procedures, remedial tasks, etc.

5.2.7 Forensic Library

This section is a supplemental requirement (for our model manual, it follows the ASCLD/LAB accreditation requirements supplemental to the ISO/IEC international standard) and addresses how the laboratory will maintain and provide access to literature resources dealing with each discipline.

5.3 Accommodation and Environmental Conditions

5.3.1 Laboratory Facilities

This section addresses issues specific to the laboratory facilities such as energy sources, lighting and environmental conditions, in order to facilitate correct performance of all tests and procedures. The laboratory shall ensure that the environmental conditions do not invalidate results or adversely affect the required quality of any measurement. Particular care shall be taken when procedures are undertaken at sites other than a permanent laboratory facility. The technical requirements for accommodation and environmental conditions that can affect the results of examinations shall be documented.

5.3.2 Environmental Conditions
This section addresses how the laboratory shall monitor, control and record environmental conditions as required by the relevant specifications, methods and procedures, or where they may influence the quality of the results. Due attention shall be paid, for example, to biological sterility, dust, electromagnetic disturbances, radiation, humidity, electrical supply, temperature, and sound and vibration levels, as appropriate to the technical activities concerned.

5.3.3 Separation between Activity Areas
This section addresses how areas performing incompatible activities shall be separated to prevent cross-contamination.

5.3.4 Access
This section addresses access how areas affecting the quality of lab procedures shall be controlled. The laboratory shall determine the extent of control based on its particular circumstances.

5.3.4.1 Laboratory Security
This section addresses security policies and procedures for the laboratory.

5.3.5 Good Housekeeping
This section addresses measures taken to ensure good housekeeping in the laboratory. Special procedures shall be prepared where necessary.

5.3.6 Health and Safety Program
This section is a supplemental requirement (for our model manual, it follows the ASCLD/LAB accreditation requirements supplemental to the ISO/IEC international standard) and addresses how the lab has and demonstrates use of a health and safety program.

5.4 Forensic Methods and Method Validation

5.4.1 General
This section addresses how the laboratory determines and makes use of appropriate methods and procedures for all examinations within its scope. These include sampling, handling, transport, storage and preparation of items to be tested, and estimation of the measurement of uncertainty where appropriate.

The laboratory shall have instructions on the use and operation of all relevant equipment, and on the handling and preparation of items for testing and/or calibration where the absence of such instructions could jeopardize the results of tests and/or calibrations. All instructions, standards, manuals and reference material relevant to the work of the laboratory shall be kept up to date and shall be made readily available to personnel (see 4.3). Deviation from procedures shall occur only if the deviation has been documented, technically justified, authorized, and accepted by the customer.
NOTE: Procedures or methods that are recognized standards that contain sufficient and concise information on how to perform the tests and/or calibrations do not need to be supplemented or rewritten as internal procedures if these standards are written in a way that they can be used as published by the operating staff in a laboratory. It may be necessary to provide additional documentation for optional steps in the method or additional details.

5.4.2 Selection of Methods
This section addresses how the laboratory selects its forensic methods which meet the needs of the customer and which are appropriate for the tests and/or calibrations it undertakes. Methods published in international, regional or national standards, or by reputable technical organizations, or in relevant scientific texts or journals, or as specified by the manufacturer of the equipment shall preferably be used. The laboratory shall ensure that it uses the latest valid edition of a standard unless it is not appropriate or possible to do so. When necessary, the standard shall be supplemented with additional details to ensure consistent application. Any method utilized shall be appropriate for the intended use and validated.

5.4.3 Laboratory-Developed Methods
This section addresses the use of laboratory developed methods and their use. The introduction of lab developed methods shall be a planned activity and shall be assigned to qualified personnel equipped with adequate resources. Plans shall be updated as needed and effectively communicated to all personnel involved.

5.4.4 Non-Standard Methods
When it is necessary to use methods not covered by standard methods, the methods shall be subject to agreement with the customer and shall include a clear specification of the customer’s requirements and the purpose of the test. The method developed shall have been validated appropriately before use. NOTE: For new test methods, procedures should be developed prior to the tests being performed and should contain at least the following information:

a) appropriate identification
b) scope
c) description of the type of item to be tested
d) parameters or quantities and ranges to be determined
e) apparatus and equipment, including technical performance requirements
f) reference standards and reference materials required
g) environmental conditions required and any stabilization period needed
h) description of the procedure, including affixing of identification marks, handling, transporting, storing and preparation of items, checks to be made before the work is started, checks that the
equipment is working properly and, where required, calibration and adjustment of the equipment before each use, the method of recording the observations and results, any safety measures to be observed

i) criteria and/or requirements for approval/rejection
j) data to be recorded and method of analysis and presentation
k) the uncertainty or the procedure for estimating uncertainty

5.4.5 Validation of Methods
This section addresses how the laboratory validates the methods and procedures it uses. Validation is the confirmation by examination that the particular requirements for a specific intended use are fulfilled. The laboratory shall validate non-standard methods, laboratory-designed/developed methods, standard methods used outside their intended scope, and amplifications and modifications of standard methods to confirm that the methods are fit for the intended use. The validation shall be as extensive as is necessary to meet the needs of the given application or field of application.

The laboratory shall record the results obtained, the procedure used for the validation, and a statement as to whether the method is fit for the intended use. Validation includes specification of the requirements, determination of the characteristics of the methods, a check that the requirements can be fulfilled by using the method and a statement on the validity. As method-development proceeds, regular review should be carried out to verify that the needs of the customer are still being fulfilled. Any change in requirements requiring modifications to the development plan should be approved and authorized.

If a validation study has been conducted by NIST or other organizations that have performed validation studies, then at the very least, verification needs to be performed and documented verifying the device works with your hardware and software configuration.

5.4.6 Estimation of Uncertainty of Measurement
This section defines the procedures the laboratory will use for estimating the uncertainty of measurement for all calibrations. In the model QAM it is documented that the “lab does not report measurements.” This may or may not be true for your lab, its methods or procedures, and can also depend how reporting functions are defined by agency policies.

If methods are performed where measurements are reported, then calculating the uncertainty of measurement would in most cases be required. For example, typically computer forensic methods have no uncertainty measurements however audio, video and image analysis most likely do. In some cases, the nature of the test may preclude a calculation
of uncertainty of measurement. In these cases the laboratory shall at least attempt to identify all the components of uncertainty and make a reasonable estimation, and shall ensure that the form of reporting of the result does not give a wrong impression of the uncertainty.

When estimating the uncertainty of measurement, all uncertainty components which are of importance in the given situation shall be taken into account using appropriate methods of analysis. Reasonable estimation shall be based on knowledge of the performance of the method and on the measurement scope and shall make use of, for example, previous experience and validation data.

5.4.7 Control of Data
This section addresses how the laboratory shall control its data. When computers or automated equipment are used for the acquisition, processing, recording, reporting, storage or retrieval of test or calibration data, the laboratory shall ensure that:

a) Computer software developed by the user is documented in sufficient detail and is suitably validated as being adequate for use.

b) Procedures are established and implemented for protecting the data; such procedures shall include, but not be limited to, integrity and confidentiality of data entry or collection, data storage, data transmission and data processing.

c) Computers and automated equipment are maintained to ensure proper functioning and are provided with the environmental and operating conditions necessary to maintain the integrity of test and calibration data.

d) Unauthorized access is prevented for computer systems used for examining digital evidence.

NOTE: Commercial off-the-shelf software (e.g. word processing, database and statistical programs) in general use within their designed application range may be considered to be sufficiently validated. However, laboratory software configuration/modifications should be validated.

5.5 Equipment

5.5.1 Laboratory Equipment
This section addresses the equipment that will be furnished and utilized by the laboratory. In those cases where the laboratory needs to use equipment outside its permanent control, it shall ensure that the requirements of the Laboratory are met.

5.5.2 Performance Verification and Calibration
This section addresses how all lab equipment and software used in its methods and procedures shall be capable of achieving the accuracy
required and shall meet specifications relevant to the examinations concerned. Before being placed into service, equipment shall be calibrated or checked (see 5.6,) to establish that it meets the laboratory's specification requirements and complies with the relevant standard specifications.

5.5.3 Operators and Instructions
This section addresses how the laboratory authorizes personnel to use equipment, and how up-to-date instructions on the use and maintenance of equipment (including any relevant manuals provided by the manufacturer of the equipment) shall be readily available for use by the appropriate laboratory personnel.

5.5.4 Unique Identification
This section addresses how the laboratory shall uniquely identify each item of equipment and its software used in the examination process which, through its use, may have an impact on the exam that can be significant to the result when practicable.

5.5.5 Equipment Records
This section addresses how the laboratory will maintain records regarding each item of equipment and its software utilized in the forensic process. The records shall include at least the following:
   a) the identity of the item of equipment and its software,
   b) the manufacturer's name, type identification, and serial number or other unique identification,
   c) checks that equipment complies with the specification (see 5.5.2)
   d) the current location, where appropriate,
   e) the manufacturer's instructions, if available, or reference to their location,
   f) dates, results and copies of reports and certificates of all calibrations, adjustments, acceptance criteria, and the due date of next calibration,
   g) the maintenance plan, where appropriate, and maintenance carried out to date, and
   h) any damage, malfunction, modification or repair to the equipment.

5.5.6 Handling and Maintenance of Measuring Equipment
This section defines procedures for the safe handling, transport, storage, use and planned maintenance of equipment used in forensic processes to ensure proper functioning and in order to prevent contamination or deterioration. Additional procedures may be necessary when equipment is used outside the permanent laboratory.

5.5.7 Defective Equipment
This section addresses how the laboratory will handle equipment that has been subjected to overloading or mishandling, gives suspect results, or has been shown to be defective or outside specified limits.

5.5.8 Calibration Labels
This section defines how all equipment under the control of the laboratory and requiring calibration shall be labeled, coded or otherwise identified to
indicate the status of calibration, including the date when last calibrated and the date or expiration criteria when recalibration is due.

5.5.9 Critical Equipment That Leaves Laboratory Control
This section addresses how the laboratory will ensure that the function and calibration status of equipment that has left the control of the laboratory are checked and shown to be satisfactory before the equipment is returned to service.

5.5.10 Performance Verification and Calibration
This section addresses procedures that shall be carried out when intermediate checks are needed to maintain confidence in the calibration status of equipment.

5.6 Measurement Traceability
5.6.1 Calibrating Equipment
This section defines the laboratory’s procedures for calibrating equipment used in the forensic process. Any equipment requiring calibration that is used in the forensic process and which may have an impact on the results must be calibrated before being put into service.

5.7 Sampling
As defined, Sampling does not apply in the disciplines of Digital and Multimedia Evidence, yet as this is an international standard requirement it must be addressed and therefore remains in the model QAM. Sampling is defined as “a procedure whereby a part of a substance, material or product is taken to provide for testing or calibration of a representative sample of the whole” (ISO/IEC).

5.8 Handling Evidence
5.8.1 Evidence Procedures
This section defines the procedures for the transportation, receipt, handling, protection, storage, retention, and/or disposal of evidence items.

5.8.2 Identification System
This section defines the identification system to be utilized to uniquely identify all evidence items.

5.8.3 Evidence Abnormalities
This section addresses how the laboratory will address evidence abnormalities to include how they will be documented and whether contact with the customer is required.

5.8.4 Avoiding Deterioration, Loss or Damage
This section defines procedures the laboratory shall put into place to avoid deterioration, loss or damage to evidence items, and how such situations shall be addressed.

5.8.4.1 Sealing evidence not in Process of examination
This section states that evidence not in the process of examination
shall be sealed and maintained in a secure limited access area.

5.8.4.2 Securing Unattended Evidence
This section addresses the measures to secure unattended evidence which is in the process of being examined.

5.8.4.3 Evidence Marking
This section addresses the proper marking of evidence.

5.8.4.4 Collection of Photographic Evidence
This section addresses evidence collected only by means of photography.

5.8.4.5 Evidence collected from crime scene
This section addresses the requirement for the preservation of evidence collected from a crime scene.

5.8.4.6 Characteristic Database
This section defines the operation of individual characteristic databases.

5.9 Assuring Quality of Examinations
5.9.1 Monitoring Validity of Examinations
This section defines procedures for monitoring the validity of examinations. The results shall be documented in such way to allow for the detection of trends. The monitoring shall be planned and reviewed.

5.9.2 Quality Control Data Analysis
This section defines how quality control data shall be analyzed and actions to be taken when they are found to be outside pre-defined criteria.

5.9.3 Proficiency Testing
This section defines the laboratory’s proficiency testing program. Personnel performing forensic examinations must complete a minimum of one annual proficiency test. The procedures should address discipline specific requirements, whether such a test should be an external or internal one, the monitoring and evaluation of the program, remedial ramifications, participation in inter-lab programs, records to be maintained, etc. If seeking accreditation, an external test provider must be one approved by the accrediting body. If not seeking accreditation, management can approve any external agency to serve as the approved provider.

5.9.4 Technical Review of Results
This section defines the procedures to be used for the technical (or peer) review of examination results. The procedures must ensure that the conclusions of the examiner are reasonable and supported by the examination records. They shall define the scope of the review, establish parameters of the review process, and describe a course of action if a discrepancy is found. It is recommended that a designated percentage of cases completed within a specified time period (e.g., yearly) undergo a technical review. For a single examiner lab, this may be accomplished by creating a partnership with another agency providing the same services with an agreement to perform this review.
The partner lab should have the same ability to recommend to the management of the lab undergoing the technical review, changes and highlight potential issues with casework. The details of the partnership should be clearly documented and maintained on file. Additionally, the frequency of the review, the method upon which the data/results shall be provided for review and a confidentiality agreement between both entities shall be clearly defined and documented.

5.9.5 Administrative Review of Results
This section defines the procedures to be used for the administrative review of the case record prior to the release of the report of examination. The procedures shall define the scope of the review and how the review shall be documented. The reviewer must be someone other than the author of the report and does not have to be technically proficient.

5.9.6 Monitoring Testimony
This section defines how the testimony of all testifying personnel will be monitored on an annual basis. The procedure will define how feedback will be supplied to the testifier and what remedial action will be taken should the evaluation be less than satisfactory. This can be accomplished by receiving feedback from member of the testifying agency, a courtroom official, person observing the testimony, audio/video recording, or courtroom transcript if no other option is available.

5.9.7 Retaining Records of Testimony Monitoring
This section defines how records of testimony monitoring will be retained to include addressing retention schedules if required.

5.10 Reporting Examination Results
5.10.1 General
This section addresses the reporting of examination results. In general, results should be reported accurately, clearly, unambiguously and objectively.

5.10.2 Examination Reports
This section defines how the laboratory will report its results. This is done usually in a report of examination (REX) and shall include all the information requested by the customer and necessary for the correct interpretation of the results. Procedures should address controlling the release of examination information. Additional items to address should include procedures for personnel who issue reports, testimony or findings based on examination records generated by another person, how associations or comparative results are communicated in reports and when no definitive conclusions can be reached and reasons for such.

5.10.3 Examination Reports and Deviations from Standard Procedures
This section defines how the laboratory will report deviations in the examination procedure and controlling the release of reports.
5.10.4 Calibration Certificates
Calibration certificates do not apply in the disciplines of Digital and Multimedia Evidence. Since this is an international standard requirement it must be addressed and therefore remains an included section in the model QAM.

5.10.5 Opinions and Interpretations
This section defines procedures for the documentation of opinions and interpretations in examination reports when they are to be included. Additionally they should address whether opinions and interpretations may be communicated by other means (e.g., direct dialogue), and if so, how that must be documented.

5.10.6 Examination Results Obtained From Subcontractors
This section addresses the handling of results obtained by subcontractors and defines the reporting requirements which must be met by the subcontractor.

5.10.7 Electronic Transmission of Results
This section addresses electronic transmission of results and the forms in which it may take place.

5.10.8 Format of reports
This section defines the format of reports and certificates which should be designed to minimize the possibility of misunderstanding or misuse. Reports should be standardized as much as possible and the model QAM includes a model Report of Examination.

5.10.9 Amendments to Examination Reports
This section addresses amendments to reports, if, when, why and how they can be done, and in what form. When it is necessary to issue a complete new test report this shall be uniquely identified and shall contain a reference to the original that it replaces.

i) Appendix A: Forms

j) Appendix B: Administrative Procedures
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<Organization> <Lab>
Quality Assurance Manual

Forward

The <Organization> <Lab> is committed to quality performance and conformance to recognized laboratory best practices. Just as new and improved methods of scientific analysis are developed to meet the expanding needs of the criminal justice system, it is essential for the laboratory quality standards to progress in parallel. The <Lab> is dedicated to implementing policy and procedural changes to ensure quality in all facets of laboratory operations.

With this revision of the <Organization> <Lab> Quality Assurance Manual (QAM) this manual is based on the ISO/IEC 17025:2005 standards complemented by the ASCLD/LAB Supplement which are wholly relevant to the work of the <Lab>. This manual is subordinate to any <Organization> policy, procedure, practice, or requirement that is issued at the <Division> level or above.

All <Lab managers> are responsible for incorporation of quality practices and procedures into their daily operation, consistent with the requirements specified by this <Lab> QAM. All <Lab> employees share in the responsibility for adherence to these established quality measures and are key to the overall success of the quality management program.

The continued development and improvement of the <Lab> quality system serves to increase confidence in our work product while strengthening the professional integrity of the laboratory and its employees. Through the use of recognized quality practices and procedures, the <Organization> <Lab> will continue to meet the challenges of the future.

Manual Approved:

<Lab> Laboratory Director

Date: ____________________________

Name of Director

SWGDE Model Quality Assurance Manual for Digital Evidence Laboratories
Version: 3.0 (September 13, 2012)
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1. About This Document

1.1 Document Conventions

1.1.1 Use of the Term “Shall”

Throughout the document, the term “shall” is used to indicate a requirement or the execution of a requirement [QAPM].

1.1.2 Responsibility and Authority

Each requirement shall include a marker at the end of the sentence indicating who has the responsibility for satisfying the requirement [Responsible Party]. If authority is delegated, it shall be documented in a delegation document or similar [Responsible Party].

The following names, phrases, and abbreviations shall be used to designate responsibility.

- [LD] – <Lab> Director, who has oversight of the forensic services provided by <Lab>
- [SC] – person with supervisory authority, who has oversight of the digital evidence section of the <Organization> which includes the <Lab> and other units
- [UC] - Unit Chief who has oversight of a particular area, such as computer related examinations, versus a separate unit that may handle audio or video examinations etc.
- [QAPM] – <Lab> Quality Assurance Program Manager, who has oversight of quality assurance of the entire <Lab> system
- [Examiner] – Certified examiner in a particular category of testing or set of categories of testing
- Specialized entries such as [Lead Auditor] that are used for a particular section. These shall be self-descriptive names and phrases.

1.1.3 Document Control Markings

The controlled version of this document shall be viewable in a <format to be determined/by the organization> [QAPM]. If it is determined that the official version of the QAM is in electronic form, then the following applies:

1. When the document is printed, it shall be an uncontrolled copy [All personnel]. When the document is viewed electronically, the watermark at the bottom of the page shall state:

   “This is a controlled document [QAPM].”

2. When the document is printed, the watermark at the bottom of the page shall state:

   “This is an uncontrolled copy of a controlled document [QAPM].”
1.1.4 External Disclosure of <Organization> <Lab> Quality Documents

Any dissemination and/or distribution, in whole or in part, of any component of the <Lab> Quality System documentation, including the <Lab> QAM and <Lab> SOPs, shall be coordinated with the <Lab> QAPM prior to the release of information outside of the <Organization> [All Personnel].

The <LD/QAPM> of the individual organization can decide if external disclosure of these quality documents is allowed.

1.1.5 Style Guidelines

The document publisher/issuer adds the viewable and printed watermarks in Adobe Acrobat. One watermark is added for viewing on the screen which states:

“This is a controlled document”

A separate watermark is added for when the document is printed which states

“This is an uncontrolled copy of a controlled document.”

To do this, hide the hidden text and convert to PDF. Then open the PDF in Adobe Acrobat, use menu item Document – Add Watermark & Background to add one statement to display on screen and a second statement to display when printing. Choose to align 1 inch from bottom and 0 inches from center. One statement must be a watermark and the other must be a background.

Headings should use the standard built-in heading styles:
• Heading 1 (for sections such as 4)
• Heading 2 (for sections such as 4.1)
• Heading 3 (for sections such as 4.1.1)
• Heading 4 (for named sections indented under sections such as 4.1.1.1)

Microsoft Word automated numbering will NOT be used. Manually number all entries so that they match the ISO and ASCLD/LAB reference numbers exactly.

When converting the document to Adobe PDF, be sure to set the Image Advanced Setting for maximum quality for grayscale images. This is necessary for the forms at the end of the document to be readable upon zooming in the PDF.
2. References


Accrediting Body Guiding Principles of Professional Responsibility for Crime Laboratories and Forensic Scientists, Accrediting Body, City, State, Zip Code, Date


<Organization> Records Management Manual, Organization, Records Management Division, latest revision


3. Definitions

**Accreditation Cycle** – The period of time (generally five years) between the date that accreditation is granted and the date accreditation expires.

**Administrative Records** – Records, whether electronic or hardcopy, that do not constitute data or information resulting from examination, such as case related conversations, examination item (evidence) receipts, chain of custody records, description of evidence packaging and seals, incident reports, service requests, correspondence received/sent, reports issued related to the examination of evidence, and other pertinent information.

**Administrative Review** – Review of case records for consistency with laboratory policy and for editorial correctness.

**Association** – A relationship which is concluded to exist between individuals and/or objects based upon an examination or analysis.

**Audio** – A category of testing within the digital & multimedia evidence discipline, which involves the examination, analysis, comparison, and/or evaluation of audio evidence.

**Audit** – A systematic, independent, documented process for obtaining records, statements of fact or other relevant information and assessing them objectively to determine the extent to which specified requirements are fulfilled.

**Case Records** – Administrative, examination records, and any other applicable technical records, whether electronic or hardcopy, generated or received by a laboratory pertaining to a particular case, which may be stored in one or more locations.

**Category of Testing** – A specific type of analysis within an accredited discipline of forensic science.

**Competency Test** – The evaluation of a person’s knowledge and ability in a functional area prior to performing independent work in forensic casework.

**Computer Forensics** – A category of testing within the digital and multimedia evidence discipline, which involves the examination, analysis and/or evaluation of digital evidence.

**Confirmation** – The verification of an examiner’s conclusions of an identification, elimination, or association by a second knowledgeable individual.

**Control** – A test performed in to demonstrate that an examination method works correctly and to ensure that data are valid. Positive controls confirm that the procedure will produce the expected result. Negative controls confirm that the procedure does not produce an unintended result.
Crime Scene – An area, object or person, generally external to a laboratory facility, from which evidence is identified, recorded, collected, and/or interpreted.

Critical Consumable Supplies and Services – A consumable supply or service which must meet one or more crucial specifications to ensure the quality of the test result. In this context, “crucial” means extremely significant or important.

Critical Equipment – Equipment that has a significant effect on the accuracy or validity of work products or forensic examinations.

Customer – For the purpose of meeting accreditation requirements, a person or organization which requests the testing services of the laboratory.

Derivative Evidence (DE) – Evidence that is derived in whole or in part from original evidence, is marked as evidence, and is tracked through a Chain of Custody.

Digital & Multimedia Evidence (forensic science discipline) – Digital Evidence: The analysis of evidence stored or transmitted in binary form. Multimedia Evidence: The analysis of analog or digital media, including, but not limited to, film, tape, magnetic and optical media, and/or information contained therein.

Discipline – A major area of casework for which a laboratory may seek accreditation.

Elimination – The results of the analysis or comparison rendered which positively eliminates the subject of the examination, the item or the event.

Evidence – Material, regardless of form, which is received by a laboratory for the purpose of gleaning information relevant to a criminal investigation through examination/analysis by one or more of the laboratory’s testing procedures.

Evidence Control Facility – A space for storing evidence with controlled access by several people, such as an evidence room. (Contrast with short-term evidence storage.)

Examination – The procedure utilized by the examiner to obtain information from evidence in order to reach conclusions concerning the nature of and/or associations related to evidence received by the laboratory.

Examination Documentation – See Examination records.

Examination Records – The documentation, whether hardcopy or electronic of procedures followed, examinations conducted, standards and controls used, diagrams, printouts, photographs, observations and results of examinations. Examination records constitute a part of “technical records.”
**Examiner** – An individual, who conducts and/or directs the analysis of casework samples, interprets data, reaches conclusions, and issues reports concerning conclusions.

**External Proficiency Test** – A test prepared, provided and reported to a source external to the laboratory, laboratory system, or the laboratory’s parent organization.

**Finding** – (1) An audit conclusion identifying a condition having, or potentially having an adverse effect on: the quality of work product, the status of accreditation, or quality system effectiveness. (2) An audit conclusion, supported by evidence identifying noncompliance or nonconformance with a documented requirement. This is not to be confused with the examination of evidence process in which findings can be a result of a forensic exam.

**Identification** – The results of the analysis or comparison rendered which positively identifies the subject of the examination, the item or the event.

**Image Analysis** – A category of testing within the digital & multimedia evidence discipline, which involves the application of image science and domain expertise to examine and interpret the content of an image and/or the image itself.

**Instructions** – Detailed documents of how to perform a specific task.

**Laboratory Director** – The highest ranking manager within an individual laboratory.

**Level 1 Nonconformity** – A situation or condition that directly affects and has a fundamental impact on the quality of the work product or the integrity of the evidence.

**Level 2 Nonconformity** – A situation or condition which may affect the quality of the work but does not, to any significant degree, affect the fundamental reliability of the work product or the integrity of the evidence.

**Limited Access** – Access limited to personnel authorized by the laboratory director.

**Manager** – A person with the responsibility for directing and controlling an organizational unit or program.

**Media** – Objects on which electronic data can be stored.

**Method** – The course of action or technique followed in conducting a specific examination or comparison leading to an analytical result.

**Notes** *(See also examination records)*

**Objective** – A measurable, definable accomplishment which furthers the goals of the organization.
**Observation** – (1) An audit conclusion identifying a quality system weakness in either; definition or implementation that has no impact on product quality or quality system effectiveness. (2) An audit conclusion identifying an isolated or infrequent nonconformance or noncompliance that has no significant impact on work product quality or quality system effectiveness.

**Policy** – A guiding principle, operating practice, or plan of action governing decisions made on behalf of an organization.

**Practicable** – If the laboratory is able to meet the requirement, it shall meet the requirement.

**Preliminary Results** – Results of an examination released to the customer prior to a report being issued.

**Procedure** *(See also instructions)* – A specified way to carry out an activity or process.

**Proficiency** – An audit conclusion identifying an area where the auditee has exceeded expectations.

**Proficiency Test** – A test to evaluate the capability and performance of examiners, technical support personnel and the laboratory; in open tests, the examiners and technical support personnel are aware that they are being tested; in blind tests, they are not aware.

**Proper Seal** – A seal that prevents loss, cross-transfer, or contamination while ensuring that attempted entry into the container is detectable. A proper seal may include a heat seal, tape seal, or a lock. The initials or other identification of the person creating the seal shall be placed on the seal or across the seal onto the container when possible.

**Quality Assurance** – Those planned and systematic actions necessary to provide sufficient confidence that a laboratory’s product or service will satisfy given requirements for quality.

**Quality Control** – Internal activities or activities conducted according to externally established standards, used to monitor the quality of examination data and to ensure that it satisfies specified criteria.

**Quality Coordinator** – An individual designated by unit management to oversee unit-specific quality documentation and procedures.

**Quality Manager** – An individual designated by top management who has the defined authority and obligation to ensure that the quality requirements of the quality system are implemented and maintained.
**Quality System** – The organizational structure, responsibilities, procedures, processes, and resources for implementing quality management; includes all activities which contribute to quality, directly or indirectly.

**Secure area** – A locked space (for example, cabinet, vault or room) with access restricted to personnel authorized by the laboratory director.

**Short-term Evidence Storage** – A lockable space assigned to a single person who is the only person with the means to unlock the space, except for documented, traceable emergency entry, such as an evidence locker. (Contrast this with Evidence Control Facility.)

**Specimen Number** – Evidence being examined by the laboratory is given a unique specimen identifier for reference and identification purposes such as a “K” number or “known”, a “Q” number or “Questioned”, a “DE” or “Derivative Evidence” or “NE” numbers “Not Examined”. This can also be referred to as evidence or an exhibit.

**Staging Media** – Media on which data from the evidence is temporarily held for purposes of examination, but is not retained for evidentiary purposes. For example: forensic data is temporarily placed on a hard drive, an examination workstation, or network system (e.g., SAN) for processing and is forensically wiped, as required, or deleted after the examination is completed.

**Supervisor** – A person directly responsible for overseeing the work of an individual or an organizational unit.

**Technical Record** – Technical records are accumulations of data and information which result from carrying out examinations and which indicate whether specified quality or process parameters are achieved. They may include forms, work sheets, work books, check sheets, work notes, control graphs, external and internal examination reports, customers' notes, papers and feedback.

**Technical Review** – Review of all examination records and examination reports to ensure the validity of scientific results and conclusions.

**Technical Support Personnel** – Individuals who perform casework related duties within the laboratory at the direction of an examiner but do not issue reports related to conclusions reached.

**Video Analysis** – A category of testing within the Digital & Multimedia evidence discipline, which involves the examination, comparison, and/or evaluation of video evidence.
4. Management Requirements

4.1 Organization

4.1.1 Legal Entity

The policies in this document shall apply to all operations conducted by personnel attached to (Lab)s as provided by legal authority reference [LD].

4.1.2 Responsibilities to provide Customer Service

The <Lab> shall provide digital forensic services to address customer requests for the examination of digital evidence [LD]. Examination activities shall be conducted in such a way as to meet the requirements of relevant accrediting body requirements and the policies of the <Organization> and laboratory governing bodies [LD].

4.1.3 Scope of Quality System

The management system of the <Lab> shall provide program direction for digital forensic examinations conducted in <Lab> facility <address> and at any other location where <Lab> examiners and trainees perform digital forensic services [LD].

4.1.4 Potential Conflicts of Interest

The structure of the <Organization> is <describe organizational structure>. The separation of investigative and examination functions of casework shall be maintained and monitored by the <LD> to ensure no undue pressure or bias impacts the quality of the forensic work product. Any <Lab> member encountering such situations or conditions will inform their supervisor, LD or QM.

The <Lab> <LD> shall have responsibility for overall oversight and administration of the <Lab> and those items specifically called out in this document [LD].

Within this Quality Assurance Manual, authority and responsibility shall be delegated to the <Lab> Laboratory Director to ensure quality policies, practices, and procedures are implemented within the laboratory.

4.1.5 Organization

4.1.5.1 Authority and Resources to Carry Out Duties

The laboratory shall provide its personnel with the authority and resources needed to carry out their duties including the implementation, maintenance and improvement of the quality system [LD]. Laboratory personnel shall identify departures from the quality system and initiate actions to prevent or minimize such departures [All personnel].
4.1.5.2 Freedom from Undue Influences
The laboratory shall ensure that all personnel are free from undue pressures and influences that may adversely affect the quality of their work [LD].

4.1.5.3 Customer Confidentiality Policy
The laboratory shall protect the customers’ confidential information, including protecting the electronic storage and transmission of results [LD].

4.1.5.4 Operational Integrity Policy
The laboratory shall avoid involvement in any activities that would diminish confidence in its competence, impartiality, judgment or operational integrity [LD].

4.1.5.5 Organizational Structure
The organization and management structure of the laboratory and the relationships between quality management, technical operations and support services shall be defined and are illustrated in the following diagram [LD].

Insert ORGANIZATIONAL STRUCTURE CHART

4.1.5.6 Responsibility and Authority
The Quality Assurance Manual shall specify the managerial level to which responsibility has been assigned for each requirement by a tag at the end of each sentence [LD]. Any individual shall be authorized to delegate authority to a subordinate except when specifically prohibited by policy, a superior, or this manual [All Personnel]. While an individual may delegate authority to accomplish tasks, the responsibility for the completion of the tasks and the quality of the work shall remain with the individual assigned the responsibility [All Personnel].

Examination procedures shall be specified in Standard Operating Procedures (SOPs) attributable to a single unit [UC].

For laboratory work, each subordinate shall be accountable to one and only one immediate supervisor per category of testing [LD].

4.1.5.7 Laboratory Supervision
Adequate supervision shall be provided for laboratory personnel, including trainees, by persons familiar with the laboratory’s methods and procedures, purpose of each examination, and with the assessment of examination results [LD].

4.1.5.8 Technical Management
For each category/sub discipline of testing/examination, technical responsibility shall be delegated to an appropriate person [LD]. For each laboratory, technical responsibility shall be delegated for day-to-day technical operations of the laboratory
Resources needed to ensure the quality of laboratory operations shall be provided to laboratory personnel [LD].

4.1.5.9 Quality Manager
The laboratory shall appoint a quality manager with responsibility and authority for ensuring that the quality system is implemented and followed [LD]. The quality manager shall have direct access to laboratory management personnel [LD].

4.1.5.10 Managerial Deputies
Deputies shall be appointed in writing for key personnel to fulfill the duties in the absence of the assigned person [LD].

4.1.5.11 Awareness of Importance
The laboratory shall ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the quality system [LD].

4.1.6 Top Management Communication
Laboratory Management shall communicate via e-mail, meetings and other means of communication regarding the effectiveness of the quality system [LD].

4.1.7 Health and Safety Manager
The laboratory shall designate a Health and Safety Officer [LD]. The Health and Safety Officer shall implement the health and safety program [H&S Officer].

4.1.8 Key Management
Key management and top management shall be defined by the laboratory [LD]. List applicable management here or reference highlighted areas in org chart above.

4.2 Quality System
4.2.1 Documenting the Quality System
The laboratory quality system requirements shall be documented in this Quality Assurance Manual (QAM), the <Lab> Standard Operating Procedures (SOPs) [QAPM]. The <Lab> QAM and SOPs shall be made available < list method used for official copy> to laboratory personnel [QAPM].

Laboratory personnel shall be trained on the quality system and related policies, practices, and technical procedures [LD]. Current quality system policies, practices, and technical procedures shall be followed [All Personnel].
4.2.2 Quality Policy Statement

The laboratory’s quality system polices shall be issued under the authority of the <Lab> Laboratory Director [LD]. These policies shall be reviewed during management reviews [QAPM].

4.2.2.1 Commitment to Professional Practice

All work performed by the laboratory shall follow good professional practice and be of a quality that satisfies the expectations and needs of the customer [LD].

4.2.2.2 Standard of Service

The laboratory shall strive to be foremost in the delivery of digital and multimedia forensic examinations by providing timely, accurate, and thorough responses to requests [LD].

4.2.2.3 Quality System

The laboratory shall strive to ensure that the quality and reliability of its forensic examinations meet established standards and provide customers with results that are reliable and scientifically sound [LD].

4.2.2.4 Personnel Familiarity with Quality System

The laboratory shall provide training for laboratory personnel to carry out the provisions of the quality system [LD]. All laboratory activities shall be performed in conformance with appropriate quality requirements [All personnel].

4.2.2.5 Commitment to Comply with Standard and Improve Effectiveness

The laboratory shall conform to the requirements of its accrediting body, if applicable and maximize reliability of laboratory data through implementation of recognized standards for best laboratory practice [LD]. The laboratory shall strive to continually improve the effectiveness of the quality system [LD].

4.2.2.6 Guiding Principles for Professional Responsibility

If accreditation is sought, the laboratory shall uphold and adhere to the Accrediting Body (AB) Guiding Principles of Professional Responsibility for Crime Laboratories and Forensic Scientists [LD].

A code of ethics shall be reviewed annually with all laboratory personnel and a record of the review retained [LD].

4.2.3 Continually Improving Effectiveness

Laboratory management shall provide evidence of commitment to the development, implementation and continuous improvement of the quality system [LD].
4.2.4 Meeting Customer Requirements

Laboratory management shall communicate with laboratory personnel regarding the importance of meeting customer requirements, as well as statutory and regulatory requirements [LD].

4.2.5 Documentation Structure

This document, in conjunction with the <Lab> SOPs and laboratory supplemental manuals, if applicable, shall constitute the primary components of the laboratory quality system [QAPM].

Newer approved documents shall take precedence over older documents [All Personnel].

Documents issued at a higher organizational level shall take precedence over documents issued at a lower organizational level [All Personnel].

4.2.6 Roles and Responsibilities

The roles and responsibilities of laboratory personnel, including technical management and the quality manager, shall be noted in this QAM for each requirement by a tag at the end of each sentence [QAPM].

4.2.7 Integrity of the Quality System

Laboratory management shall ensure that the integrity of the quality system is maintained when changes to the quality system are planned and implemented [LD].

4.3 Document Control

4.3.1 Document Control Procedures

The laboratory shall control all internally-created documents that form part of its quality system, including this QAM, the <Lab> SOPs, forms, and supplemental manuals, if applicable [QAPM].

All controlled documents shall be reviewed at least annually [QAPM]. Records of the review shall be retained [QAPM].

Equipment and software manuals maintained only for general reference purposes are not subject to document control requirements, but shall be accessible to lab personnel--this includes digital and paper manuals to which personnel may refer for conducting examinations, maintenance (repair), performance verification, or calibration [QAPM]. In order to ensure laboratory personnel are using the valid issues/versions of externally generated equipment manuals, when possible, personnel shall access these manuals from the vendor’s Internet website or the same media as the software tool [Examiner].
Externally generated equipment and software manuals available only in hard copy format and specifically mandated for use by standard operating procedures or other quality documents shall be subject to document control requirements [QAPM].

Uncontrolled copies of controlled documents shall be for information purposes only [All Personnel]. All external distributions of uncontrolled copies of controlled documents shall be approved at the level determined by the <Lab> QAPM [All Personnel]. The approval shall be documented [QAPM].

4.3.2 Document Approval and Issue Procedures

All controlled documents shall undergo technical and quality reviews and be approved for use by authorized personnel prior to issue [QAPM]. The reviews shall be documented [QAPM].

Each organization that issues controlled documents shall maintain a master list of all controlled documents [QAPM]. The master list shall include each document's title, revision number, and issue date [QAPM]. Personnel shall only use documents on the currently posted master lists of controlled documents [All Personnel].

4.3.2.1 Authorized Editions

Authorized editions of appropriate controlled documents shall be available at all locations where operations essential to the effective functioning of the laboratory are performed [QAPM]. The electronic version in the centralized location shall be the controlled version unless a paper copy contains at least “Controlled Copy” on each page [QAPM]. A controlled copy of each internally-generated controlled document shall be issued to the Quality Assurance Manager [QAPM].

4.3.2.2 Annual Review

Controlled documents shall be reviewed annually [QAPM]. The annual review shall be documented with a dated notation in the review documentation for the current revision or, if changes are made during the year, by the new review documentation [QAPM].

4.3.2.3 Prompt Removal of Invalid or Archived Documents

Invalid or archived controlled documents shall be promptly removed from all points of issue or use to assure against unintended use [QAPM].

4.3.2.4 Marking Invalid or Archived Documents

Archived controlled documents retained for legal or knowledge preservation purposes shall be suitably marked to assure against unintended use [QAPM].

4.3.2.5 Marking Current Documents

Controlled documents generated by the laboratory shall be uniquely identified [QAPM]. Each page shall contain at least the following information:
4.3.3 Document Change Procedures

Revisions to controlled documents shall be subject to the same review, approval, documentation, and issuance requirements as the original documents [QAPM]. Where practicable, the altered or new text shall be identified in the document or the appropriate attachments [Document Issuer].

Hand appending of controlled documents is permitted [Document Issuer]. Notification of the new/revised issuance shall be provided.

All electronic versions of documents shall be protected from inadvertent changes by posting non-editable files where practicable [QAPM].

Original laboratory-level controlled documents (bearing the approving official's signature) shall be retained in a single location within the laboratory [QAPM]. Original unit-level controlled documents shall be retained in a single location within the unit [QM].

4.4 Reviews of Requests, Tenders and Contracts

4.4.1 Request Review Procedures

The laboratory shall receive and review all requests for examination to ensure that the request is documented and understood and that the laboratory has the capability and resources to meet the request [LD]. The appropriate technical methods shall be selected to address the customer’s request [Examiner]. Legal authority shall be reviewed prior to work commencing, or the reason for not reviewing the legal authority documented [Examiner]. Refer to Appendix B – Procedure B-1 Processing Request for Examination, and B-2 Case Assignment.

4.4.2 Records

Records of reviews, including any significant changes, shall be maintained [Examiner]. All communication with the customer shall be recorded in the case record [Examiner].

4.4.3 Review of Subcontracted Work

If work is subcontracted or critical services are used by the laboratory in support of an examination, the review of the request shall also cover this work [LD].
4.4.4 Notifying Customer of Deviations from the Request

The customer shall be informed of any deviation from the request and that communication documented [Examiner].

4.4.5 Amendments to the Request

Any changes to the ability to meet the request shall be communicated to the customer and that communication documented [Examiner]. If amendments are made to the original request, those amendments shall be reviewed as in Section 4.4.2, the review documented, and the amendments communicated to all affected personnel [Examiner].

4.5 Subcontracting Examinations

The <Lab> shall subcontract examinations only with competent and approved organizations [LD]. The customer shall be notified of the subcontracting of the work. The <Lab> shall be responsible to the customer for the subcontractor’s work. A registry of all subcontractors used shall be maintained by the <Lab>. This shall include a record of proof that the subcontractor is in compliance with ISO Standard 17025 for the work in question [LD].

4.6 Purchasing Services and Supplies

4.6.1 Service and Supply Procurement Procedure

<Organization> procurement policies, procedures and regulations shall govern the procurement of supplies and services from sources external to the <Organization> [LD].

4.6.2 Procedure for Inspecting Supplies and Consumable Materials

Supplies that could affect the quality of an examination shall be inspected for damage and compliance with requirements upon receipt into the laboratory [LD]. This inspection shall be documented by signing or initialing the receipt, packing slip or invoice, and retained with the procurement documentation [LD]. Supplies that affect the quality of examinations found to be of insufficient or questionable quality shall be discarded or segregated from properly functioning supplies and repaired [Examiner]. If supplies are repaired, they shall be re-inspected prior to use [LD].

4.6.3 Purchasing Documents

The laboratory shall ensure that purchase request documents for services or supplies that affect the quality of examination results contain information describing the services or supplies ordered [LD]. These requests shall include documentation that they have been reviewed and approved for technical content prior to ordering [LD].

4.6.4 Procedure for Evaluating Suppliers of Critical Supplies and Services

The laboratory shall develop and maintain lists of critical supplies and services [LD]. The list of critical supplies shall include information regarding storage of the critical supplies [LD]. Suppliers of critical services and supplies shall be evaluated on a regular basis and that evaluation documented [QAPM].
manufacturer warranty repair/replacement service need not be included on the list of critical service providers [LD].

4.7 Service to the Customer

4.7.1 Clarifying Customer’s Request

The examiner shall communicate with the customers, as needed, if clarification is required regarding request(s) for services or to answer questions concerning the status of their request(s) for services [Examiner].

4.7.2 Customer Feedback

The laboratory shall implement a mechanism for seeking feedback from customers regarding the services provided [LD]. Customer feedback shall be analyzed to improve the management system, examination activities, and customer service [LD].

4.8 Complaints

4.8.1 Policy for Tracking and Resolving Complaints

Complaints from customers and other parties shall be accepted and recorded and sent to management for resolution [All Personnel]. All complaints received shall be handled properly and in a timely manner [LD]. A list of all complaints and the actions taken shall be maintained [LD]. When necessary, complaints shall be addressed by implementing the corrective action process in 4.11 [LD].

4.8.2 Policy for Complaints from Laboratory Employees

Laboratory personnel shall submit complaints concerning the quality system by using the <Organizational> process [LD].

4.9 Control of Non-Conforming Work

4.9.1 Policy for Actions When Non-Conforming Work or Procedures Are Identified

QAM Section 4.11 (Procedure for Corrective Action) shall be followed when any aspect of an examination or examination results do not conform to laboratory procedures or the agreed requirements of the customer [All Personnel].

When nonconformity, whether work product or policy adherence, is detected, it shall be reported to laboratory management [All Personnel].

When nonconformity is reported to laboratory management, an evaluation shall be made as to the significance of the nonconformity and that evaluation documented [LD].

Where necessary, the customer shall be notified of nonconformities and, if necessary, work recalled [LD].
If work is halted due to the severity of a nonconformance, laboratory personnel shall be notified when work may be resumed based on remediation of the non-conformance [LD].

4.9.2 Possibility of Recurrence or Doubt of Compliance

Where the evaluation indicates that the nonconforming work could recur or that there is doubt about the compliance of the laboratory’s operations with its own policies and procedures, the corrective action procedures in QAM Section 4.11 shall be promptly followed [LD].

4.10 Improvement

The laboratory shall continually improve the effectiveness of its quality system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management reviews [LD].

4.11 Procedure for Corrective Action

4.11.1 Authority for Corrective Action

Conditions adverse to quality or accomplishing technical operations shall be identified promptly and corrected as soon as practical [All Personnel]. Corrective action procedures shall apply to significant deficiencies or conditions adverse to quality or accomplishing technical operations [LD].

A situation or condition that directly affects or has a fundamental impact on the quality of the work product or the integrity of the evidence shall be treated as Level 1 nonconformity [QAPM]. A situation or condition which may affect the quality of the work but does not to any significant degree affect the fundamental reliability of the work product or the integrity of the evidence shall be treated as Level 2 nonconformity [QAPM].

An <Organization> Form A-2 (Quality Action Request [QAR]) in Appendix A, or comparable form containing at a minimum, the elements of form A-2 shall be implemented for a level 1 or level 2 nonconformity [QAPM]. The <Organization> Form A-2 (QAR) shall document the procedure, authorization and verification that the condition was addressed [QAPM].

4.11.2 Root Cause Determination

Each corrective action shall be investigated and the root cause for the deficiency determined and documented on the appropriate form [LD].

4.11.3 Corrective Action Steps

Once the level of the corrective action is determined, the appropriate personnel shall select, document and implement the action(s) most likely to eliminate the nonconformity and to prevent recurrence [QAPM]. Corrective actions shall be appropriate to the magnitude and risk of the nonconformity [QAPM]. Evidence of conformance/completion of a Corrective Action shall be provided and retained for the record [UC].
4.11.4 Monitoring and Verifying Corrective Actions

Progress of corrective actions shall be tracked for all open QARs [QAPM]. The effectiveness of the corrective actions shall be verified [QAPM]. Once all the action steps have been completed and their effectiveness verified, the QAR shall be closed [QAPM].

4.11.5 Additional Audits

Where the identification of nonconformities or departures casts doubts on the laboratory's compliance with its own policies and procedures, the laboratory shall ensure that the appropriate areas of activity are audited in accordance with Section 4.14, [QAPM].

4.12 Preventive Action

4.12.1 Identifying Improvement Opportunities

Identification and notification of opportunities for improvement or sources of potential non-conformity shall be made through observations by laboratory personnel, either independently, as part of a corrective action response, or as part of the annual quality review [All Personnel]. When improvement opportunities are identified, they shall be documented as Preventive Actions [LD].

4.12.2 Actions and Controls for Preventive Actions

The effectiveness of preventive actions in response to the corrective action process or identified through any other means shall be verified and any controls that will ensure the solution is effective noted [QAPM].

4.13 Control of Records

4.13.1 General

4.13.1.1 Procedure for General Quality Records

Quality records such as reports from internal audits, reports from management reviews, critical service supplier evaluations, lists of approved critical suppliers, and records of corrective and preventive actions shall be collected, organized, filed and stored so as to be readily accessible to authorized individuals [QAPM]. Quality records shall be identified by a descriptive title [QAPM].

Unit specific quality records shall be filed and stored in the unit files [UQC]. Proof of compliance records for audits, QARs and preventive actions shall be filed in the <Lab> QA files [QAPM]. Signed copies of quality records that apply to multiple units shall be filed and stored in the <Lab> QA files [QAPM].

4.13.1.2 Procedure for Personnel-Specific Quality Records

Quality records that relate to specific personnel, such as detailed proficiency test results and court testimony monitoring records shall be collected, stored and retained according to <Organization> policy and procedure [LD].
Proficiency testing records listing individual information shall be stored in a lockable
drawer or a limited access space [PTPM].

4.13.1.3 Procedure for Procurement Records
Financial records shall be collected, stored, and retained according to <Organization>
policy for items and services procured using <Organization> funds [LD].

4.13.1.4 Procedure for Non-Case-Related Technical Records
Technical records not related to specific cases such as test and validation records shall
be collected, organized, filed and stored so as to be readily accessible to authorized
individuals [QAPM]. Such records shall be identified by a descriptive title [QAPM].

4.13.1.5 Procedure for Case-Related Technical Records (Including Examination
Records)
Technical records, including examination records (i.e., notes), related to specific
cases such as case records and reports shall be collected, organized, filed and stored so as to be readily accessible to authorized individuals [QAPM]. Upon completion of
the examination(s) and issuance of the Report of Examination, the case file shall be
submitted to the designated central storage area [All Personnel]. Access to the case
record storage area shall be limited to designated individuals [LD].

Case records that have been checked out shall be retrievable [All Personnel]. Such
records shall be identified by a unique identifier assigned to each submission [QAPM].
Such records shall be retained according to the <Organization> policy pertaining to
record retention. [QAPM].

See section 4.13.2 for detailed requirements for case-related technical records.

4.13.1.6 Record Retention and Retrievability
All records shall be legible and stored in such a way so as to be retrievable and to
prevent damage and loss [QAPM]. In the absence of a requirement to the contrary,
records shall be retained for five years [QAPM].

4.13.1.7 Records Held Secure and In Confidence
All records shall be retained in a secure manner to protect confidentiality and access
[QAPM]. Disposal of outdated records shall be in such a manner as to protect the
privacy of the information in the records [QAPM].

4.13.1.8 Protection and Backup of Electronic Records
For records stored on <Organization> computer systems, the <Organization> policy
addressing system security for the network shall be used for access control and back-
up procedures [LD].
4.13.2 Technical Records (Case Record)

The case record shall contain all documentation necessary to support the actions of the examiner and support the examination conclusions [Examiner]. The examination records shall have sufficient detail so as to enable another laboratory-qualified examiner to follow the same procedures and produce the same or similar results [Examiner]. The examination records shall clearly identify the personnel performing the examination [Examiner].

Items in the case record shall be recorded contemporaneously with the actions and be identifiable to the procedure(s) performed [Examiner].

Examination records shall reflect the date(s) of each procedure [Examiner]. There shall be no obliterations or erasures to anything in the examination records [Examiner]. If corrections are made to hardcopy documentation, they shall be initialed and dated by the person making the correction using a single line cross out to show deletions [Examiner].

When examination records are recorded electronically, they can be printed for review. Any alteration made to the hardcopy after submission for review shall be done in ink and dated and initialed [Examiner]. The electronic equivalent of “printed for review” shall be permitted if the system captures and can print for the file all changes, including deletions, the secure name of the person making the change, and the date of the change [Examiner].

Any additional notation to examination records after review shall be initialed and dated by the person making it or the electronic equivalent [Examiner].

The technical records shall have numbered pages and provide the total number of pages comprising the documentation by either identifying the total number of pages on the first or last page or by using the “x of y” numbering scheme [Examiner].

The following items shall be retained in the case record as administrative documentation:

- A service request document (e.g., printout of request form, <Organization> Electronic Communication (EC), or letter on organization letterhead) [Examiner].
- One of the following: 1) the legal authority documentation, 2) documentation that the legal authority document(s) was reviewed, or 3) reason why legal authority was not required [Examiner].
- Chain of custody records [Examiner].
- Records of reviews, as applicable [Examiner].
- A complete activity and communication log documenting all written communication [Examiner].
- If preliminary results are released, documentation of approval to release the preliminary results [Examiner].
- Report of Examination [Examiner].
- If generated, the return shipping invoice(s) [Examiner].
• When applicable, documentation provided to critical service vendors for service requests, description of items and transfer of custody, as well as, documentation from service vendor showing technical information and/or results of services performed [Examiner].

The following items shall be retained in the case record as technical records:
• If generated, handwritten or computer generated notes of the examination, which may include an examination worksheet [Examiner].
• Photographs taken by laboratory personnel to support the examination, spectra, printouts, charts, data, or records used by examiners to support the examination [Examiner].
• If generated, tool-specific report(s) showing results or log of examination procedures, if applicable, either printed or retained in electronic form on removable media [Examiner].

The following items shall be retained in the case record as either administrative or technical records:
• Photographs taken as administrative practice [Examiner].
• Technical information from hardware/software manufacturers [Examiner].
• If collected, technical information from critical service providers [Examiner].

Records to support examinations that draw conclusions or for which opinions are reported shall be such that, in the absence of the examiner, another competent reviewer could evaluate what was done and interpret the data [Examiner].

Each page of examination records shall be initialed by the examiner and include the unique identifier for the submission [Examiner]. For the electronic equivalent of handwritten initials to be acceptable, the electronic signature shall be secure and applied only by the individual it represents [Examiner].

The person conducting each procedure shall place his/her handwritten initials or the electronic equivalent on each relevant page [Examiner].

All administrative documentation shall be identified with the unique identifier for the submission [Examiner]. For securely bound administrative documents, the unique identifier shall appear on the front page of the document but need not appear on every page [Examiner].

The unique identifier of each submission for which data was generated shall be appropriately recorded on the printout when data from multiple submissions is recorded on a single printout [Examiner].

Each side of a page containing examination records is considered a separate page and shall be initialed and contain the unique identifier for the submission or the electronic equivalent [Examiner].
Examination records shall be of a permanent nature [Examiner]. Handwritten notes and observations shall be in ink except when using pencil for diagrams and tracings [Examiner].

When an independent check on a critical finding is carried out, it shall be conducted by an individual having expertise gained through training and experience [Examiner]. A record of the review shall be made to indicate that the critical finding has been checked and agreed to, by whom, and when the check was performed [Examiner].

Acronyms and abbreviations that are not widely accepted outside of the forensic discipline shall be uniquely defined in the laboratory’s quality manual, supplement(s), procedures, or within the individual examination documents [Examiner].

4.14 Internal Audits

4.14.1 Procedure for Internal Audits

Each forensic laboratory shall annually conduct audits assessing compliance with all applicable quality documents [QAPM].

All internal audits shall be performed by appropriately qualified personnel who are independent of the activities being audited and trained in auditing [Lead Auditor]. If an audit is to be conducted by more than a single lead auditor, the team shall meet to provide training, instruction, and guidance prior to conducting the audit [Lead Auditor].

The schedule for annual internal audits shall be established each calendar year in cooperation with laboratory management [QAPM]. Internal audits shall be documented and the documentation retained for at least five years [QAPM].

4.14.2 Timely Corrective Actions in Response to Audit Findings

When an internal audit identifies a finding that casts doubt on the effectiveness of the operations or correctness of examination results, timely corrective action shall be taken in accordance with Section 4.11, [QAPM].

4.14.3 Procedure for Documenting the Audit Results

An audit report shall be written to formally notify management of the audit results [Lead Auditor]. The audit report shall include all nonconformities and corrective actions that arise from those findings [Lead Auditor].
4.14.4 Verifying Implementation and Effectiveness of Corrective Actions

Corrective actions related to audits shall be documented and tracked via the Corrective Action process described in Section 4.11, which includes verifying effectiveness of actions taken [QAPM].

4.14.5 Annual Accreditation Audit Report

If accredited, the laboratory shall submit an accreditation audit report as required by the accrediting body. [QAPM].

4.15 Management Reviews

4.15.1 Procedure for Annual Management Quality System Review

A meeting shall be held annually with laboratory management to review the laboratory’s quality system and examination activities to ensure their continuing suitability and effectiveness and to access changes or improvements [QAPM].

The review shall include:

- Verification of review of all controlled documents in the quality system including policies and procedures [QAPM].
- Results of all internal audits within the last year [QAPM].
- Corrective/preventive actions recorded within the last year [QAPM].
- The results of proficiency tests from the previous year [QAPM].
- Workload and changes in the volume and type of work being performed in the <Lab> [QAPM].
- Customer feedback, both positive and negative [QAPM].
- Issues and recommendations submitted by laboratory personnel relating to quality [QAPM].
- The adequacy of the organizational structure, staff training, and resources to implement the quality system [QAPM].

The annual review shall be documented by recording the minutes of the meeting, which shall be retained for at least five years [QAPM].

4.15.2 Review Findings

Findings from the management review and the actions that arise from them shall be recorded in the meeting minutes [QAPM]. Actions directed based on the management review shall be carried out within an appropriate and agreed time frame [QAPM].

5. Technical Requirements

5.1 General

The laboratory shall take account of factors affecting accuracy and reliability, including human factors, environmental conditions, method validation, equipment, and handling for items, when developing methods and procedures, in training and qualifying personnel and in the selection of equipment [LD].
5.2 Personnel

5.2.1 Competence of Personnel

Approval of the certification of trained and competent examiners shall be documented [UC]. Personnel who are undergoing training shall be appropriately supervised [LD].

Records shall be sufficiently detailed to provide evidence that staff performing particular examination procedures or using particular critical equipment have had their ability to perform those procedures formally assessed prior to performing those procedures independently [LD].

All personnel shall receive necessary training and be qualified for assigned work [UC]. Each category of testing shall have a documented training program for forensic technical personnel [UC]. The training program shall provide for maintaining the skills and expertise of personnel and provide for retraining, when needed [UC]. The training program shall cover the technical and administrative aspects of the job [UC].

For examiners, the training program shall also include training in the presentation of evidence in court [UC]. For examiners, the training program shall include the application of ethical practices in forensic sciences, a general knowledge of forensic science, courtroom testimony, and applicable criminal and civil law and procedures [UC].

A certification may require more than one competency test [UC]. For competency tests the pass/fail criteria shall be defined and documented in the test preparation documentation [UC].

When competency is evaluated by whatever means, the supervisor/designated appointee shall provide the results to the trainee [UC]. When a trainee successfully completes the competency test(s) and/or checklist for a topic area, the successful completion shall be documented and retained as a training record and the trainee is considered competent to perform tasks (perform the activity, use the tool or use the SOP) within that topic area [UC].

Each person who examines evidence shall ensure that the record of their education, training, experience, and area of expertise is accurate [All Personnel].

5.2.2 Education, Training and Skills

Laboratory management shall formulate the goals with respect to education, training, and skills of the laboratory personnel [UC]. The laboratory shall have a training program for identifying training needs and providing relevant training to personnel that includes policy and procedure information [UC]. The training program shall be documented in a training manual or other formal document for each category of testing [UC]. The effectiveness of the training shall be evaluated [UC].
Each year a determination is made of what courses are needed during the year for Examiners and Examiners in Training [Training PM]. The requirements shall then be weighed against funding available and prioritized according to the needs of the Lab [LD or designee]. Training opportunities shall be announced to all relevant personnel and methods established for individuals to request and obtain the training.

Laboratory personnel shall demonstrate a commitment to career-long learning in the forensic categories of testing which they practice and stay abreast of new equipment and techniques while guarding against the misuse of methods and technical procedures that have not been validated [All Personnel]. Personnel are required to include continuing education/training planning when setting their annual performance goals with their supervisors [All Personnel].

5.2.3 Employees and Contractors

The laboratory shall use personnel who are employed by or under contract or Memorandum of Understanding (MOU) to the laboratory [LD]. When contracted personnel are used, the <Lab> shall ensure that such personnel are supervised and competent and that they work in accordance with <Lab> policies and procedures [LD].

5.2.4 Job Descriptions

Current job descriptions for laboratory personnel shall be maintained [LD]. At a minimum, the job descriptions shall include:
- Responsibilities with respect to performing examinations [QAPM].
- Responsibilities with respect to planning examinations and reviewing results of examinations [QAPM].
- Responsibilities for reporting opinions and interpretations [QAPM].
- Responsibilities with respect to modifying examination procedures and the development and validation of new examination procedures [QAPM].
- Expertise and experience required [QAPM].
- Qualifications and training required [QAPM].
- Managerial duties [QAPM].

5.2.5 Training Records and Authorizations

Specific personnel shall be authorized to perform particular types of examinations, to issue examination reports, to give opinions and interpretations and to operate particular types of equipment [UC].

Laboratory-related training records, including update training and documentation of successfully completed competency tests, shall be retained as permanent records [LD]. These training records shall include the name of the training or competency test and the date on which the training was completed or the competency was confirmed [LD]. All update training, except the reading of a revised document, shall be documented for each person and retained as a training record [LD].
5.2.6 Technical Personnel Qualifications

5.2.6.1 Education
Personnel working in the laboratory shall meet the educational requirements specified in the job description [LD].

5.2.6.2 Competency Testing
Each employee shall successfully complete the applicable training and competency tests defined in the training program before independently performing the assigned procedures [Examiner]. For any laboratory personnel whose job responsibility includes report writing, a competency test shall include, at a minimum:
- Examination of sufficient unknown samples to cover the anticipated spectrum of assigned duties and evaluate the individual’s ability to perform the proper testing methods [Examiner].
- A written report to demonstrate the individual’s ability to properly convey results and/or conclusions and the significance of those results/conclusions [Examiner]; and
- Assessment of the individual’s knowledge of the discipline, category of testing, or task being performed [Examiner].

5.2.7 Forensic Library
The laboratory shall maintain a library that provides access to forensic science resources [LD].

5.3 Accommodation and Environmental Conditions

5.3.1 Laboratory Facilities
Laboratory facilities shall be appropriate to attain correct performance of equipment, including energy sources, lighting, and environmental conditions [LD]. The laboratory shall ensure that the environmental conditions do not invalidate results or adversely affect the required quality of any measurement. Particular care shall be taken when performing examination procedures at sites other than the laboratory [LD]. Environmental conditions that can affect the results of examinations shall be documented in the appropriate Standard Operating Procedure (SOP) [LD].

5.3.2 Environmental Conditions
If environmental conditions could affect the correctness of an examination, those conditions shall be controlled and monitored [LD]. Examinations shall be stopped when environmental conditions jeopardize the correctness of the results [LD].

5.3.3 Separation between Activity Areas
Effective separation between neighboring work areas shall be made when the activities are incompatible or could result in cross-contamination [LD].
5.3.4 Access

Access to and use of areas affecting the quality of examinations shall be controlled [LD].

5.3.4.1 Laboratory Security Policy and Procedure

Laboratory facilities shall adhere to the <Organization> Security Policy Manual where applicable [LD].

- Access to laboratory examination areas shall be granted to employees, authorized contractors, and authorized visitors only [LD]. Unescorted access to examination areas shall be restricted to designated personnel [LD]. All others shall be considered visitors and be escorted by personnel with appropriate access and authorization to escort [LD].

- All exterior entrance/exit points and the entire exterior perimeter of the laboratory shall have adequate security controls at all times [LD].

- Internal areas requiring limited/controlled access shall be controlled by keys, badge access, combination locks, or other approved access control devices [LD].

- Keys, combinations, and access control cards for areas that could reasonably be expected to affect the quality of examinations shall be issued to authorized personnel only [LD]. Individual accountability for these issued keys, combination locks, and access control cards shall be maintained [LD].

- The laboratory shall be monitored during vacant hours by an intrusion alarm or by security personnel [LD].

- Evidence storage areas shall be secured and access controlled [LD]. The storage conditions shall be such as to prevent loss, deterioration and contamination and to maintain the integrity and identity of the evidence, both before and after examinations have been performed [LD].

- Refer to Appendix B – B-3 Security

5.3.5 Good Housekeeping

Laboratories shall ensure good housekeeping [LD]. Location-specific procedures shall be prepared where necessary to ensure the quality of examinations [LD].

5.3.6 Health and Safety Program

The duties of the Health and Safety Officer shall be documented in the health and safety program documentation or in a separate job description [LD].

Note: Refer here to any health and safety documentation that your organization may have as an overarching policy to your lab.

5.4 Forensic Methods and Method Validation

5.4.1 General

Standard Operating Procedures (SOPs) shall be developed and validated for all examination procedures, technical procedures performed on evidence and calibration of examination equipment performed by laboratory personnel [LD]. As applicable, SOPs
shall address handling, transport, storage, preparation and examination of evidence to be examined [LD].

SOPs, standards, and reference data relevant to the work of the laboratory shall be kept up to date and be readily available to personnel as described in section 4.3 (Document Control) [QAPM].

Deviations from this QAM or SOPs shall be documented and approved prior to performing the deviant action [Examiner]. Deviations may only be performed by personnel currently certified in the category of testing [Examiner].

Deviations shall be categorized, validated and approved as major or minor as described in the table below [LD].

<table>
<thead>
<tr>
<th>Minor Deviation</th>
<th>Major Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Will not alter evidence, and</td>
<td>• Could alter evidence, or</td>
</tr>
<tr>
<td>• Not of extended duration, and</td>
<td>• Will be of extended duration, or</td>
</tr>
<tr>
<td>• Not used for multiple cases, and</td>
<td>• Will be used across multiple cases, or</td>
</tr>
<tr>
<td>• Results can be validated</td>
<td>• Results cannot be validated</td>
</tr>
</tbody>
</table>

If technical in nature, the request shall include an independent validation of the procedure or tool against a known sample [Examiner].

If technical in nature, the request shall include validation results for the procedure or tool, if possible, or a plan for validation [LD].

Shall be approved by appropriate supervisory level member prior to use [LD].

Shall be approved by the <Lab> Laboratory Director prior to use [LD].

All major and minor deviations shall be documented and maintained with a copy provided to the <Lab> QAPM after final approval [LD].

5.4.2 Selection of Methods

The laboratory shall select and use appropriate technical procedures to meet the needs for the customer while taking into account the nature of the evidence and the facts of the crime [Examiner]. Service request documents shall include a statement that the customer agrees that by submitting the request the laboratory will select the technical procedures needed to complete the request [LD].

5.4.3 Laboratory-Developed Methods

Validation of forensic procedures and the tools associated with them shall be a planned activity [LD]. Appropriate personnel shall be selected to perform the various duties
associated with validation testing [LD]. Personnel conducting validation testing shall be properly equipped [LD].

Refer to Appendix B – B-4 Tool Test and Validation for planning test and validation of tools.
Any issues or limitations regarding SOPs and the tools associated with SOPs shall be communicated to all potential users immediately upon approval of the tool and be documented [LD].

5.4.4 Non-Standard Methods
When it is necessary to use a method for which no SOP currently exists, the laboratory shall appropriately document the procedure steps, verify the accuracy and adequacy of those steps, and temporarily authorize the use of the procedure [LD].

SOPs shall be constructed prior to use and include:
- Appropriate identification of the procedure [LD].
- Scope, including a description of the types of items to which the procedure applies [LD].
- List of pertinent equipment, materials, and reference materials used in performing the procedure [LD].
- Description of the procedure, including information regarding:
  - Environmental conditions required [LD].
  - Affixing identification marks, handling, transporting, storing and preparation of items [LD].
  - Checks to be made before work is started [LD].
  - Checks that the equipment is working properly [LD].
  - Where required, calibration and adjustment of equipment before each use or reference to calibration procedure [LD].
  - The method of recording the observations and results [LD].
  - Criteria for acceptance or rejection [LD].
  - Data to be recorded [LD].
  - Safety measures to be observed [LD].

5.4.5 Validation of Methods
Appropriate validation studies shall be conducted on all new technical procedures and tools used for the examination of evidence [LD]. The validation shall be as extensive as is necessary to meet the needs of the given application [LD]. The laboratory shall record the results obtained, the procedure used for the validation, and a statement as to whether the procedure or tool is fit for the intended use [LD].

It is understood that small or one-man laboratories will not have the appropriate resources to do full validation type of testing. In these cases it is strongly recommended that an agreement be put in place to allow for the exchange of validation test results with
external agencies or organizations that are willing to release their reports. This arrangement should be thoroughly documented and a procedure should be put in place to document the review and approval process for the acceptance of external test results.

When a digital forensic tool is undergoing validation testing, the tool shall be evaluated on workstations, configurations, and operating systems representative of those used for examinations [Validator]. Specimens with known, well-documented characteristics and properties that are representative of casework shall be used for validation [Validator]. [Examiner]. If a validation study has been conducted by NIST or other organizations that have performed validation studies, then at the very least, verification needs to be performed and documented verifying the device works with your hardware and software configuration.

Testing of new technical procedures shall be accomplished using known data sets so that the outcome shall be known [UC]. Procedure validation shall be conducted using the standard workstations and software found in the <Lab> [UC]. A validation testing plan shall be developed to check that the procedure is suitable for the purpose intended and produces repeatable results [Tester]. If the testing does not produce the expected results, the test documentation shall be compared to the procedure tested to ensure the procedure was followed [Tester]. The results of testing shall be documented in a report [Tester]. A designated reviewer shall conduct a technical review of the test results [UC]. The review shall be documented including comments provided to the tester [Reviewer]. The final results of testing shall be submitted to the appropriate program manager or <UC> for approval/rejection [UC]. If the test report is accepted and the procedure is appropriate for the purpose, the test shall be signed as approved for issue [UC]. Test records shall include but are not limited to:

- test requests,
- data sets used,
- test notes,
- review documentation, and
- test reports with appropriate signatures [UC].

Test records shall be retained and made accessible [UC]. Minor changes to existing procedures shall be made in accordance with the QAM 4.3.3, Document Change Procedures, [UC].

Procedures and tools used for the examination of evidence shall be validated before being used on evidence [LD]. Records of the validation testing shall be retained for future reference [LD]. Each SOP shall be validated before it is authorized for use in examinations [LD].

5.4.6 Estimation of Uncertainty of Measurement

The <Lab> does not report measurements (note any exceptions to this if you have them, for example if measurements are undertaken for various equipment used in any forensic process), so the estimation of uncertainty of measurement shall not apply to any other
<Lab> work [QAPM]. If any new procedures are introduced that produce measurements that matter they shall include method(s) for estimating uncertainty of measurement consistent with each measurement that matters being reported [UC].

5.4.7 Control of Data

Calculations and data transfers made during the examination shall be subject to appropriate checks in a systematic manner and documented in the case record [Examiner].

When computers or automated equipment are used for the acquisition, processing, recording, reporting, storage or retrieval of examination data, the laboratory shall ensure that:

- Digital forensic tools are documented in sufficient detail and are suitably validated [UC].
- The integrity and confidentiality of data entry, data storage, data transmission, and data processing is protected [LD].
- Computers and automated equipment are maintained to ensure proper functioning and are provided with environmental and operating conditions necessary to maintain the integrity of examination data [LD].
- Unauthorized access is prevented for computer systems used for examining digital evidence [LD].

NOTE: Some agencies define and utilize “staging media” or “working copy” – a temporary digital storage location for use during the forensic examination process. If your agency utilizes this capability then procedures should be noted for the handling, storage and protection of these working areas. Additionally, policies pertaining to how long evidence data can be stored, in either open or locked storage, should be addressed.

Below is example text to provide an understanding of what is being sought here:

Staging media and/or working copies shall be properly protected and labeled [Examiner] and must be treated and protected per <Lab> <reference your agency/lab security and evidence marking procedure>. Staging media does not require a chain of custody [Examiner]. When the examination is complete, the staging media shall either be forensically wiped, SAN volume deleted, or other network attached storage deleted [Examiner]. If staging media is retained it shall be labeled [Examiner].

Evidence data shall not be retained in short term storage or on staging media longer than 90 days unless under active examination [Examiner]. For evidence data to be considered under active examination there shall be a justifiable expectation of frequent examination [UC].

Under certain circumstances, evidence data not under active examination may be authorized for longer retention, such as evidence retained in secure databases for comparisons (i.e., voice database), for review (i.e., SAN, case review stage), awaiting the
approval of a new method or software or court authorized use for training [UC]. Cases with major case designation shall be considered under active exam and may be retained for more than 90 days as necessary [Examiner].

If retention of evidence data not under active examination is required beyond 90 days, the examiner shall submit a request for authorization to the [UC] and the <Lab> QA Office (prior to the expiration of the 90 days) [Examiner]. Each <unit chief> shall ensure that a method is devised to identify inactive cases on staging media (longer than 90 days) and that reviews are conducted to ensure that only authorized data is retained on staging media [UC].

Removable media used for staging media shall show traceability back to the evidence [Examiner].

5.5 Equipment

5.5.1 Laboratory Equipment

The <LAB> shall be furnished with equipment for conducting examinations. [LD]. If equipment outside the <LAB> permanent control is used, it shall meet the <LAB> requirements [LD].

5.5.2 Performance Verification and Calibration

Critical equipment that has a significant effect on the results and compares to a standard, such as some audio / video, signal and spectrum equipment, shall be calibrated [LD]. Other critical equipment shall undergo performance verification at a pre-determined interval [LD].

5.5.2.1 Calibration

Critical equipment that requires calibration shall undergo calibration:

- Before first use [Examiner].
- After undergoing repair or maintenance [Examiner].
- If calibration due date has been exceeded. [Examiner]

5.5.2.2 Performance Verification

Each laboratory shall have written procedures for performance verification of all items on the critical equipment list [QAPM].

All critical equipment not requiring calibration shall undergo performance verification:

- Before first use [Examiner].
- After undergoing repair or maintenance [Examiner].
- As scheduled by the Laboratory Director [Examiner].
5.5.3 Operators and Instructions

Critical equipment shall be operated by authorized personnel [LD]. Up-to-date instructions on the use and maintenance of critical equipment (including any relevant manuals provided by the manufacturer of the equipment) shall be readily available for use by the appropriate laboratory personnel [LD].

5.5.4 Unique Identification

Each item of critical equipment shall have an identifier that is unique within the laboratory [LD]. Software used in examinations shall be uniquely identified by manufacturer, software name, and version [Examiner].

5.5.5 Equipment Records

Records shall be maintained for each item of critical equipment [QAPM/Examiner]. The records shall include:

- Identity of the equipment [QAPM/Examiner].
- Manufacturer’s name and model number [QAPM/Examiner].
- Serial number or unique identifier [QAPM/Examiner].
- Performance verification interval [QAPM/Examiner].
- Preventive maintenance interval, as applicable [QAPM/Examiner].
- Current location [QAPM/Examiner].
- The manufacturer's instructions, if available or reference to their location [QAPM/Examiner].
- Date and result (i.e., pass, fail, or specific value if applicable) of the most recent performance verification [QAPM/Examiner].
- As applicable, date of maintenance performed, including a description of any adjustments or repairs made [QAPM/Examiner].
- For items requiring calibration:
  - Calibration interval [QAPM/Examiner].
  - Date of the calibration [QAPM/Examiner].
  - Result of the calibration [QAPM/Examiner].
  - Reference used for calibration [QAPM/Examiner].
  - Due date for the next calibration [QAPM/Examiner].

The equipment used for an examination shall be uniquely identified in the examination documentation [Examiner].

5.5.5.1 Record Retention

Critical equipment records shall be retained permanently [LD].

Calibration records that provide traceability from the measurement standard to the critical equipment shall be retained permanently [LD].
5.5.6 **Handling and Maintenance of Measuring Equipment**

If a laboratory has measuring equipment, it shall have procedures for safe handling, transport, storage, use and planned maintenance of measuring equipment to ensure proper functioning and in order to prevent contamination or deterioration [LD].

Measuring equipment shall be handled, transported, stored and used in accordance with manufacturer’s recommendations [Examiner]. Planned maintenance of measuring equipment shall be carried out as recommended by the manufacturer’s manual(s) and the interval noted in the critical equipment list [UC]. Specifics on use of measuring equipment for examinations shall be as specified in the appropriate examination SOP [UC].

Maintenance of measuring equipment may be performed by qualified vendors or laboratory personnel [UC]. Vendors performing maintenance on measuring equipment should have appropriate certifications/registrations/training specific to the equipment being serviced [UC].

Laboratory personnel performing maintenance on measuring equipment shall be appropriately trained, and shall use applicable procedures [UC]. When measuring equipment cannot be properly calibrated, fails to meet the performance requirements, or produces suspect results, that item shall be removed from service and labeled, and/or segregated to prevent inadvertent use until corrective maintenance is performed [Examiner]. Only when it is shown by calibration or test to perform correctly shall the measuring equipment be returned to service [Examiner]. Corrective maintenance shall be documented in the maintenance records for measuring equipment [Examiner].

5.5.7 **Defective Equipment**

When critical equipment cannot be properly calibrated, fails to meet performance verification, or produces suspect results, that item shall be removed from service and labeled, and/or segregated to prevent inadvertent use [Examiner]. Only when it is shown by calibration or performance verification to perform correctly shall the equipment be returned to service [LD].

The laboratory shall determine the effects of the defect or departure from specified limits, if any, on examination results and implement non-conforming work procedure, see Section 4.9, when necessary [LD].

5.5.8 **Calibration Labels**

Critical equipment requiring calibration shall be suitability marked or otherwise identified [QAPM]. The label shall include the:

- Date of last calibration [QAPM].
- Calibration status [QAPM].
- Due date for the next calibration [QAPM].
5.5.9 Critical Equipment That Leaves Laboratory Control

After being relocated or transported outside the control of laboratory personnel, critical equipment shall have its calibration status checked or be performance verified prior to use in the laboratory [Examiner].

5.5.10 Performance Verification and Calibration Procedure

5.5.10.1 Performance Verification

The procedure used for performance verification shall be documented and readily available to personnel using the equipment [QAPM]. Each unit shall have written procedures for performance verification (except POST) of all items on the critical equipment list [UC]. All performance verification procedures shall be controlled documents [UC]. The Controlled Documents Master Lists for <applicable units> shall document performance verification documents that exist for each unit [UQC].

5.5.10.2 Calibration

Performance verification shall be used between scheduled calibrations for measuring and test equipment requiring calibration to further ensure accuracy and validity of the results [Examiner].

5.6 Measurement Traceability

5.6.1 Calibrating Equipment

Critical equipment requiring calibration shall

- Have an established calibration interval not less stringent than manufacturers’ recommendations [QAPM].
- Have proof of calibration before being put into service [QAPM].
- Be calibrated following substantial maintenance [QAPM].

Units using reference collections for comparison or interpretation purposes shall document, uniquely identify and properly control these collections [UC].

5.7 Sampling

Sampling does not apply to <Lab> examinations [QAPM].

5.8 Handling Evidence

5.8.1 Evidence Procedures

The laboratory shall have procedures for the transportation, receipt, handling, protection, storage, retention and/or disposal of evidence items, including all provisions necessary to protect the integrity of the evidence item, and to protect the interests of the laboratory and the customer [LD].
A “chain of custody” record shall be maintained from the time of receipt and reflect all internal transfers as well as receipt into and transfer out of laboratory control [All Personnel]. The record shall detail:

- The name and signature, or equivalent identification, of each person, or name of the location taking possession of an item of evidence [All Personnel].
- The date of receipt or transfer [All Personnel].
- A description or unique identifier for the evidence [All Personnel].

When evidence is subdivided, sub-items, including derivative evidence (DE) results of examination and DE which is subject to or is necessary for additional testing or examination in order to meet a specific service request, shall be tracked through a documented chain of custody record to the same extent that original evidence is tracked [Examiner]. For imaged computer evidence, at least one copy of the image shall be treated as DE [Examiner]. Regardless of whether it is treated as formal DE, the case record shall include conspicuous documentation of the fact of creation, creator's identity, date of creation, hash, and disposition of any copy of evidence, portion of evidence, or any item derived from evidence-(including all copies made for intelligence, discovery, triage, preview or other non-forensic purposes) [Examiner]. Disposition shall include the receipt by an identified requestor or third party or the destruction of the DE or copy (e.g., wiping) [Examiner].

All forensic examiner certified personnel authorized to do so, shall make copies as requested and conspicuously document in both the activity and communication log and Report of Examination the number of copies and to whom the copies were given [Examiner]. If the copy is requested outside of a typical examination where a Report of Examination shall be generated, at a minimum, an abbreviated report shall be issued, to include disposition of the additional copies [Examiner]. The copies shall be labeled in accordance with paragraph 5.8.2 [Examiner]. Personally identifiable information such as social security numbers, telephone numbers, bank account numbers, and medical records shall be protected in accordance with federal law [Examiner]. The requestor shall be responsible for the disposition of these copies [Requestor]. However, absent the field office's election to adopt a policy to the contrary, these additional copies shall not be placed into evidence control [Examiner].

The laboratory shall ensure that evidence accepted and stored in the laboratory is properly sealed [LD].

5.8.2 Identification System

The laboratory shall use a unique identifier for the submission traceable to the case identification number to ensure uniqueness and traceability to the request [Examiner]. A listing of items received, including an adequate physical description of each evidential item, shall be included in the case record [Examiner]. The physical description shall include sufficient information for the item to be recognized as described [Examiner].
5.8.3 Evidence Abnormalities

Upon initial receipt of evidence in the laboratory, the shipping container and/or evidence container condition, if damaged, shall be documented in the case record [Examiner]. Discrepancies between the documentation and the physical items received shall be noted and resolved, if possible [Examiner]. If the damage to the evidence is significant it shall be photographed [Examiner].

5.8.4 Avoiding Deterioration, Loss or Damage

5.8.4.1 Sealing and Storage of Evidence Not in Process of Examination

Evidence shall be stored, secured, and/or sealed to prevent loss, cross-transfer, contamination, or deleterious change [LD]. Each laboratory shall have procedures for storing, securing, handling and preparing evidence [LD]. Procedures shall address the proper handling and storage of valuable, dangerous, hazardous, drug, and classified evidence [LD].

The seal may be accomplished in many ways such as tamper evident tape, lock, or heat seal [ECT]. The seal shall be marked to document the person sealing the evidence [All Personnel]. If tape is used, the seal shall be marked across the tape to the substrate [All Personnel].

Any evidence not in the process of examination shall be stored under proper seal [Examiner] in an Evidence Control Facility (ECF) [LD]. The seal itself shall be sufficient to prevent the possibility of the item(s) contained from being lost or removed without altering the seal or from being contaminated by outside sources so as to alter the integrity of the evidence [Examiner]. If a container is used, the container shall be appropriately sealed, protected and marked when the evidence is placed in storage [Examiner]. Convenience containers shall not require "proper seal" if all evidence items in the container are properly sealed [Examiner]. If improperly sealed evidence is received by the laboratory, it shall be properly sealed before being stored in the laboratory [All Personnel].

See Appendix B; B-1 Processing a Request for Examination, Appendix B; B-2 Case Assignment, Appendix B; B-3 Security, Appendix B; B-5 Shipping Evidence, and Appendix B; B-6 Inventorying and Identifying Evidence.

5.8.4.2 Procedure for Securing Unattended Evidence

Short-term storage shall be used only if the evidence is in the custody of an examiner or technician and the examination is not complete [Examiner]. Those items shall be considered under active examination [Examiner]. Short-term evidence storage space shall be assigned to a single person who shall be the only person with means to unlock the space, except for emergency access [LD]. If emergency access
procedures are defined for short-term evidence storage spaces, access to keys or combinations must be limited to a documented list of people and each emergency access event documented [LD]. Short-term evidence storage space shall be clearly labeled with the word “Evidence” or similar, and the name of the assigned person [LD]. If there are multiple items or cases in short-term storage, appropriate measures shall be taken to prevent the commingling of the items [Examiner]. Unattended evidence which is in the process of examination in the laboratory shall be secured in short-term storage or labeled with an evidence placard [Examiner].

Original evidence shall be returned to the ECF on or before the date the final report is complete [Examiner].

5.8.4.3 Evidence Marking

Each item of evidence shall be marked for identification in such a manner as to ensure that it is uniquely identifiable and traceable to the unique case number [Examiner]. Each item of evidence shall be marked with the handwritten initials of the examiner who processes it, or in the case of derivative evidence, creates it [Examiner]. For evidence that is classified or may be classified, <Organization> and national standards for marking classified information shall apply [Examiner]. If the evidence does not lend itself to marking, its proximal container or identifying tag shall be marked [Examiner].

5.8.4.4 Collection of Photographic Evidence

When evidence can only be recorded or collected by photography, the photograph shall be treated as evidence [Examiner].

5.8.4.5 Evidence Collected from a Crime Scene

Where possible, items seized as evidence from a crime scene shall be provided to a sworn law enforcement officer for transport to an evidence facility [Examiner]. If items seized as evidence from a crime scene must be removed and transported by an examiner, they shall be appropriately identified, packaged and entered into the evidence control system as soon as practical [Examiner]. Items seized as evidence and removed from a crime scene by laboratory personnel shall be protected from loss, cross transfer, contamination and/or deleterious change, whether in a sealed or unsealed container, during transportation to an evidence facility [Examiner]. Where appropriate, further processing to preserve, evaluate, document, or render evidence safe shall be accomplished prior to final packaging [Examiner].

5.8.4.6 Characteristic Databases

The <Lab> does not maintain any individual characteristic databases, so additional requirements for them shall not be specified [QAPM].
5.9 Assuring Quality of Examinations

5.9.1 Monitoring Validity of Examinations

The laboratory shall monitor the validity of examinations results [LD]. This monitoring shall be planned and periodically reviewed and may include, but is not limited to:

- Technical and administrative reviews [LD].
- Annual proficiency testing for examiners and technical personnel [LD].
- Annual quality audit of a sampling of case records and reports [QAPM].

Appropriate controls and standards shall be specified in the technical procedures and their use recorded in the case record [LD].

5.9.2 Quality Control Data Analysis

Quality control data other than proficiency test results found to be outside pre-defined criteria shall be analyzed and the results reviewed by the appropriate personnel [UC]. Case record reviews shall be conducted at least annually and the results of the review shall be analyzed for any trends noted in the data collected [QAPM].

5.9.3 Proficiency Testing

Proficiency testing shall be used to monitor the laboratory’s performance as well as identify areas where improvement may be needed [LD]. Proficiency tests, or the relevant portions, shall be completed using the laboratory’s technical procedures [Examiner]. Internal proficiency tests shall specify in instructions whether confirmation, technical review and administrative reviews are to be conducted, and, if they are conducted, whether changes may be made to examination documentation or results based on those reviews [LD]. For external proficiency tests, confirmations and administrative reviews shall be conducted and appropriate changes made to examination documentation and results based on those reviews [LD].

Refer to Attachment B – B-7 Internal Proficiency Tests.

The laboratory proficiency testing program shall comply with required proficiency review programs as applicable [LD].

5.9.3.1 Annual Testing

Each examiner and technical person assigned to the laboratory, individually or as a team, shall complete in each calendar year one internal or external proficiency test in each category of testing in which he or she routinely performs laboratory case work [LD]. The date on which the proficiency test was distributed shall determine the calendar year for which the test is applicable [LD]. The list of technical procedures to be tested for each internal proficiency test for each category of testing shall be determined and documented [LD].
5.9.3.2 **External Proficiency Testing**

For at least one applicable category of testing, at least one external proficiency test shall be completed by the laboratory each calendar year to determine the laboratory's capability [LD]. That test shall be obtained from an approved provider, if available [LD]. The test provider must be one approved by the accrediting body. If not seeking accreditation, the LD can approve any external agency to serve as the approved provider.

5.9.3.3 **Proficiency Test Records**

Proficiency Test records shall be retained for:

- Internal proficiency test planning, preparation, and execution [LD].
- Proficiency test submissions and results for individual examiners [LD].

At a minimum, the following internal proficiency test planning, preparation and execution records shall be retained at <Lab> headquarters:

- Test set identifier, including category of testing, and how samples were obtained or created [LD].
- Tracking of test set identifier provided to each tested examiner [LD].
- Date each test was sent to the examiner [LD].
- Date each test was returned for grading [LD].
- Indication of results for each tested examiner [LD].
- If remediation was required, details of the corrective actions taken [LD].

At a minimum, the following proficiency test submission and result records shall be retained for individual examiners in their respective laboratory:

- Originals or copies of all data and notes supporting the conclusions [LD].
- For external proficiency tests, a copy of all materials sent to the provider for evaluation, as well as any remaining test materials, shall be retained until the test is successfully completed and results returned by the vendor [Examiner].
- Proficiency test results [LD].
- If acceptable results were not achieved, documentation of discrepancies noted and corrective actions taken [LD].
- Documentation that results were communicated to the examiner [LD].

Proficiency test preparation documents shall be retained for at least five years [LD]. Individual results for proficiency tests shall be retained permanently [LD].

5.9.4 **Technical Review of Results**

5.9.4.1 **Procedure for Technical Reviews**

A minimum of ten percent of cases for each examiner shall have been technically reviewed, calculated for a one year period [LD]. A technical review shall ensure that:

- Appropriate examinations have been performed [Technical Reviewer].
The procedures performed are documented in the examination documentation and the report [Technical Reviewer].

If applicable, opinions and confirmations are properly documented [Technical Reviewer].

If deviations were made, they are properly documented [Technical Reviewer].

The legibility, detail, and completeness of the examination documentation is such that, in the absence of the examiner, another competent examiner or supervisor could evaluate what was done and interpret the data [Technical Reviewer].

The report is consistent with the examination documentation [Technical Reviewer].

The results are supported in the examination documentation [Technical Reviewer].

The results are within the limitations of the discipline [Technical Reviewer].

If results are supplied electronically on media, the media is spot-checked to verify it is viewable [Technical Reviewer].

Upon completion of the technical review, whether full or partial, the reviewer shall indicate in some fashion such as signature or initials, date, and print the name on a form containing at a minimum the elements of the technical review (See Form A-6 in Appendix A, as guide) [Technical Reviewer]. If the technical reviewer indicates discrepancies, insufficiencies, or inaccuracies, corrections shall be made or the issues brought to the attention of laboratory management [Technical Reviewer].

5.9.4.2 Procedure for Confirmation of Identification, Elimination or Association

In units where expert opinions or conclusions are rendered, at least one other certified examiner shall provide a confirmation [Confirmer]. If the specimens do not meet minimum criteria in order to perform a comparison or analysis (e.g., insufficient quality), a conclusion cannot be rendered; therefore, only a technical review shall be required [Examiner].

Additional data (e.g., photographs, spectrograms, and/or waveforms) may be created if requested, for purposes of completing the confirmation, but the examination need not be redone [Confirmer]. The confirmation shall be documented in the examination notes either where the examiner documented his/her conclusion(s) or where he/she describes the conclusion(s) being confirmed [Confirmer]. Additional notes taken in conducting the confirmation shall also be retained in the case notes [Confirmer]. The examiners’ opinions, interpretations and/or conclusion(s) shall be identified as such in the Report of Examination [Examiner].

All examination results requiring a confirmation also require a technical review [Examiner]. The confirmation and technical review may be conducted by separate individuals or the same individual if that individual is currently certified and proficient. [UC]

Technical reviews shall be conducted by individuals whether housed internally or externally in the agency but having expertise gained through training and experience.
in the category of testing being reviewed and not be any examiner who participated in the examination [Technical Reviewer].

At a minimum, ten percent of cases shall undergo a technical review annually. For a single examiner lab, this may be accomplished by creating a partnership with another agency providing the same services with an agreement to perform this review. The partner lab should have the same ability to recommend to the management of the lab undergoing the technical review, changes and highlight potential issues with casework. The details of the partnership should be clearly documented and maintained on file. Additionally, the frequency of the review, the method upon which the data/results shall be provided for review and a confidentiality agreement between both entities shall be clearly defined and documented.

5.9.5 Administrative Review of Results

5.9.5.1 Procedure for Administrative Review

An administrative review shall be completed prior to the release of any report of examination [Examiner]. Administrative reviews shall be conducted by laboratory personnel other than the examiners who participated in the examination [Examiner]. This person is not required to possess the same level of competence as the examiner.

The administrative review shall verify that:

- The case record contains the administrative items in 4.13.1.2, as applicable [Administrative Reviewer].
- The case record contains the examination items in Section 4.13.1.2, as applicable [Administrative Reviewer].
- The report is understandable and completely filled out [Administrative Reviewer].
- A technical review has been completed, if appropriate, and properly documented [Administrative Reviewer].

Upon completion of the administrative review, the reviewer shall in some fashion such as signature or initials, date, and print their name on a form containing at least the following information:

[Administrative Reviewer]. If the administrative reviewer indicates discrepancies, insufficiencies, or inaccuracies, corrections shall be made or the issues brought to the attention of laboratory management [Administrative Reviewer].

5.9.6 Monitoring Testimony

Laboratory personnel who provide testimony in a courtroom as a function of their current position shall have their testimony monitored at least once per calendar year [QAPM]. Laboratory court testimony monitoring records shall indicate those examiner(s) who did not testify during a calendar year [QAPM].
Court testimony shall be monitored by one of four methods: direct observation (internal evaluation); external evaluation by court official; audio/video recording; or court transcript [LD]. For each testimony, a determination shall be made as to whether the testimony is to be monitored and, if so, the monitoring method to be used [LD]. If the Laboratory Director is to testify, a determination shall be made as to whether the testimony is to be monitored and, if so, the monitoring method to be used [LD]. If no direction is provided in a particular case, the default shall be that the testimony is monitored via external evaluation by a court official and the testifier is responsible for providing the relevant form to an appropriate official such as the prosecuting attorney [Examiner]. The observation made by the monitor shall be documented on a form containing at a minimum the elements of testimony review to record the evaluation [Examiner] (see Figure 4 or Figure 5 in Appendix B as a guide). The results of the evaluation shall be provided to and reviewed with the person monitored [LD]. The manager and that individual shall both sign the evaluation form to document that the review was done [LD].

If unsatisfactory conditions are stated, appropriate steps shall be taken to verify the information [LD]. If, after investigating the assertion of unsatisfactory performance and hearing the testifying individual's response to the assertion, a determination is made that the unsatisfactory rating is valid, improvement actions shall be initiated [LD]. The relevant Unit Chief shall be notified of any examiner’s unsatisfactory performance identified through the evaluation process [LD].

5.9.7 Retaining Records of Testimony Monitoring

Completed court testimony monitoring forms shall be submitted to the LQM [LD]. Court Testimony Monitoring Forms shall be retained for at least five years [QAPM].

For <Organization> employees only - Within one year following the subsequent Performance Appraisal Report (PAR), any Internal Evaluation of Testimony Form shall be sent to the individual's Official Personnel File, and a copy of that form with the performance-related information redacted be retained in the laboratory for at least five years [QAPM].

5.10 Reporting Examination Results

5.10.1 General

Laboratory reports and supporting documentation shall be complete and accurate [LD]. Once a laboratory or submission number is assigned to a request for examination, a report shall be issued addressing the customer’s request [Examiner]. The report shall be generated on hard copy, signed by the certified Forensic Examiner (FE), and distributed to the requestor [Examiner]. The only exception is when a report is not to be issued for administrative reasons (e.g., the request is cancelled prior to inventory and the requestor does not request a report) [Examiner]. The examination report shall present the results of the examination in a manner that is accurate, concise, clear, and objective [Examiner].
5.10.2 Examination Reports

The report shall be documented by completing all fields in <Organization> Figure 1, Laboratory Report of Examination (<Lab> REX) found in Appendix A, which contains:

a. The title REPORT OF EXAMINATION [Examiner].
b. Name and address of the laboratory and the location where the examination was carried out, if different from the address of the laboratory [Examiner].
c. Each report shall be uniquely identified [Examiner]. The <Organization> case identifier, unique report identifier, and page accountability shall be included on each page [Examiner].
d. Name and address of the customer [Examiner].
e. Type of exam [Examiner].
f. Submitted specimens shall be listed by the laboratory’s assigned unique identifier with a physical description of each item and whether each was examined [Examiner].
g. Date items received and date the report is final [Examiner].
h. List of procedures performed [Examiner].
i. Examination results [Examiner].
j. Name, unit, and signatures of certified forensic examiner(s) [Examiner].

5.10.3 Examination Reports and Deviations from Standard Procedures

Deviations from standard procedures, where necessary for the interpretation of test results, shall be included in the examination report [Examiner].

Where appropriate and needed, opinions and interpretations shall be included in the examination report and identified as such [Examiner].

5.10.3.1 Procedure for Controlling the Release of Reports

Case-specific information is for official use only and shall not be released to anyone but the submitting organization unless otherwise authorized by the submitting organization, or the Lab Director (or his designee) in cases involving exigent circumstances [All Personnel]. Release to anyone but the submitting organization shall be documented and that documentation retained in the case record [Examiner].

For <Organization> laboratories the approved signed report shall be issued only after it has been reviewed, uploaded, and serialized [Examiner]. [Examiner].

Release of preliminary results without a report shall be avoided, but when necessary:

- Documented approval by the Laboratory Director shall be obtained [Examiner].
- Approval documentation for the release of preliminary results shall be retained in the case documentation [Examiner].
- The customer shall be informed that a comprehensive review has not yet been completed and the final results may be subject to change as a result of the review [Examiner].
• Communication with the customer regarding the release of preliminary results shall be documented [Examiner].

Absent the adoption of a contrary policy by the laboratory, there shall be only one signed original examination report [LD].

If a confirmation review is required pursuant to laboratory policy, examiners shall not provide final results to the customer until a confirmation review has been conducted [Examiner]. If the customer is provided final results after the reviews have been conducted but prior to issuing the report it shall be documented [Examiner].

Laboratory personnel who sign reports based on examination documentation generated by another person shall review and initial each relevant page of examination documentation [Examiner]. Laboratory personnel who provide testimony based on examination documentation generated by another person shall complete and document the review of all relevant pages of examination documentation in the case record [Testifier].

When associations are made, the significance of the association shall be communicated clearly and qualified properly in the report as opinions [Examiner]. When comparative examinations result in the elimination of a suspected individual or object, the report shall clearly communicate the reason for the decision [Examiner]. When no definitive conclusions can be reached (e.g., results are “inconclusive”), the reason shall be clearly communicated in the report [Examiner].

If additional copies of an already issued report are requested, the request and authorization(s) shall be documented in the case record along with the name of the person responding to the request, unless the request is from an internal agency entity and the issued report had been uploaded to an electronic case file. [Examiner]. A copy of the report on file shall be generated [Examiner]. Relevant information pertaining to the request shall be documented to include: the requestor’s name and title, office, date and purpose for the request [Examiner].

If the request is from someone other than the customer as indicated on the “to” line of the report, the customer shall be notified and the approval documented on the activity and communication log [Examiner]. Only hard copies of the report shall be provided. No electronic copies shall be distributed unless a facsimile or scanned hard copy [Examiner].

5.10.4 Calibration Certificates

This section does not apply to the <Organization> Digital Evidence Laboratory.
5.10.5 Opinions and Interpretations

When opinions and interpretations are included, the laboratory shall document the basis upon which the opinions and interpretations have been made [Examiner]. Opinions and interpretations shall be clearly marked as such in the test report [Examiner].

If opinions or interpretations are communicated by direct dialogue with the customer, the dialogue shall be documented [Examiner].

5.10.6 Examination Results Obtained From Subcontractors

This section does not apply to the <Organization> Digital Evidence Laboratory.

5.10.7 Electronic Transmission of Results

If test results are transmitted by telephone, telex, facsimile or other electronic or electromagnetic means, the appropriate requirements of Section 5.4.7 Control of Data shall be met [Examiner].

5.10.8 Format of Reports

The format of the laboratory report shall be that specified in Figure 1 <Lab> Report of Examination [Examiner].

5.10.9 Amendments to Examination Reports

Material amendments to reports after issue shall be made only in the form of an additional report [Examiner].
Appendix A: Forms


The forms should be available by download within the file titled “QAM Forms.zip”. This file should be co-located with this model QAM within the documents area. If you cannot locate the zip file, please contact the executive secretary at Secretary@swgde.org.
A-1: <Lab> Report of Examination (REX)

Figure 1: REPORT OF EXAMINATION
Disposition of Evidence:

This section describes what the examiner did with the evidence. All items listed in the Specimen section must be addressed here.

Examiner: ____________________________
(Type your official name here.)

Division Name
Forensic Unit Name

Case Identifier number
N/A or Lab No.
Page 2 of 2

For Official Use Only
A-2: Quality Action Request

Figure 2: QUALITY ACTION REQUEST
<table>
<thead>
<tr>
<th>Step Description</th>
<th>Responsible Manager's Signature Agreeing to Action Steps</th>
<th>Date Agreed to Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>List the steps to resolve the problem from occurring again.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Use Only (completed by Quality Assurance Manager):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Manager's Signature Verifying All Actions Complete:</td>
<td>Date All Actions Complete:</td>
<td></td>
</tr>
<tr>
<td>Describe how and when effectiveness of the action will be verified:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Manager's Signature Verifying Effectiveness of Actions:</td>
<td>Date Effectiveness Verified:</td>
<td></td>
</tr>
<tr>
<td>Quality Manager's Signature Verifying Close Out:</td>
<td>Date of Close Out:</td>
<td></td>
</tr>
</tbody>
</table>

After completion of the form, it must be filed and retained.
### A-3: Administrative Review Form

**Figure 3: ADMINISTRATIVE REVIEW**

<table>
<thead>
<tr>
<th>Case record contains the following ADMINISTRATIVE documentation items, as applicable:</th>
<th>Yes</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service request document</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal authority, or documentation of review, or explanation of non-review</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chain of custody records for all original and derivative evidence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Record of technical review</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete activity and communication log</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If preliminary results released, approval for preliminary results release</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report of Examination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return shipping invoices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical service vendor service request and results documentation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Case record contains the following EXAMINATION documentation items, as applicable:**

- Notes of examination, including worksheets
- If confirmation required, documentation of confirmation
- Photographs taken to support examination, charts, data, and records
- Tool-specific reports and log files (either printed or electronic)
- Corrections are initialed
- Each page contains unique identifier (Case or Lab ID)
- Each page contains initials of examiner(s) responsible for processes on that page
- The total number of pages of EXAMINATION documentation is reported

**Case record contains the following documentation items in each ADMIN or EXAM section, as applicable:**

- Photographs taken as administrative practice
- Technical information from hardware/software manufacturers
- Technical information from critical service vendors
- If request discontinued, documentation is retained and report reflects that

**Additional Items**

- Report of Examination form is completely filled out
- Report of Examination is understandable
- Case record cover filled out properly
### A-4: External Evaluation of Testimony

**Figure 4: EXTERNAL EVALUATION OF TESTIMONY**

<table>
<thead>
<tr>
<th>To be filled in by Agency Testifier</th>
<th>Section/Unit or Office/Squad:</th>
<th>Type of Examination(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Testifier:</td>
<td>Case ID:</td>
<td>Laboratory ID (optional):</td>
</tr>
<tr>
<td></td>
<td>Name of Defendant:</td>
<td>Testimony Date:</td>
</tr>
</tbody>
</table>

**For Agency Use Only - Use to Document Review of Results with the Testifier and the Testifier’s Supervisor**

- Date Completed Form Received: 
- Testifier’s Supervisor (printed name): 
- Testifier’s Supervisor (signature): 
- Date: 
- Testifier (signature - sign the day you review the results with your supervisor): 
- Date: 

**To be filled in by court official evaluating testimony**

The agency has established a program for the evaluation of courtroom testimony provided by its personnel. This questionnaire requests information regarding the quality of testimony presented by the individual to the case listed below. This document is for internal evaluation purposes only. Your careful comments and observations are greatly appreciated.

<table>
<thead>
<tr>
<th>Court Official (printed name):</th>
<th>Court Official (signature):</th>
<th>Date:</th>
</tr>
</thead>
</table>

**To be filled in by court official evaluating testimony**

- Courtroom demeanor
- Personal appearance
- Promptness
- Ability to communicate results
- Ability to maintain composure
- Use of visual aids (if applicable)
- Overall performance

Comments:

---

**SWGDE Model Quality Assurance Manual for Digital Evidence Laboratories**

Version: 3.0 (September 13, 2012)

This document includes a cover page with the SWGDE disclaimer.

Page 89 of 125
**A-5: Internal Evaluation of Testimony Form**

![Internal Evaluation of Testimony Form](image)

**Figure 5: INTERNAL EVALUATION OF TESTIMONY**
A-6: Technical Review Form

Figure 6: TECHNICAL REVIEW
A-7: Deviation Request Form

Figure 7: DEVIATION REQUEST
Figure 8: CHAIN OF CUSTODY LOG
<table>
<thead>
<tr>
<th>Item(s) Received</th>
<th>Delivered By</th>
<th>Accepted By</th>
<th>Date</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

Case or Lab ID: 

Chain-of-Custody Page ___ of ___
For Major Deviations Only:

1st Reviewer Name and Title (Unit Supervisor or Laboratory Director):

1st Reviewer Signature: __________________________ 1st Review Date: __________________________

(Optional) Quality Assurance Reviewer Name, Signature and Date:

Final Review and Approval (Unit Supervisor or Lab Director for Minor; Lab Director for Major):

Reviewer Name and Title:

Reviewer Signature: __________________________ Review Date: __________________________

Decision:

☐ Approved  ☐ Denied

Approval limitations:

A copy of the completed form must be supplied to the Laboratory Quality Assurance Program Manager for both Minor and Major Deviations. Fax to <fax number>.
Figure 9: CHAIN OF CUSTODY CONTINUATION
<table>
<thead>
<tr>
<th>Item(s) Received:</th>
<th>Delivered By</th>
<th>Accepted By</th>
<th>Date</th>
<th>Remarks</th>
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<tr>
<td>Case or Lab ID:</td>
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</tr>
</tbody>
</table>

Chain-of-Custody Page of
Appendix B: Administrative Procedures

The following procedures are defined for administrative actions (non-technical).

NOTE: These model procedures will include “NOTE” entries such as this that will require modification for your agency’s specific requirements – they are not meant to be left as is.
B-1: Processing a Request for Examination

1. Purpose
This document establishes procedures for receiving and processing evidence and requests for examination in a safe and efficient manner.

2. Scope
This procedure is applicable to all evidence and requests for examination received by the <Lab>.

3. Responsibilities

3.1 <Lab> Evidence Control Technicians (ECTs)
<Lab> ECTs are responsible for receiving evidence and processing the request for examination through the following tasks:
- Initiates the form A-8, Chain of Custody Log;
- Opens shipping containers to retrieve the request for examination as necessary;
- Verifies contents of the shipping container;
- Ensures that the proper documentation and pertinent information is received and provided;
- Contacts the customer to notify receipt of evidence and to obtain any additional information necessary for processing the request;
- Assigns laboratory and specimen numbers to the request;
- Notes examination type and essential information; and
- Properly handles and stores evidence. OTD personnel other than ECTs who personally receive evidence from a customer or outside source or additional requests for examination are responsible for the following tasks:
- Initiates the form B-8, Chain of Custody Log;
- Opens shipping containers to retrieve the request for examination as necessary;
- Transfers the evidence package and/or the submitted paperwork to an ECT;
- Notifies ECT of additional requests for examination; and
- Properly handles and stores evidence.

4. Equipment – Materials (Hardware/Software)
- Box cutter
- Camera
- Dust mask
- Fume Hood
- Latex gloves
- Tamper evident tape
5. Safety

Safety equipment and materials are available if necessary for use with items that require special handling. Care should be taken when using the box cutter as the blade is extremely sharp and edges of newly cut cardboard may cause “paper cuts.” Care should be taken to store box cutters properly when not in use. If Bio-hazard labels are on the received containers or there is reason to suspect the contents contain a Bio-hazard contact the Health and Safety Group of the <Lab> for guidance, as needed.

6. Procedures

Each request for examination receives a laboratory number and is entered into the evidence control database. **NOTE: Define how your numbering system for your lab number or tracking number is constructed here.** Within the <lab> this unique number assignment is used to track requests. As a result, all evidence being received is processed through a central evidence control center (ECC). If a case is received from another entity within the lab with a laboratory number already assigned, that number shall be used. In these cases the ECT verifies steps taken by the transferring entity and completes processing the request according to the following procedures as needed.

6.1 Evidence Receipt and Handling

The ECT ensures proper control, transfer and delivery of all evidence by complying with the following:

**NOTE:** Document the detailed steps that are required by your <lab> that are necessary for the proper submission and handling of evidence. Items to consider are inspection, documentation required, arrival method, package and content verification, damage control, hazmat control, contact required with submitter, notifications to other required personnel, lab number assignments, evidence item number assignments, chain of custody, proper evidence sealing/protection/storage, items requiring non-digital examinations (specifically the proper transfer and order of those exams), database entry/tracking and who is responsible party for each step.

6.2 Processing the Request for Examination

Requests for examination from within the <lab> are usually received in the form of <required documentation or acceptable alternates>. All other requests should be submitted on agency letterhead. The ECT working with the unit designee performs the following tasks:

**NOTE:** Define the appropriate steps here to take for the processing of the request. Things to consider are contacting submitter to acknowledge receipt, obtain further required documentation such as legal authority, generation of required communication logs, types of exams being requested, evidence items needing special attention due to power requirements (for example cell phones), volatile memory or authority time restrictions, expedited cases, etc., assignment or notifications to case assignment designees, required legal reviews,
labeling of packages and submitted evidence items, case documentation preparation, and transfer to responsible party.

6.3 Subsequent Requests

NOTE: Consideration should be given to instances where items may be resubmitted for additional exams, etc. Define here any steps necessary to take in such cases. Also consider additional verbal requests for examinations not previously documented in original request and how those must be handled/documented if different.

7. Records

The following documents, if used, shall be retained in the <lab> Case record at <physical location of records> in accordance with the <lab> Case record Retention Policy:

[NOTE: These are examples provided in the model document. Replace as required with your agencies proper documentation.]

- B-8, Chain of Custody Log
- B-8a, Continuation of the Chain of Custody Log
- 7-16, Evidence Receipt
- 7-245, Activity and Communication Log
B-2: Case Assignment

1. Purpose
To ensure that all requests for examination are addressed and assigned to certified examiners as appropriate.

2. Scope
This procedure is applicable to all requests requiring case assignment for forensic examination of evidence within the lab.

3. Responsibilities
NOTE: This section should include all personnel listed by position and what their specific duties are in relation to Case Assignment.
Examples of personnel and their responsibilities are:

3.1 Unit Chief Responsibilities
A Unit Chief is responsible for:
- Ensuring that qualified examiners are promptly assigned to each appropriate request for examination;
- Designating qualified personnel to make case assignments;
- Ensuring that those making case assignments are properly trained and follow protocols;
- Determining, when needed, which requests for examination shall not be conducted; and
- Determining, when needed, how requests for examination shall be prioritized.

3.2 Case Assignment Designee
A Case Assignment Designee is responsible for:
- Determining the appropriate forensic examinations that may be conducted;
- Coordinating with the other <Lab> entities to coordinate cases where the request for examination involves both entities;
- Verifying technical issues with examiners certified and specialized in the exam requested;
- Ascertaining whether questions regarding the evidence have been resolved;
- Notifying the customer of requested examinations that are not appropriate to conduct or have limitations;
- Ensuring that the proper documentation and acknowledgment have been provided;
- Promptly assigning cases to appropriately certified examiners;
- Ensuring that examiners are promptly notified of any pertinent case related activity and/or notified of necessary precautions; and
- Ensuring that the Unit Chief(s) and Quality Assurance (QA) personnel are notified of cases needing their attention and/or knowledge.
3.3 Evidence Control Technician

The Evidence Control Technician (ECT) is responsible for:

- Notifying the case assignment designee of cases to be assigned, noting pertinent case related activity, other entity involvement and/or necessary precautions;
- Assisting the case assignment by determining if examinations had been conducted previously on the case and by whom;
- Entering case information into the appropriate databases and producing required documentation
- Notifying examiners of case assignments; and
- Notifying supervisory and QA personnel of concerns requiring their attention.

4. Equipment – Materials (Hardware/Software)

- Camera
- Shipping tape
- Latex Gloves

5. Procedures

NOTE: Define here the specific steps to procedures related to Case Assignment

5.1 Assigning an Examiner to a case:
5.2 Assigning an additional Examiner to a case:
5.3 Reassignment of Examination
5.4 Assignment/Acceptance Unclear

6. Records

The following documents, if used, shall be retained in the <Lab> Case record at <storage location> when completed:

NOTE: These are examples provided in the model document. Replace as required with your agencies proper documentation.

- The original request for examination (incoming communication)
- 7-245, Activity and Communication Log
- 18-7, ERF Shipping Invoice
- B-8 Chain-of-Custody Log
B-3: Security

1. Purpose
To establish access control and other security related procedures for the <Laboratory> in an effort to prevent unauthorized access, and ensure the security and integrity of evidence and records.

2. Scope
The following procedures supplement existing security policies and procedures and are applicable to all <Lab> personnel and forensic areas.

3. Responsibilities
NOTE: This section should include all personnel listed by position and what their specific duties are in relation to Case Assignment. Examples of personnel and their responsibilities are:

3.1 Laboratory Director
The Laboratory Director is responsible for:
- Establishment and/or review and approval of all <lab> security related protocols, practices and procedures.
- Approval of all badge/pin access to <lab> forensic areas and security systems.

3.2 Laboratory Quality Assurance Program Manager (QAPM)
The Laboratory Quality Assurance Program Manager (QAPM) is responsible for:
- Monitoring laboratory compliance with appropriate security protocols, practices and procedures.

3.3 Digital Evidence Security Manager
The Digital Evidence Security Manager is responsible for:
- Initial processing of all forensic area access requests as authorized by the <LD>.
- Compiling and maintaining all security lists to include:
  - access,
  - alarms,
  - safes,
  - evidence cabinets/containers, and
  - keys.
- Maintenance of security related forms, records and documentation.
- Ensuring <Lab> management is aware of security related issues and concerns.
3.4 Unit Chief

The Unit Chief is responsible for:

- Approval of forensic area badge/pin and visitor access to the <Lab> units.
- Approval of unit alarm access.
- Ensuring that access and internal security procedures are followed by unit personnel and by all visitors to the unit.
- Ensuring that access is promptly removed when no longer required.
- Ensuring personnel compliance with all security procedures relative to evidence handling, storage and examination/forensic area access.
- Ensuring control of back-up keys or combinations for evidence cabinets/containers.

A Unit Chief may designate appropriate personnel to have authority to perform duties associated with unit/lab security functions. However, the specific security functions delegated shall be documented and submitted to the QA Office/Security Manager.

- Complying with laboratory practices and procedures.
- Ensuring the integrity of evidence is maintained.

3.5 Unit Personnel

Unit Personnel are responsible for:

- Compliance with <Lab> and unit/forensic area security practices and procedures.
- Ensuring that access procedures and protocols are followed by all visitors.
- Ensuring the integrity of evidence is maintained.

4. Equipment - Material

NOTE: The following are suggested form types that your agency should already have in place – there are no sample documents of these types contained in Appendix A.

- Visitor Log,
- Access Log – Evidence Storage Facility,
- Security Container Form/Envelope,
- Emergency Key/Combination Access Log,
- Laboratory Access Request Form, and
- Staging Media Audit Form.

5. Procedures

5.1 Laboratory/Forensic Area Access

Proper/authorized access to <Lab> forensic areas is achieved by compliance with the following:

NOTE: Specific steps on how visitors – internal or external to you organization or lab – or new employees, etc., request visitation to the specific unit or gain access to the facility should be outlined here. Steps should begin with highest level of request process and proceed.
through all steps required to include documentation requirements, approvals needed, notifications, logging of visitors to any controlled spaces, etc.

5.1.1 Physical Security: Access Controls/Alarms

- All laboratory areas including, satellite laboratories shall have monitored alarm/intrusion detection systems and limited access controls (e.g., locked doors) for the space(s) where examinations are performed and/or evidence is stored.
- `<Lab>` evidence and forensic area alarms shall be armed/set by the last examiner or technician to leave the area/space/unit at the end of the day.
- A designated unit representative/POC shall respond to unit emergency alarm events.

5.1.2 Keys and Safe/Evidence Container Combinations

**NOTE:** This entry should document how keys or safe/evidence containers combinations should be managed – where stored, who has access to them, where copies are allowed, etc. to include any additional copies such as backup copies.

5.1.3 Evidence Security

All evidence not in process of examination must be locked in an approved storage container prior to leaving the immediate vicinity of the building.

6. Records

The following documents shall be retained by the `<UC/Units>` for a minimum of `<5>` years or one `<accrediting body>` cycle (whichever is longer):

- Evidence retention authorization documents
- The following documents shall be retained by the QA Office for a minimum of `<5>` years or one `<accrediting body>` cycle (whichever is longer):
  - `<Lab>` forensic unit alarm and access lists,
  - `<Lab>` safe and evidence cabinet/container lists,
  - `<Lab>` emergency key/combination access documentation, and
  - `<Lab>` forensic unit visitor logs.
B-4: Tool Test and Validation

NOTE: For additional reference information on establishing a Tool Test and Validation capability, refer to SWGDE’s Guidelines for Validation Testing.

1. Purpose
To document the procedures for test and validation of <Lab> tools used to conduct forensic examinations.

2. Scope
This procedure applies to internal test and validation of hardware and software tools used to conduct forensic examination. This document supplements Section 5.4.5 Validation of Methods, <Lab> Quality Assurance Manual (QAM).

3. Responsibilities
NOTE: This section should include all personnel listed by position and what their specific duties are in relation to Tool Test and Validation.

Examples of personnel and their responsibilities are:

The <Unit/entity> alone is authorized to conduct, authorize, and approve test and validation of tools used to conduct forensic examinations. Only <Unit> may grant exemptions and enter into reciprocity agreements with other agencies and entities for test and validation of tools used to conduct forensic examinations.

3.1 The <UC> or Designee
The <UC> or designee is responsible for:
- Determining appropriate testing processes and procedures of relevant functional areas.
- Editorial approval of Validation Reports.
- Ensuring personnel comply with requirements for laboratory procedure and tool validation testing practices and procedures
- Ensuring control and integrity of Validation Test Plans and Validation Reports.

3.2 Forensic Categories of Testing <UC> or Designee
The forensic categories of testing <UC> or designee is responsible for:
- Determining the testing priority for the tools in the queue for testing.

3.3 Appropriate Program Manager (PM) or Designee
The appropriate PM or designee is responsible for:
- Requesting formal test and validation, including identifying version.
- Reviewing and approving Validation Test Plans.
3.4 Test Coordinator
The Test Coordinator is responsible for:
- Interacting directly with unit personnel regarding the Test Request.
- Coordinating Kick-Off Meetings with unit personnel.
- Developing Validation Test Plans.
- Creating testing data sets.
- Reporting testing status.
- Producing Validation Reports.

3.5 Reviewer
The reviewer is responsible for:
- Reviewing written Validation Reports and supporting documentation for completeness, accuracy, and whether the testing addressed the agreed upon requirements in the Validation Test Plan.

4. Equipment - Material
Materials and equipment used to test and validate may include some or all of the following:

4.1 Hardware
- Calibration equipment
- Computer hard drives
- Previously validated and approved hardware tools
- Recording devices
- Storage media

4.2 Software
- Previously validated and approved software tools
- Software utilities
- Standard or custom data sets
- Tool training materials

5. Practices

5.1 Minor Revisions
At the discretion of the appropriate PM, minor software releases can either be submitted to <Unit> for formal test and validation or the appropriate PM can perform the test and validation. If the latter option is selected and the testing and/or evaluation to ensure that it performs satisfactorily in all functions for which it is approved for use is completed, the
respective PM is to inform the <Unit> <UC> by completing an appropriate Minor Software Revision Review and Approval Form so that summary information can be posted on the Test and Validation web site. Any issues or limitations regarding the digital tool shall be communicated to all potential users immediately upon approval of the tool, and shall be documented in the next revision of the applicable SOP(s).

5.2 Submitting Products for Formal Test and Validation

Note: Specific steps required for personnel to submit a tool for formal testing should be outlined here. Things to consider/address may be what unit request is submitted to, what documentation is required with the request, the approval process, how/who the test gets assigned for completion, how/who records results of test, how results are made available to employees etc. Also include whether your agency has agreements in place with external sources for the exchange of test results – how they are checked for your agency’s use, by whom, how approved, etc.

5.3 Kick-Off Meeting and Draft Validation Test Plan

5.4 Preparing to Test

5.5 Conducting the Validation Test

5.6 Validation Report

5.7 Approving the Tool for Use by Examiners

Test and Validation is only one consideration in the process of approving a tool for use by examiners. Other considerations include procuring the tool, balancing limitations with functionality, training examiners to use the tool and formally documenting approval of the tool. A tool is not approved for use simply because it has undergone validation testing and the test report has been accepted by the appropriate PM. The forensic category of testing Unit Chief or designee is responsible for approving tools for use and documenting that approval in appropriate locations.

6. Records

A test record shall be retained for each product for which a test is requested. The following documents, as applicable, shall be retained in the test record in either paper or electronic format:

6.1 Forms

NOTE: These are examples – replace with your agency’s documentation requirements

- Test Request Form
- Test Plan Approval Form
- Validation Report Review and Acceptance Form and reviewer comments
- Appropriate Minor Software Revision Review and Approval Form
6.2 Documents:

- Kick-Off Meeting documentation
- Validation Test Plan
- Validation Report
B-5: Shipping Evidence

1. Purpose
To ensure that all evidence transferred and shipped from the <Lab> is properly tracked and safe-guarded.

2. Scope
This procedure is applicable to all evidence being shipped and/or transferred from the <Lab>.

3. Responsibilities
NOTE: This section should include all personnel listed by position and what their specific duties are in relation to Shipping Evidence.

Examples of personnel and their responsibilities are:

3.1 Unit Chief
Unit Chiefs are responsible for:
- Ensuring that all personnel handling evidence follow appropriate protocols and procedures to safeguard the evidence.

3.2 Examination Personnel
Examination personnel are responsible for:
- Verifying to whom the evidence and copies are to be sent;
- Confirming the correct shipping address;
- Properly sealing, tracking, and transferring all evidence;
- Sealing all evidence prior to transfer and completing a Shipping Invoice;
- Documenting transfers on form A-8 Chain of Custody; and
- Placing documents in case record.

3.3 Evidence Control Technician (ECT)
ECTs are responsible for:
- Properly tracking, packaging, and transferring evidence;
- Verifying completeness of contents of items being transferred with the shipping form, the Chain of Custody (CoC), and the examiner (or designee);
- Accepting custody of evidence directly from examiner (or designee), and both sign CoC;
- Placing items and all paperwork including the CoC in an individual bin and placing bin on shipping desk;
- Verifying completeness of contents just prior to packaging for shipment;
- Packaging evidence, sealing and labeling box according to established protocols;
- Ensuring proper transfer of evidence to FedEx; and
4. **Equipment – Materials (Hardware/Software)**

- Tamper evident tape
- Latex gloves
- Box cutter
- Shipping tape
- Heat seal machine & bags
- Bubble wrap

5. **Safety**

Safety equipment and materials are available if necessary for use with items that require special handling. The ECT’s shall consult with the <Lab> Evidence Control Unit, as necessary, for questionable items.

6. **Procedure**

Specific tasks for the Shipping of Evidence and Derivative Evidence are assigned to examination personnel and Evidence Control Technicians as follows:

**NOTE:** Below are sample tasks that may get completed for the shipment/transfer of evidence. Include your agency’s specific steps – the following are high level steps provided as a sample of things to consider or steps to follow.

Each should be further delineated with specific instructions.

6.1 **Personnel Responsibilities and Procedures**

6.1.1 **Examination Personnel**

Examination personnel, to include, the examiner or designated technician, are responsible for the following tasks:

1. **Verifying to whom the evidence and/or copies are to be sent and confirming the correct shipping address on the Shipping Invoice.** Examiners shall consult the incoming request, 7-245, Activity and Communication Log and, as appropriate, the assigned examiner.

2. **Completing the Shipping Invoice.** The shipping invoice shall list all items being returned/transferred, to include as applicable, the submitted evidence (specimens), the derivative evidence, the Report of Examination and non-examined items (Nes). An accounting of items shall be reflected by a total number, such as, “TOTAL # --6--”

Customer’s custody documents are considered part of the evidence and do not receive a separate number. The original file copy Shipping Invoice is printed on yellow paper with two white copies for the customer and the Evidence Room each.
3. The Shipping Invoice (the original and all copies), the A-8 Chain of Custody Log, and all items are delivered to the ECT for shipping. The items shall be delivered in a sealed container (e.g., bag or envelope) labeled with the contents and the case identification or laboratory number. The “Delivered By” shall be completed on the custody form(s) at the actual date and time the delivery is made. The examiner or designee shall notify the ECT if the evidence or contents are extraordinary and require special consideration/handling which may be subject to the limitations of the carrier.

4. Personal delivery of evidence to the customer or the customer’s designee may also be conducted. The same forms and procedures are required as with the shipped evidence, to include, the personal delivery section of the Shipping Invoice completed to document the delivery. Prior to releasing custody, the identity of the individual accepting the evidence shall be verified. The blue copy of the shipping invoice shall be given to an ECT to document that the delivery was made.

5. The examiner shall later ensure that the completed A-8 Chain of Custody Log is included in the case file for retention. The yellow copy of the Shipping Invoice should also be included.

6.1.2 Evidence Control Technicians

Evidence Control technicians are responsible for the following tasks and shall:

1. Accept custody of the evidence on the A-8 Chain of Custody Log and verify the receipt of the total number of items as listed on the Shipping Invoice with the examination personnel.

2. Place all items, to include documentation, in an individual bin, place bin on the shipping desk.

3. Verify completeness of contents just prior to packaging for shipment by comparing with Shipping Invoice.

4. Securely wrap items in a box, seals box, and affixes designated labels, according to the <Security Management entity> requirements for shipping classified materials and the shipping carrier’s requirements.

5. Place in the package one (1) white copy of the Shipping Invoice for the customer.

6. Wrap and protect as required by classification level if any.

7. The <Lab> shall continue to use signature service through FedEx as its primary carrier. In shipping via FedEx, the ECT or approved designee shall complete the A-8 Chain of Custody to include transferring the package to “FedEx” and documenting any internal package tracking number on the Shipping Invoice.

8. The ECT shall return to the examiner the original (yellow copy) of the Shipping Invoice with completed shipping information to include the carrier’s shipping number and shall retain one white copy in <ECT unit> file.

7. Records

The Evidence Shipping Checklist is retained in the <unit> file.
The following documents shall be retained in the <agency> Case record at <record retention location> when completed:

- A-8 Chain of Custody Log
- Shipping Invoice (yellow copy)
- A-1 Report of Examination
B-6: Inventorying and Identifying Evidence

1. Purpose
This document establishes procedures to ensure that all evidence received by the <Lab> is properly inventoried and identified.

2. Scope
This procedure is applicable to all evidence received for forensic examination within the <Lab>.

3. Responsibilities
The examiner assigned a case is responsible for:
- Ensuring that a complete inventory of items received under a request for examination is conducted and corrections made, as needed, to the unique item identifiers;
- Ensuring that items received match the request for examination;
- Ensuring that the integrity of the evidence is maintained throughout the inventorying and identifying procedures; and
- Ensuring that the items received are properly identified, labeled, sealed, and stored.

4. Equipment – Materials (Hardware/Software)
- Camera
- Fume Hood
- Latex gloves
- Shipping tape

5. Safety
Safety equipment and materials are available if necessary for use with items that require special handling. The ECT’s shall consult with the <other responsible entities> as necessary, for questionable items. If Bio-hazard labels are on the received containers or there is reason to suspect the contents contain a Bio-hazard contact the <Health and Safety Group> <Lab> ECT for guidance, as needed.

6. Procedures
NOTE: Below are sample tasks that may get completed for the inventorying and identification of evidence.

Include your agency’s specific steps that each responsible party is required to complete or follow.
Once the examiner accepts custody of the evidence, the related evidence containers should be opened and the contents inventoried as soon as possible. If the examiner determines that additional specimen identifiers or corrections are needed, the Evidence Control Technician (ECT) is informed with a D-18, Correction Form and/or an internal e-mail. The ECT shall make the necessary changes any tracking databases.

6.1 Inventorying of Evidence:

Ensure that the A-8 Chain of Custody Log is properly completed. Refer to section 5.8 Handling Evidence of the Quality Assurance Manual (QAM).

1. If Bio-hazard labels are on the received containers, contact a member of the <Health and Safety Group> of the <Lab> or ECT for guidance, as needed.
2. Conduct a complete inventory of items received under the request for examination and note whether items were received properly sealed and whether they appear damaged.
   a. Determine if evidence was damaged in transit or if the customer knowingly sent damaged evidence by reviewing the request for examination, other related documentation, or through contact with the customer. Communication with the customer shall be noted on the 7-245, Activity and Communication Log.
3. Photograph or otherwise record images of the damage for case notes.
4. Verify evidence and items received against the items listed in the Request for Examination. If there is a discrepancy between what was received and what was listed in the request, which had not been previously resolved during the case assignment process, contact the customer and notify the ECT with a D-18, Correction Form and/or an internal e-mail, as needed. Document the communication on the 7-245, Activity and Communication Log.
5. Ensure that the case identification number is placed on all evidence containers. Retain the evidence container so it can be returned with the evidence upon completion of the examination.
6. Ensure that the inventory of evidence identified as either drugs or valuable is witnessed by another examiner, supervisor or ECT.

6.2 Evidence Not Inventoried

When a request for examination has been received, but cancelled by the customer prior to the evidence being inventoried, the evidence shall be returned by an ECT or Examiner with an explanation documented on the Shipping Invoice that no examinations were conducted and the evidence not inventoried.

6.3 Identification of Evidence

It is important to identify and document proper descriptions of the evidence for clarification and reference. Each item shall have a unique identifier to identify it from similar items. The unique identifier is provided by the ECT. B-1 Processing a Request for Examination and section 5.8 Handling Evidence. If there are more items than assigned identifier numbers, then the examiner or designee shall contact an ECT for additional identifier numbers. At times, an
item may need to be sub-divided for further analysis, usually by examiners in different disciplines.

6.3.1 Subdivision of Evidence:

The examiner may subdivide an item of evidence as necessary. The subdivided item may be transferred to a new container and given a unique identifier. The identifier uses the same format of the original designation number or identifier followed by a decimal point or an underscore and a sequential number. Further subdivision of a subdivided specimen shall follow the same pattern using a second decimal point or underscore and sequential numbers.

6.3.1.1 Subdivided Evidence Examples

Refer to the following examples:

Specimen submitted by customer: Item Q1 - Audio cassette tape
- Q1 One audio cassette tape
- Q1.1 Cassette housing of Q1
- Q1.2 Cassette box submitted with Q1
- Q1.3 Piece of transparent tape from Q1
- Q1.3.1 Hair on Q1.3

Specimen submitted by customer: Item Q2 - Computer
- Q2_1 Conner 1.6GB hard drive, Model 123, Serial 112233
- Q2_2 3.5 Diskette labeled “Pictures”

6.3.1.2 Subdivided Evidence

Subdivided evidence shall be:
- Listed in the case notes,
- Referred to in the Report of Examination by subdivided item identifier,
- Listed on the A-8 Chain-of-Custody Log when transferred, and
- Listed on the Shipping Invoice, when returned.

6.4 Initialing and Labeling of Evidence

1. All submitted items shall be marked and initialed for future identification with assigned unique identifiers, which include the case identifier or lab number and specimen number.
2. Evidence shall be marked in a manner that safe-guards the evidence for future examinations. This may require labeling a tag or evidence container rather than the evidence itself.
3. 6.3.2 Examiners across a discipline should be consistent in the location and method for the marking and labeling of evidence.

6.5 Storage and Handling of Evidence

1. Evidence shall be properly stored and handled while in the examiner’s custody. Refer to the QAM, 5.8 Handling Evidence.
2. 6.4.1 Evidence custody may be transferred to a technician or other <Lab> personnel after inventorying of items is complete. All transfers are documented on the A-8 Chain-of-Custody Log.

7. Records

- D-18, Correction forms are retained in the <unit> Evidence Room internal files.
- Printed hard copy e-mails of requested changes shall be retained in same files.

The following documents, if used, shall be retained in the <Agency> Case record at <record retention location> when completed:

- A-8 Chain-of-Custody Log
- 7-245, Activity and Communication Log
- A-1, Report of Examination
- Shipping Invoice
B-7: Internal Proficiency Tests

1. Purpose
To prepare and process Internal Proficiency Tests for <Lab> personnel.

2. Scope
This procedure applies to internal proficiency tests prepared for laboratory examiners and technical personnel who have been competency tested and certified to perform independent work in examining or performing technical processes on evidence.

3. Responsibilities
NOTE: This section should include all personnel listed by position and what their specific duties are in relation to Internal Proficiency Tests.

Examples of personnel and their responsibilities are:

3.1 <Unit> Unit Chief (UC)
The <Unit> Unit Chief is responsible for:
1. Coordinating all digital and multimedia evidence proficiency tests for the <Lab>.
2. Selecting test preparers in coordination with the UC or designee.

3.2 Proficiency Test Program Manager (PTPM)
The PTPM is responsible for:
• Working with each UC, documenting test areas in accordance with unit list/schedule.
• Providing the test preparers with information needed to prepare the test.
• Issuing all Internal Proficiency Tests.
• Maintaining the Proficiency Test records.
• Documenting and tracking: non-conformities on the Non-Conformity Actions Log, however named, and extension requests.
• Distributing test results to the Supervisor of each examiner taking the test.
• Providing summary results to Ucs and Laboratory Quality Managers (LQM)
• Providing test results data and recommendations for non-conformity or CAR evaluation to the <Lab> QA Program Manager (QAPM).

3.3 Each UC is responsible for:
1. Annually assigning a designee to coordinate proficiency testing for the next year.
2. Testing examiners, as needed, in non-routine areas or requiring additional proficiency tests.
3. Participating, as needed, in additional external proficiency tests beyond what is required internally.
4. Selecting test verifier(s).
5. Evaluating internal proficiency tests.
6. Submitting completed external proficiency tests to the provider.
7. Reviewing proficiency test evaluations with individuals who were tested.
8. Providing direction regarding non-conformities exposed during grading.
9. Formally notifying appropriate test preparers of their selection.
10. Reviewing, examining and approving test packet prior to verification to ensure the packet is complete and ready for verification.
11. Reviewing and approving the final test packet prior to reproduction and distribution to ensure the test and materials are acceptable.
12. Finalizing the distribution list for the Proficiency Test and providing quantities to preparer(s) for reproduction.
13. Providing advice during grading regarding individual and systemic non-conformances that may be revealed.

3.4 〈Lab〉 Quality Assurance Program Manager (QAPM)

The 〈Lab〉 QAPM is responsible for:
- Evaluating non-conforming results to determine if a QAR is required.
- Performing a quality assurance review of the final test packet prior to reproduction and distribution.
- Each year submitting a report of all proficiency testing for the previous year to the 〈appropriate management category〉.

4. Equipment/Materials

The equipment or materials used to prepare and conduct the proficiency tests are media specific.

5. Safety

Proficiency test materials may include mock evidence such as electronic devices or other media. Safety measures for the device shall be employed as appropriate.

6. Procedure

The test should be prepared early enough to allow adequate time for issuing; distributing; completing; evaluating the results; and, if necessary, repeating the process within the calendar year if the test is invalidated or if a second test is required for any reason.

The following steps describe the process to be followed for creation, execution, and documentation of annual proficiency tests.

**NOTE:** Below are sample tasks that may be accomplished for the Internal Proficiency Test process. Include your agency’s specific steps that each responsible party is required to complete or follow.
6.1 Assign Designee
1. If applicable, assignment of a designee is allowed for any step and shall be documented and a copy of the documentation provided to <UC>.

6.2 Define Disciplines/Test Areas and Media/Devices
1. The <UC> and PTPM shall use a unit provided list/schedule of test areas correlated to SOP/Practices to select the areas to be tested. Each forensic unit shall have a documented schedule for proficiency testing which is being followed by each examiner. A copy of all documentation of the Proficiency Test Areas to Be Tested shall be retained. The proficiency test may include, but is not limited to, one or more of the processes/technical procedures included in the unit provided list/schedule. These test areas should be tested as directed by the appropriate Unit Chief. Each examiner and technical support personnel engaged in testing activities shall be proficiency tested at least once during each five-year accreditation cycle, in each sub-category of testing in which the individual performs testing.

6.3 Select Test Preparer(s)
1. Internal proficiency tests shall be designed by preparers who shall have technical knowledge in the categories of testing in which the test is being prepared and shall scientifically document all steps taken in the course of preparing the test. A copy of all documentation of the Proficiency Test Preparer Qualifications shall be retained.

6.4 Prepare the Test
1. The test preparer shall develop the test for the operating system(s) or media in which the examiners routinely perform casework. Test materials shall be prepared to ensure their uniformity, validity and reproducibility.

6.4.1 Document the Test Preparation Activities
1. The preparer shall document preparation of the test media. This documentation shall include notes on how mock evidence was created, a high-level description of the grading criteria, and a plan for duplication or replication of the mock evidence for distribution to the examiners being tested. A copy of all documentation pertaining to Proficiency Test Preparation shall be retained.

6.4.2 Prepare the Master Test Packet
1. The preparer shall create a master test packet that shall contain, at a minimum, the following:
   - Mock evidence.
   - Proficiency Test Instructions, including:
     - Test set identifier
     - Distribution date
     - Due date
6.4.3 Prepare the Grading Key

1. The preparer shall create a grading key with detailed checklists for grading each observable, objective characteristic of the test results and shall include minimum passing criteria.

6.5 Verify the Test

1. A <Lab> certified forensic examiner(s) should review and verify the test and test packet for technical accuracy, suitability, and anticipated results and provide feedback. As appropriate, the reviewer may use the grading key to verify all areas of concern were identified. The documentation provided by the reviewer shall be reviewed and documented by the <UC> and/or designees on a Proficiency Test Verification Form, record e-mail or other approved documentation. If the grading key is used by the reviewer, the test does not count as the annual required test.

6.5.1 Make Corrections as Necessary

1. If the test verification exposes problems with the test media/devices, test instructions, or grading key, the Test Preparer shall make corrections and if the changes were substantial repeat step 6.5 (Verify the Test). If available, a new subject matter expert should be used for the re-verification. When the test has been successfully verified, continue on to step 6.6 (Review the Master Test Packet Prior to Reproduction).

6.6 Review the Master Test Packet Prior to Reproduction

1. The master test packet shall be reviewed for appropriateness and completeness, to include appropriate minimum grading score, by the <Lab> QAPM and the UC or designee prior to distribution. The UC shall document the review and approval by signing the Proficiency Test Preparation Final Checklist Form or use of a record e-mail or other approved documentation.

6.7 Reproduce and Distribute the Test Packets

1. The preparer(s) shall create test packets as needed. If media can be verified via hash or other verification methods, the test packet shall be labeled with the test identifier and hash verification included with the mock evidence as appropriate. The distribution list
shall include each packet’s test identifier. If media cannot be verified via hash or other verification method, then each test packet shall be labeled and tracked with the media’s unique identifier. In addition, each test with uniquely identified test media shall be individually checked for quality and that check documented via a Proficiency Test Media Quality Check Form or other similar form of documentation. If test distribution shall involve shipping test packets, addresses should be verified with intended recipients prior to shipping.

6.8 Distribute Tests and Track Return Receipt

1. The <Unit> PTPM shall issue all proficiency tests. Each individual being tested shall receive a Proficiency Test packet with instructions. The distribution of the Proficiency Tests shall be tracked and documented. The PTPM shall maintain the Proficiency Test tracking sheet, ensuring it is complete and up to date. The PTPM shall track extension requests as documented in the instructions.

2. At a minimum, the following shall be tracked and documented for each test:
   - Name of examiner or team
   - Functional area or unit
   - Test set identifier
   - Date of distribution/Issue date
   - Date of request for extension
   - Date the request for extension was granted/denied
   - Date results due, including extensions if granted
   - Date results were received

6.9 Grading the Tests

1. Returned Proficiency Tests shall be graded using the grading key and any discrepancies shall be noted on the grading sheet. The predetermined passing criteria shall be adhered to in determining if the results are sufficient to successfully complete the test. Individuals shall not grade their own tests. The PTPM shall review the grading sheets to look for trends or systemic deficiencies revealed by the grading results. If systemic deficiencies are noted, the <Lab> QAPM shall be notified.

6.10 Identification of Test Deficiencies

1. The PTPM shall review the grading sheets to identify test deficiencies that may indicate that a test may need to be invalidated and shall use provisions noted below to make a final determination.

6.10.1 Invalidation of a Proficiency Test

1. A significant number of individuals may not arrive at the expected result for a proficiency test. This may be due to a problem with the proficiency test, a problem in the standard operating procedures, or a problem in the training provided to the people. If it is believed that the proficiency test itself is the problem, management shall be notified and the appropriate subject matter expert(s) and the test preparer may be consulted to
6.11 Distribute Test Results

1. The <Unit> PTPM shall provide summary results to the UC. The PTPM shall provide individual results to the Laboratory Director or Supervisor. In addition, the PTPM shall provide, at least the following for each individual tested:
   - If successfully completed, the original Test Result Packet.
   - If remediation is required, a copy of the original Test Result Packet.
   - Evaluation sheet with space for signatures of the individual tested and supervisor to indicate that results were received.
   - Grading feedback or evaluation comments for the examiner.
   - Label on entire packet indicating that it shall be retained.

2. The Laboratory Director or Supervisor shall provide the test results to each individual and discuss the results. The signed evaluation sheet shall be retained in the test packet.

6.12 Track Non-Conformity Remediation to Completion

1. If a QAR is issued the LQM shall track the progress. When remediation plans are used instead of QARs, the PTPM shall track the progress of the remediation. All completed QARs and remediation documentation shall be included in the individual’s proficiency test packet. If deadline dates are missed the PTMP shall notify the UC/Lab Director who shall remove the examiner from independent casework and notify the LQM. The PTPM shall keep the UC/Supervisor appraised of the status of remediation.

7. Records

The following records shall be maintained by <Lab> for each internal proficiency test:
   - Proficiency Test Designee documentation.
   - Proficiency test preparation documentation.
   - Log and other reports as required by the Section 5.9.3 QAM
   - The test result package shall be retained by the laboratory for each individual test.
## History

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