



State of North Carolina
Department of the Secretary of State
Information Technology Division
Digital Forensics Laboratory

Quality Manual

QM-Lab

Version 3.0

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**Glossary for Digital Forensic Lab Quality Manual (DFLQM) and Laboratory Procedure Manual
LAPM**

Accreditation Cycle – the period of time between the date accreditation is granted and the date accreditation expires.

Administrative Case File Review – a detailed review of the case records for consistency with laboratory policy and editorial correctness.

Administrative Documentation – records such as evidence forms, description of packaging and seals, service requests, reports, correspondence sent /received and other pertinent information.

Administrative Transfer – retrieval of evidence from a member’s custody, when the member is not available to transfer it him/herself.

Amended Report – a report issued when a technical or administrative change must be made to a previously issued report.

ANAB - ANSI-ASQ National Accreditation Board

Analytical Data – all technical records such as notes, worksheets, graphs, spectra, printouts, computer data files, photographs, and photocopies.

Analyst – an individual (Crime Laboratory Analyst or Crime Laboratory Analyst Supervisor) who conducts and/or directs the analysis of forensic casework, interprets data and reaches conclusions.

Annual Accreditation Audit Report – documents submitted annually to ANAB showing the North Carolina Department of Secretary of State Digital Forensic Laboratory’s compliance with policies and procedures.

Annual Management Review – yearly examination of each laboratory to ensure that the current quality system is effective and the management can be confident that all measures taken provide the highest quality service.

Assessment – the process of evaluating an experienced analyst to determine his/her level of technical knowledge, skills, and abilities.

Associations – the terms used to describe the strength of the relationship between items examined and reported as forensic conclusions.

Audit – a review conducted to compare the various aspects of the laboratory’s performance with a standard for that performance.

Biological Hazard – anything that may be contaminated with blood or body fluids.

Case File – the file folder holding the case record.

Case Management – the approach for setting up a logical methodology for case acceptance, cases worked, case priority, case transfer and case return.

Case Record – administrative and technical records generated or received by the laboratory pertaining to a particular case.

Case Tracking Form – document containing information regarding evidence submitted to the laboratory for analysis (including: agency name, case number, date of offense, subject(s), victim(s), exhibit number(s), and description(s))

Category of Testing – a sub-discipline of a major area of analysis, e.g. cell phone analysis, computer forensic analysis.

Certification – written notification issued by North Carolina Department of Secretary of State to a crime laboratory member indicating completion of an approved training program or assessment of equivalent experience for a forensic discipline or category of testing.

Chain of Custody – documentation of all transfers of evidence from receipt by the laboratory to return to the

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submitting agency.

Common Carrier – one that is in the business of transporting items or messages for a fee.

Competency Test – a written, oral and/or practical test or series of tests designed to evaluate a person’s ability to perform work in any functional area prior to the performance of independent casework.

Competent – possessing the requisite knowledge, skills and abilities to perform a job.

Computer Forensics – a category of testing of Digital & Multimedia Evidence, which involves the examination, analysis, and/or evaluation of digital evidence. (Designated in the North Carolina Department of Secretary of State system as Digital Forensics). **Continuing Education Courses** – periods of formal job-related instruction, including professional meetings, provided to members of the Digital Forensic Lab for the purpose of enhancing job knowledge, skills or abilities.

Convicted Offender – an individual who has been convicted of any qualifying offense specified in the North Carolina State Statutes.

Corrective Action – course of action to be taken to minimize the impact of a nonconformity and prevent its recurrence.

Corrective Action Request (CAR) – document detailing the course of action taken to minimize the impact of a nonconformity and prevent its recurrence.

Crime Scene – an area, object or person generally external (with the exception of vehicles brought to the crime scene processing garage) to the laboratory facility, from which evidence is identified, recorded, collected and/or interpreted.

Critical Consumables/Supplies/Services – instruments or equipment requiring performance checks prior to use and periodically thereafter.

Customer – a person or organization seeking the testing services of the laboratory. Also referred to as a contributor or submitting agency.

Digital and Multimedia Evidence (forensic science discipline) – Digital Evidence: The analysis of evidence stored or transmitted in binary form. Multimedia Evidence: Analog or digital media, including, but not limited to, film, tape, magnetic and optical media, and/or information contained therein. (includes category of testing of computer forensics) **Discipline** – a major area of forensic casework dealing with similar tests, examinations or comparisons.

Evidence – anything detectable by sensory, physical, chemical, optical, or electronic means, including those things in a digital or multimedia form, that provides factual information about a crime.

Evidence Inventory – the physical accounting of evidence and evidence records.

Evidence Transfer – a change of possession of evidence that is documented.

Evidence Transfer Receipt – document recording information regarding the transfer of evidence from one North Carolina Department of Secretary of State facility to another North Carolina Department of Secretary of State facility.

Evidence Room – a secured room or rooms for the storage of evidence.

Examination Documentation – see “notes” and “technical records”.

Executive Management – in the North Carolina Department of Secretary of State system, this includes the Deputy Secretary, Deputy Secretary-IT and the Quality Manager.

External Proficiency Test – a test prepared and provided by a source external to the laboratory system.

Fee Charges – costs requested by North Carolina Department of Secretary of State to be assessed upon a defendant or a public defender's office, either directly or by the court, for evidence examinations or services rendered in court ordered evidence examinations, civil cases arising from criminal investigations involving laboratory evidence examinations, or non-work product testimony.

Fundamental Values – those values that support the objectives of the Digital Forensic Laboratory: service, integrity, respect and quality.

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Good Analytical Practice – an approved method to perform a specific analytical technique which influences the quality of the analysis.

Good Laboratory Practice – an approved method to perform a basic operation, activity or service in a laboratory, which influences the quality of its outputs.

Inspection – a review of areas, practices, and procedures for compliance with existing policy.

Interlineations – words, numbers or other text which are added between the lines of previously written documentation.

Internal Proficiency Test – a proficiency test used for quality assessment that is not required to be provided to an external entity for review.

Inventory – a detailed accounting of all items within a specified location.

Investigative Requests – a request made by an investigator, State Attorney or other law enforcement personnel for evidence to be worked out of numerical order.

Key Management – in the North Carolina Department of Secretary of State system, this includes the North Carolina Department of Secretary of State Deputy Secretary, Deputy Secretary-IT, and Digital Forensic Lab Manager/Quality Manager.

Laboratory Director – Designated in the North Carolina Department of Secretary of State system as the Laboratory Manager.

Laboratory Information Management System (LIMS) – the computer application that provides on-line evidence tracking, case inquiry, case management, and laboratory reporting features.

Laboratory Report – a signed document which details the results of the analyses performed on specified pieces of evidence, administrative information being communicated or evidence submissions being returned unworked.

Level I 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 II 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.

Management System – the organizational structure, responsibilities, procedures, processes, and resources for implementing quality management; includes all activities which contribute to quality, directly or indirectly.

Manager – a person with the responsibility for directing and controlling an organizational unit or program (Designated in the North Carolina Department of Secretary of State system as the Lab Manager or Lab Director).

Method – the course of action or technique followed in conducting a specific analysis or comparison leading to an analytical result.

Nonconformity – any reported casework results with a discrepancy or a proficiency result which differs from the consensus results.

Non-Work Product Testimony – expert testimony rendered by an analyst based upon his/her background, knowledge and experience rather than testimony based upon an actual examination of evidence.

Notes – records of procedures, standards, controls and instruments used, observations made, results of tests performed, charts, graphs, photographs, sketches and other documents generated which are used to support the analyst's conclusions. (See also "technical record").

Performance Check – the confirmation that a technique for analysis is functioning properly and/or is appropriate for its intended use.

Phase I Training – a formalized initial period of instruction emphasizing the specialized techniques used to provide services within a forensic discipline or category of testing.

Phase II Training – a period of supervised casework and less formalized instruction emphasizing the

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correct interpretation of the results of services within a forensic discipline or category of testing.

Physical Security – measures taken to counteract security threats.

Preventive Action Request (PAR) – document detailing a course of action to prevent nonconformities from occurring, and to monitor its effectiveness.

Procedure – the manner in which an operation is performed; a set of directions for performing an examination or analysis – the actual parameters of the methods employed.

Proficiency Test – a test to evaluate the continuing capability of analysts, technical support personnel and the performance of a laboratory.

Property Inventory – the physical accounting of capital equipment.

Protocol – detailed instructions for the performance of a laboratory service, or some aspect of a laboratory service.

Quality – the degree of excellence achieved by the laboratory through its work product.

Quality Assessment – the overall system of activities designed to provide assurance that quality control activities are effective.

Quality Assurance – those planned and systematic actions necessary to provide sufficient confidence that a laboratory's product or service will satisfy the requirements for quality.

Quality Assurance Committee (QAC) – a team assembled to address many aspects of discipline coordination and quality assurance to include technical policy and technical procedures.

Quality Audit – a management tool used to evaluate and confirm activities related to quality.

Quality Control – the internal activities used to monitor the quality of analytical data or results as compared to specified criteria.

Quality Manual – a document stating the quality policy and describing the various elements of the quality system and quality practices of the Digital Forensic Laboratory. The Forensic Science Quality Manual is the "Quality Manual" for the North Carolina Department of Secretary of State Digital Forensic Laboratory.

Quality Manager – an individual, irrespective of other responsibilities, who has the defined authority and obligation to ensure that the requirements of the quality system are implemented and maintained. The NC Secretary of State has designated the Lab Director as the Quality Manager.

Quality System – see "Management System"

Reference Material – items or collections of materials or data encountered in casework which are maintained for identification, comparison or interpretation purposes.

Root Cause Investigation – means of determining the reason for a nonconformity.

Seal – a seal that prevents loss, cross-transfer, or contamination while ensuring that attempted entry into the container is detectable. This may include a heat seal or tape seal with the initials of the person creating the seal being placed on the seal or across the seal onto the container when possible. A container is "properly sealed" only if its contents cannot readily escape and only if entering the container results in obvious damage/alteration to the container or its seal.

Secure Area – a locked space (e.g., cabinet, vault, room, etc.) with access restricted to personnel authorized by the laboratory director.

Security Plan – a detailed document, which describes physical security measures applicable to the Digital Forensic Lab.

Technical Management – in the North Carolina Department of Secretary of State system, this includes the, Digital Forensic Lab Manager, the NC Secretary of State IT Security/E-commerce specialist.

Technical Mentoring – a period of time during which an analyst's work product is subjected to extraordinary review.

Technical Record – (See also "notes") – includes reference to procedures followed, tests conducted, standards and controls used, diagrams, printouts, photographs, observations, and results of examinations.

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Technical Review – review of bench notes, data, and other supporting records which form the basis for the scientific conclusion(s).

Testimony Review – the observation and evaluation of the sworn testimony given by a member as part of his/her normal job duties. It may also be a review by an officer of the court.

Top Management – in the North Carolina Department of Secretary of State Digital Forensic Laboratory, this includes the Deputy Secretary-IT and the Lab Manager. Within North Carolina Department of Secretary of State management system, the word “management” means “top management”.

Trainee – a member appointed to fill an established position that does not meet the minimum qualifications for the class.

Training Objectives – a description of a performance that an individual must exhibit to demonstrate competence.

Training Program – a written description of activities to be performed by a trainee status member of the crime laboratory for the purpose of enhancing job-related knowledge, skills or abilities.

Validation – the process of performing a set of experiments, which establish the efficiency and reliability of a technique, procedure or instrument, or modification thereof.

Verification – reanalysis by a qualified analyst confirming identifications.

Work Instructions – detailed documentation of how to perform a specific task.

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4.1 Organization

4.1.1 Organization

The North Carolina Department of Secretary of State Digital Forensic Laboratory consists of one laboratory in the state of North Carolina. The laboratory provides examination of evidentiary materials to aid in the investigation, prosecution and defense of criminal offenses as mandated under North Carolina General Statutes:

§ 80-11.1. Criminal use of counterfeit trademark.

§ 78A-57. Criminal penalties. *[Securities Act]*

§ 78A-58. Obstruction of investigation. *[Securities Act]*

§ 78C-39. Criminal penalties. *[Investment Adviser Act]*

§ 78C-99. Criminal penalties. *[Uniform Athlete Agents Act]*

§ 10B-60. Enforcement and penalties *[Notary Act]*

§ 78D-24(a). Criminal penalties.

(a) Any person who willfully violates any provision of this Chapter is guilty of a felony. If the losses caused by the violation or violations are one hundred thousand dollars (\$100,000) or more, the person is guilty of a Class C felony. If the losses caused by the violation or violations are less than one hundred thousand dollars (\$100,000), the person is guilty of a Class H felony.

§ 55-1-32. Penalties imposed upon corporations, officers, and directors for failure to answer interrogatories.

...

(b) Each officer and director of a domestic or foreign corporation who knowingly fails or refuses within the time prescribed by this Chapter to answer truthfully and fully interrogatories propounded to him by the Secretary of State in accordance with the provisions of this Chapter shall be guilty of a Class 1 misdemeanor.

§ 55A-1-32. Penalties imposed upon corporations, officers, and directors for failure to answer interrogatories.

...

(b) Each officer and director of a domestic or foreign corporation who knowingly fails or refuses, within the time prescribed by this Chapter, to answer truthfully and fully interrogatories propounded to him by the Secretary of State in accordance with the provisions of this Chapter shall be guilty of a Class 1 misdemeanor.

§ 55D-18. Penalty for signing false document.

(a) A person commits an offense if the person signs a document the person knows is false in any material respect with intent that the document be delivered to the Secretary of State for filing.

(b) An offense under this section is a Class 1 misdemeanor.

§ 57C-1-32. Penalties imposed upon domestic and foreign limited liability companies for failure to answer interrogatories

...

(b) Each manager of a foreign or domestic limited liability company who fails or refuses within the time prescribed by this Chapter to answer truthfully and fully interrogatories propounded to the manager by the Secretary of State in accordance with the provisions of this Chapter shall be guilty of a Class 1 misdemeanor.

§ 120C-602. Punishment for violation. *[Lobbying]*

(a) Whoever willfully violates any provision of Article 2 or Article 3 of this Chapter shall be guilty of a Class 1 misdemeanor, except as provided in those Articles. In addition, no lobbyist who is convicted of a violation of the provisions of this Chapter shall in any way act as a lobbyist for a period of two years from the date of conviction.

§ 131F-22. Criminal penalties. *[CSL]*

Except as otherwise provided in this Chapter and in addition to any administrative or civil penalties, any person who willfully and knowingly violates a provision of this Chapter commits a Class 1 misdemeanor.

§ 66-97(e). Filing with Secretary of State. *[Business Opportunity Sales]*

(e) Failure to so file shall be a Class 1 misdemeanor.

§ 66-108(e). Bond or trust account required. *[Loan Brokers]*

(e) Failure to so file shall be a Class 1 misdemeanor.

§ 66-109(b). Filing with Secretary of State. *[Loan Brokers]*

(b) Failure to comply with subsection (a) shall be a Class 1 misdemeanor.

4.1.2

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The North Carolina Department of Secretary of State will carry out all digital forensic laboratory services in accordance with stated methods, the requirements of the customer, the State of North Carolina, federal regulatory authorities, the ISO 17025

standards and any supplemental standards required by the North Carolina Department of Secretary of State Digital Forensic Laboratory accrediting organization: ANSI-ASQ National Accreditation Board (“ANAB”)

4.1.3

The laboratory operates in a permanent facility in Raleigh, NC. Forensic examination may be conducted in other locations where Laboratory personnel perform forensic services (i.e., crime scenes). Reviews and other administrative work performed outside these facilities shall follow laboratory policies and procedures.

4.1.4

The Digital Forensic Lab is part of the North Carolina Department of Secretary of State. The Laboratory maintains organizations charts which identify key personnel. The organizational chart is found on the NC SoS internal network and is maintained in a file in the laboratory. Analysis results generated by the Digital Forensic Laboratory shall be free from bias and outside influence. Laboratory personnel encountering situations or conditions which may cause undue pressure and/or adversely affect the quality of work shall inform the Deputy Secretary-IT.

4.1.4.1

The responsibilities of the Digital Forensic Lab Manager/Analyst are defined in their job description.

4.1.4.1.1

The North Carolina Department of Secretary of State Digital Forensic Lab Manager has the authority to make and enforce decisions affecting their laboratory/laboratories.

4.1.5

The North Carolina Department of Secretary of State Digital Forensic Lab:

a) provides its personnel the authority and resources needed to carry out their duties, including the implementation, maintenance and improvement of the quality system.

North Carolina Department of Secretary of State laboratory members will identify and report departures from the quality system.

b) ensures there is no influence on the professional judgments of employees, including any undue internal and external commercial, financial or other pressures and influences that may adversely affect the quality of their work. Management has the responsibility and authority to take action on employee concerns within their section or laboratory. Serious instances of undue influence on analytical findings or conflict of interest will be reported

to the Deputy Secretary-IT.

c) has policies and procedures to ensure the contributors’ confidential information is protected.

d) provides guidance concerning any situations that could diminish confidence in its competence, impartiality, judgment or operational integrity. Work shall be performed in an environment free from undue pressure that might influence technical judgment. Personnel shall not engage in activities that may diminish confidence in the laboratory’s competence, impartiality, judgment, or operational integrity. All conflict of interest concerns and situations that could cause undue pressure that adversely affect the quality of the work shall be brought to the attention of the Deputy Secretary-IT.

e) has an organizational chart showing the structure and relationships of all operations of the North Carolina Department of Secretary of State Digital Forensic Lab.

f) specifies the responsibility and authority of each member of the Digital Forensic Laboratory. The North Carolina Department of Secretary of State Digital Forensic laboratory member will be accountable to only one immediate supervisor per function.

g) provides adequate supervision of all members, including trainees. Members responsible for supervision

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will be familiar with the purposes, methods and standard operating procedures of examinations conducted in Digital Forensics and the assessment of results.

h) has technical management responsible for oversight and providing resources to ensure the reliability and integrity of North Carolina Department of Secretary of State Digital Forensic laboratory operations. The designated personnel have technical management responsibility for Digital Forensics.

i) has a Quality Manager that reports to the Deputy Secretary-IT. The Quality Manager (who is also the Digital Forensic Lab Manager/Analyst) ensures the quality system is implemented and followed at all times.

j) The Lab Manager is the appointed deputy whom shall be responsible for decisions concerning Laboratory functions.

k) management will ensure the North Carolina Department of Secretary of State Digital Forensic laboratory member is aware of the importance and relevance of their activities and how they relate to the objectives of the quality system.

4.1.6

Management will communicate with North Carolina Department of Secretary of State Digital Forensic laboratory members by e-mail, meetings or other means concerning the effectiveness of the quality system.

4.1.7

The North Carolina Department of Secretary of State Digital Forensic laboratory has designated the Lab Manager as the Safety Coordinator with the responsibility and authority for ensuring that the health and safety program described in the North Carolina Department of Secretary of State safety guidelines is implemented and followed at all times.

4.1.8

Key management and top management are defined in the glossary of this document.

4.2 Management System

4.2.1

The North Carolina Department of Secretary of State will develop and maintain a Digital Forensic Laboratory Quality Assurance Program. This program will include technical and operational guidelines for Digital Forensic discipline as well as guidelines for evidence management, records retention, analytical data and administrative documentation, laboratory reports, case file review, testimony review, proficiency testing, training and continuing education. The North Carolina Department of Secretary of State quality system documentation includes the quality manual, administrative procedures, discipline standard operating procedures, training manuals and work instructions. These documents will be available on the NORTH CAROLINA DEPARTMENT OF SECRETARY OF STATE intranet. Additional quality systems documents such as instrumentation manuals will be available in the Laboratory.

4.2.2

The North Carolina Department of Secretary of State Digital Forensic laboratory management system is dedicated to good laboratory practice and to the quality of the digital forensic services provided to contributors. The quality system of the North Carolina Department of Secretary of State Digital Forensic laboratory ensures that functions are performed as intended and conform to the requirements of ASCLD/LAB-*International* and/or ANAB AR3028 . The management is committed to complying with the ISO 17025, ANAB forensic provider standards, International Association of Computer Investigative Specialists (IACIS) Code of Ethics, and the policies and procedures of the North Carolina Department of Secretary of State. All members of the North Carolina Department of Secretary of State Digital Forensic Digital Forensic Laboratory are required to familiarize themselves with the quality manual and implement the North Carolina Department of Secretary of State quality assurance policies and procedures in their work.

With the support of the North Carolina Department of Secretary of State management and input from members, new policies, practices, and procedures are developed and implemented when necessary. All quality system documents are reviewed annually and updated as necessary to continuously improve the effectiveness of the quality system. If conditions or situations having an adverse impact on the quality system are identified, appropriate changes will be made and/or corrective actions will be implemented. The mission of the North Carolina Department of Secretary of State Digital Forensic Digital Forensic Laboratory is to support the fundamental values of service to the law enforcement community and others we serve, integrity of the organization and the individual, respect for each member as our most valuable asset and quality in everything we do.

This support is achieved by the following objectives:

- Provide quality forensic services in support of the criminal justice system
- Seek additional resources when a need is established
- Provide a safe working environment
- Support and provide career development opportunities
- Maintain open lines of communication with our members and our customers
- Provide a planning strategy to review and implement forensic science services, facilities and instrumentation for conventional and emerging technology

4.2.2.1

The *ASCLD/LAB Guiding Principles of Professional Responsibility for Crime Laboratories and Forensic Scientists* are to be utilized as a basis for good professional practice.

4.2.2.2

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Management will ensure that the *ASCLD/LAB Guiding Principles of Professional Responsibility for Crime Laboratories and Forensic Scientists* are reviewed annually with all laboratory personnel. This review will be documented and maintained by the Lab Manager for at least five years.

4.2.3

Management will communicate with NORTH CAROLINA DEPARTMENT OF SECRETARY OF STATE Digital Forensic laboratory members regarding the development, implementation, and continuous improvement of the quality system.

4.2.4

Management shall communicate to Digital Forensic laboratory personnel the importance of addressing contributor requests and complying with any relevant statutory and regulatory requirements.

4.2.5

The North Carolina Department of Secretary of State Digital Forensic Laboratory's quality system documentation is comprised of policies and procedures. The authority to approve, issue and revise quality system documentation is defined as follows:

The North Carolina Department of Secretary of State Digital Forensic Laboratory's policy is set forth in this Digital Forensic Quality Manual. The policy statements have been approved by the Digital Forensic Lab Manager and Deputy Secretary-IT. The Digital Forensic Lab Manager/Quality Manager will issue these policies. Any revisions to the Digital Forensic Quality Manual are approved by the Digital Forensic Lab Manager.

North Carolina Department of Secretary of State Digital Forensic Laboratory administrative procedures are found in the Digital Forensic Lab Procedures Manual. Procedures are used to implement North Carolina Department of Secretary of State Digital Forensic Laboratory policies. These procedures have been approved by the Digital Forensic Laboratory Manager. The Quality Manager/Lab Manager will issue these procedures. Any revisions to these procedures are approved by the Lab Manager.

North Carolina Department of Secretary of State Digital Forensic Laboratory technical procedures are found in Digital Forensic Laboratory's Standard Operating Procedures. These procedures have been approved by Digital Forensic Lab Manager. The Quality Manager/Lab Manager will issue these procedures. Any revisions to these procedures are approved by the Digital Forensic Lab Manager.

4.2.6

To be successful, the North Carolina Department of Secretary of State laboratory quality system must have the complete support and commitment of all personnel. This section describes North Carolina Department of Secretary of State laboratory technical management and quality manager's responsibilities for implementing the quality system.

- The Deputy Secretary-IT will support and promote the quality system, ensure conformance with ANSI-ASQ National Accreditation Board standards, ensure that the policies and procedures within the quality system are implemented within the laboratory, ensure that North Carolina Department of Secretary of State Digital Forensic laboratory members understand and apply current policies and procedures to appropriate situations, and ensure that corrective and preventive actions are taken and documented to resolve deficiencies when they are found.
- The Quality Manager/Lab Director will serve as the Digital Forensic Laboratory's quality manager, ensure conformance with ANSI-ASQ National Accreditation Board standards, ensure that all quality assurance programs function in accordance with North Carolina Department of Secretary of State Digital Forensic

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Digital Forensic Laboratory goals and objectives, ensure that the policies and procedures within the quality system are documented, advise management regarding the development, implementation, and maintenance of the quality system, coordinate the development and revision of the quality system, and ensure that the corrective action is taken and documented to resolve deficiencies when they are found.

- The Digital Forensic Lab Manager will support and promote the quality system, ensure conformance with ANSI-ASQ National Accreditation Board standards, communicate the quality system and related policies and procedures to all members, ensure that the policies and procedures within the quality system are adhered to, appropriately delegate authority within the section to implement the quality system, ensure that as the section's only analyst, they receive necessary training and are qualified for their assigned work, ensure the completeness of case files and supporting case documentation and ensure that the corrective action is taken and documented to resolve deficiencies when they are found.

4.2.7

The Deputy Secretary-IT and the Quality Manager/Lab Director will review proposed revisions to the North Carolina Department of Secretary of State Digital Forensic laboratory quality system to ensure that the integrity of the system is maintained when changes are implemented.

4.3 Document Control

4.3.1 General

The North Carolina Department of Secretary of State Digital Forensic Laboratory manages the documents that comprise its quality system according to the Administrative Procedure for Document Control.

4.3.2 Document approval and issue

4.3.2.1

Prior to implementation, all North Carolina Department of Secretary of State laboratory quality system documents will be thoroughly reviewed, approved for release by authorized personnel, and made available for use by members.

The Administrative Procedure for Document Control contains provisions for identifying the current revision of documents, for distributing quality system documents, and to preclude the use of invalid and/or obsolete documents.

4.3.2.2

The Administrative Procedure for Document Control ensures:

- Current revisions of appropriate practices, procedures and instrumentation
- Manuals will be available where critical operations are performed
- Quality system documents will be reviewed at least once each calendar year and
- Revised as necessary to comply with applicable requirements
- Invalid or obsolete documents will be promptly removed
- Archived quality system documents will be marked as such to preclude their use
- All quality system documents will name the issuing authority
- Obsolete documents retained for either legal or knowledge preservation purposes are suitably marked

4.3.2.3

North Carolina Department of Secretary of State laboratory-prepared quality system documents are uniquely identified according to the requirements of the Administrative Procedure for Document Control. This identification includes the document title, date of issue, revision number, unique document identifier and page numbering including total number of pages. The issuing authorities are also identified in the document.

4.3.3 Document changes

4.3.3.1

Revisions to North Carolina Department of Secretary of State laboratory prepared quality system documents will be subject to the same review, approval, documentation and issuance requirements as the original document. Revisions to instrumentation manuals or externally produced quality documents will be subject to the same review and approval as the original document. Additionally, appropriate personnel will have access to any information necessary to conduct the review and approve the revision.

4.3.3.2

Revised or new text will be identified in the document according to the Administrative Procedure for Document Control.

4.3.3.3

The North Carolina Department of Secretary of State Digital Forensic Laboratory does not permit the amendment of documents by hand.

4.3.3.4

The Administrative Procedure for Document Control also applies to documents maintained in

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computerized systems.

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4.4 Review of requests, tenders and contracts

4.4.1

Prior to examination of evidence, North Carolina Department of Secretary of State laboratory personnel will evaluate the request to ensure that the North Carolina Department of Secretary of State Digital Forensic Laboratory has the capability and resources to perform the services that are being requested.

4.4.2

Records of reviews shall be maintained according to the Administrative Procedure for the Review of Requests, Tenders and Contracts.

4.4.3

Reviews of requests on any work that is subcontracted by the North Carolina Department of Secretary of State Digital Forensic Laboratory will be conducted by the appropriate section supervisor or designee.

4.4.4

Contributors submitting evidence to a North Carolina Department of Secretary of State laboratory agree to the terms and conditions for analysis as outlined in the North Carolina Department of Secretary of State Evidence Submission Manual. These terms and conditions include changes to requests for examination.

4.4.5

Any changes will be communicated to all affected examiners by the appropriate personnel as stated in the Administrative Procedure for LIMS Business Practices.

4.5 Subcontracting of Tests and Calibrations

4.5.1

The North Carolina Department of Secretary of State Digital Forensic Laboratory will select competent subcontractors to conduct forensic examinations when necessary. North Carolina Department of Secretary of State laboratory section supervisors or designees are responsible for evaluating the competency of subcontractors. The competency of the subcontractors will be evaluated by the North Carolina Department of Secretary of State through satisfactory audit results conducted by North Carolina Department of Secretary of State laboratory members or accepting the results of an external independent audit.

4.5.2

When an North Carolina Department of Secretary of State laboratory subcontracts work, the appropriate section supervisor or designee will advise the contributor of the arrangement in writing. The notification will be documented in the North Carolina Department of Secretary of State laboratory case file.

4.5.3

The North Carolina Department of Secretary of State Digital Forensic Laboratory will be responsible for the quality of a subcontractor's work.

4.5.4

The North Carolina Department of Secretary of State Digital Forensic Laboratory is responsible for maintaining a list of all competent subcontractors who are approved for conducting forensic examinations. The subcontractor's conformance will be evaluated and documentation of the evaluation will be maintained.

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4.6 Purchasing Services and Supplies

4.6.1

State purchasing guidelines govern the procurement of products and services for the NORTH CAROLINA DEPARTMENT OF SECRETARY OF STATE Digital Forensic Laboratory. The North Carolina Department of Secretary of State Digital Forensic Laboratory follows the Administrative Procedure for Services and Supplies.

4.6.2

North Carolina Department of Secretary of State laboratory sections will ensure supplies and consumable materials that affect the quality of the examinations are not used in casework until they have been evaluated for compliance with discipline standard operating procedure requirements. Records of compliance evaluations will be maintained.

4.6.3

North Carolina Department of Secretary of State laboratory sections will ensure that purchase requisitions contain specifications of supplies and services ordered if they affect the quality of testing. The requisitions will be reviewed and approved by the section supervisor or designee prior to ordering to ensure compliance with discipline criteria.

4.6.4

The North Carolina Department of Secretary of State Digital Forensic Laboratory will evaluate suppliers of critical consumables, supplies and services and maintain records of the evaluations. A list of approved suppliers will be maintained on the North Carolina Department of Secretary of State internal website.

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4.7 Service to the Customer

4.7.1

North Carolina Department of Secretary of State members will communicate with contributors as needed to clarify their requests and to answer any questions concerning the status of their requests.

4.7.2

The North Carolina Department of Secretary of State seeks feedback from its customers through surveys and testimony review forms.

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4.8 Complaints

As part of the North Carolina Department of Secretary of State Digital Forensic Laboratory's commitment to provide reliable forensic examinations, members will take appropriate steps to address valid complaints regarding its services as stated in the Administrative Procedure for the Resolution of Complaints.

4.8.1

North Carolina Department of Secretary of State laboratory member complaints concerning quality-related aspects of the laboratory management system shall be addressed as stated in the Administrative Procedure for the Resolution of Complaints.

4.9 Control of Nonconforming Testing

4.9.1

When nonconformity occurs during the examination process, the Administrative Procedure for Corrective and Preventive Action will be followed. The procedure designates:

- actions to be taken by technical management
- evaluation of the significance of the nonconforming work
- timely implementation of corrective actions
- notification of the customers when necessary
- responsibility for authorizing the resumption of work

There are times when deviating from policies and/or procedures are necessary. These exceptions will be controlled to ensure that quality is not compromised. The Administrative Procedure for Exceptions specifies the requirements for requesting and approving exceptions.

4.9.2

Where the evaluation indicates that nonconformity could reoccur, the corrective action policy given in 4.11 shall be promptly followed.

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4.10 Improvement

The North Carolina Department of Secretary of State Digital Forensic Laboratory uses policies, objectives, audit results, data review, corrective actions, preventive actions, and management reviews to continuously improve the effectiveness of the quality system.

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4.11 Corrective Action

4.11.1 General

Any North Carolina Department of Secretary of State Digital Forensic Laboratory member may identify conditions or situations where corrective actions may be required. The member identifying a potential situation where a corrective action may be required will notify a supervisor. All discrepancies and occurrences of non-compliance will be properly noted, reported and promptly reviewed. The intent of a corrective action is to prevent a recurrence of the nonconformity that affects the quality of work performed within the North Carolina Department of Secretary of State Digital Forensic Laboratory.

4.11.2 Cause analysis

Any corrective actions must begin with an investigation into the root cause of the problem.

4.11.3 Selection and implementation of corrective actions

The corrective action implemented shall be appropriate to the magnitude and risk of the problem. Any required changes will be documented and implemented.

4.11.4 Monitoring of corrective actions

Any required changes will be monitored to ensure effectiveness.

4.11.5 Additional audits

When conditions or situations require a corrective action, the Quality Manager will determine if an additional audit is necessary to assess the effectiveness of the corrective action. If an audit is required, the audit will be conducted in a timely manner.

4.12 Preventive Action

4.12.1

Preventive actions are taken to prevent an occurrence of nonconformity. When improvement opportunities are identified, a plan shall be developed to take advantage of the prevention of nonconformity.

4.12.2

The Administrative Procedure for Corrective and Preventive Action includes measures for verifying the effectiveness of any preventive actions that are implemented.

4.13 Control of Records

4.13.1 General

4.13.1.1

The Administrative Procedure for Quality and Technical Records describes the requirements for the identification, collection, organization, accessibility, filing, storage, maintenance and disposal of quality records and technical records.

4.13.1.2

All North Carolina Department of Secretary of State laboratory records will be legible, appropriately stored and readily retrievable. Retention times for records will be determined by state records management policy and/or ANSI-ASQ National Accreditation Board retention standards.

4.13.1.3

North Carolina Department of Secretary of State laboratory case files shall be kept confidential and access to North Carolina Department of Secretary of State laboratory case files is controlled according to the Administrative Procedures for Laboratory Case Record Contents, Management and Retention and Laboratory Reports. All other records are stored within secure areas in the laboratory or the Lab Manager's office.

4.13.1.4

Electronic records on the LIMS system are maintained by the Digital Forensic Laboratory with the North Carolina Department of Secretary of State. Access to these records is controlled via grants by the Lab Manager. Digital Forensic Lab will have procedures for backing up records stored electronically that are not located on the main North Carolina Department of Secretary of State server system.

4.13.2 Technical records

4.13.2.1

The North Carolina Department of Secretary of State Digital Forensic Laboratory will retain examination and administrative documentation as part of the case file for a defined period in accordance with state records retention requirements. Technical records will be such that another qualified examiner could repeat the examination under conditions as close as possible to the original. Personnel responsible for the examination of evidence, the technical reviewer and the administrative reviewer will be identified in the LIMS and in the case file.

4.13.2.2

Examination notes will include observations, data and calculations. These notes will be recorded at the same time as, and will be identifiable to, the specific examination performed.

4.13.2.2.1

Technical records will contain the date(s) of examination according to the Administrative Procedure for Laboratory Case Record Contents, Management and Retention.

4.13.2.3

Mistakes which occur in case documentation or records will be corrected with an initialed single strike-out and the correction

entered alongside. No part of case documentation or records can be erased or otherwise made illegible. In the case of electronically stored records, equivalent measures will be taken to avoid loss or change of original data.

4.13.2.3.1

Any change made to case documentation will be initialed next to the change by the member making the change. Any addition made to case documentation will be initialed and dated next to the addition by the member making the addition.

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4.13.2.3.2

Any change made to a completed examination record generated and/or maintained in an electronic form shall be tracked as defined in the Administrative Procedure for Laboratory Case Record Contents, Management and Retention. Examination records shall be considered complete prior to any technical or administrative review.

4.13.2.4

The Administrative Procedure for Laboratory Case Record Contents, Management and Retention will identify what documents will be maintained in the case file.

4.13.2.5

Technical records will be such that, in the absence of the examiner, another qualified examiner could evaluate the examinations performed and interpret the data.

4.13.2.5.2

When instrumental analyses are conducted, operating parameters will be recorded as indicated in The Digital Forensic Laboratory's Standard Operating Procedure.

4.13.2.6

The North Carolina Department of Secretary of State laboratory case number and the examiner's handwritten initials (or secure electronic equivalent of initials or signature) will be on each page of the technical records.

4.13.2.7

When technical records are prepared by an individual other than the examiner who interprets the findings, the individual's handwritten initials (or secure electronic equivalent of initials or signature) will be on each page of the documentation representing his/her work.

4.13.2.8

The North Carolina Department of Secretary of State laboratory case number will be on each page of the administrative documentation in the case file.

4.13.2.9

The North Carolina Department of Secretary of State laboratory case number for each case for which data was generated shall be appropriately recorded on the printout when data from multiple cases is recorded on a single printout.

4.13.2.10

When information is recorded on both sides of an examination document, each side will be initialed and labeled with the North Carolina Department of Secretary of State laboratory case number.

4.13.2.11

Handwritten case documentation will be in ink. Exceptions to this will be noted in the Administrative Procedure for Laboratory Case Record Contents, Management and Retention.

4.13.2.12

When critical findings require that an independent check be carried out, it shall be done by an analyst having expertise gained through training and casework experience in digital forensics. A record of the review shall be made to indicate that the critical

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finding has been checked and agreed to, by whom, and when the check was performed.

4.13.2.13

Abbreviations and notations will be acceptable if they are clearly documented and comprehensible. North Carolina Department of Secretary of State laboratory discipline standard operating procedures will contain a list of common abbreviations and/or symbols that are used by their personnel. If an abbreviation is not on the discipline standard operating procedures list, it must be defined within the case notes.

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4.14 Internal Audits

4.14.1

The Administrative Procedure for Annual Quality Audits will be followed when conducting scheduled audits to verify that operations conform to the requirements of the North Carolina Department of Secretary of State laboratory quality system and ANAB AR 3028 Audits are performed to measure and evaluate the effectiveness of the quality system, to verify the effectiveness of corrective actions, and to recommend improvements for North Carolina Department of Secretary of State laboratory operations. An annual audit will be conducted in each discipline at each laboratory to verify that its operations continue to comply with the discipline and North Carolina Department of Secretary of State laboratory quality system policies and procedures. The Quality Manager is responsible for planning and organizing audits as required and as requested by executive management. Such audits are carried out by trained auditors in the North Carolina Department of Secretary of State Digital Forensic Laboratory.

4.14.1.1

Internal audits will be conducted, at a minimum, on an annual basis according to the Administrative Procedure for Annual Quality Audits.

4.14.1.2

Internal audit records will be retained for at least five years.

4.14.2

When an audit identifies nonconformity, the Quality Manager will address it according to the appropriate administrative procedure. When necessary, the North Carolina Department of Secretary of State laboratory will notify contributors, in writing, if North Carolina Department of Secretary of State laboratory results have been affected.

4.14.3

A Quality Audit Report Form will be issued for every internal audit according to the Administrative Procedure for Annual Quality Audits.

4.14.4

Follow-up audit activities will be documented, implemented and monitored to ensure effectiveness of any corrective action taken.

4.14.5

The North Carolina Department of Secretary of State Digital Forensic Laboratory will submit an Annual Accreditation Audit Report to ANAB within thirty (30) calendar days following its accreditation anniversary date.

4.15 Management Reviews

4.15.1

The North Carolina Department of Secretary of State Digital Forensic Laboratory management will evaluate the quality system and examination activities to ensure their continued suitability and effectiveness. This management review will be used as the foundation for future development of North Carolina Department of Secretary of State Digital Forensic Laboratory goals and objectives as well as for any necessary changes or improvements to the quality system.

4.15.1.1

Management reviews will be conducted at least once per calendar year.

4.15.1.2

Management reviews will be documented and retained by the Quality Manager for at least five years.

4.15.2

An annual review is required to ensure that management can continue to be confident that all measures taken provide the highest quality service. Management will carry out any actions as a result of the annual review in an appropriate and agreed timeframe. Each laboratory will conduct an annual review to determine if the current quality system is effective and prepare an annual accreditation review report as required by ANAB AR 3028.

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General

5.1.1

The North Carolina Department of Secretary of State Digital Forensic Laboratory ensures correct and reliable forensic examinations by using adequately trained personnel, appropriate facilities, validated standard operating procedures, properly maintained equipment and software, and by maintaining the integrity of evidence.

5.1.2

The North Carolina Department of Secretary of State Digital Forensic Laboratory will consider all factors contributing to the total uncertainty of measurement when developing and validating standard operating procedures, in the training and qualification of personnel, and in the maintenance of the equipment it uses.

5.2 Personnel

5.2.1

Technical management will ensure that only qualified technical personnel conduct forensic examinations, confirm identifications and associations, review results, and issue reports. Personnel who are undergoing training will be appropriately supervised.

5.2.1.1

The North Carolina Department of Secretary of State Digital Forensic Laboratory will have a documented training program that is used to develop an individual's knowledge, skills and abilities required to perform forensic examinations. The Administrative Procedure for Training will provide for maintaining the skills and expertise of personnel and provide for retraining, when needed. Each supervisor will ensure that, at a minimum each trainee successfully completes a competency test in the relevant discipline or category of testing prior to conducting independent casework. A trainee's successful completion of the training program will be documented through North Carolina Department of Secretary of State Training Progress Reports and a final memorandum and certificate identifying the discipline and/or category of testing and his/her position as indicated in the Administrative Procedure for Certification.

5.2.1.2

All North Carolina Department of Secretary of State crime laboratory analyst and forensic technologist training programs will contain training in the presentation of evidence in court.

5.2.1.3

All North Carolina Department of Secretary of State crime laboratory analyst and forensic technologist training programs will contain training in the application of ethical practices in forensic sciences, a general knowledge of forensic science and applicable criminal and civil law and procedures.

5.2.2

Management establishes objectives for the continuing education and training of all personnel to meet the present and anticipated needs of the North Carolina Department of Secretary of State Digital Forensic Laboratory. Identifying training needs, providing this training to personnel and evaluating the effectiveness of this training is addressed in the Administrative Procedure for Training.

5.2.3

The North Carolina Department of Secretary of State Digital Forensic Laboratory uses a qualified technical analyst who is employed by the North Carolina Department of Secretary of State.

5.2.4

Current job descriptions for all North Carolina Department of Secretary of State laboratory personnel are maintained by the North Carolina Department of Secretary of State.

5.2.5

The Quality Manager authorizes qualified personnel to perform forensic examinations. Each laboratory will maintain records of a member's qualifications to include education, professional experience, competency test results, proficiency test results and documentation of the successful completion of the training program.

5.2.6 Examiner/Technician Qualifications

5.2.6.1 Education

5.2.6.1.4

The analysts working in the Digital Evidence discipline of forensic science will meet the educational requirement(s) specified in the Laboratory Administrative Procedures Manual Appendix.

5.2.6.2 Competency Testing

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5.2.6.2.1

The analyst must satisfactorily complete a competency test in computer forensics prior to assuming casework or crime scene responsibilities in the North Carolina Department of Secretary of State Digital Forensic Laboratory.

5.2.6.2.2

The North Carolina Department of Secretary of State Digital Forensic Laboratory analysts whose job responsibilities include test report writing must complete a competency test that includes examination of unknown evidence, and a written test report.

5.2.7

Each North Carolina Department of Secretary of State laboratory provides access to forensic science resources such as relevant books, journals and literature.

5.3 Facilities and Environmental Conditions

5.3.1

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Laboratory facilities will be such as to permit the correct performance of forensic examinations. The lab manager will ensure that the environmental conditions do not adversely affect the quality required of any examination. Any environmental conditions that can affect the results of examinations will be described in the Digital Forensic Laboratory standard operating procedure.

All examinations require normal laboratory environmental conditions unless noted in a discipline standard operating procedure. Extreme care will be taken when previews and/or examinations are undertaken at sites other than the permanent North Carolina Department of Secretary of State Digital Forensic Laboratory facility.

5.3.2

If environmental conditions affect the quality of an examination, the analyst will monitor, control and record those conditions as required by Digital Forensic standard operating procedures. Examinations will be stopped when the environmental conditions jeopardize the results.

5.3.3

North Carolina Department of Secretary of State Digital Forensic Laboratory will be responsible for maintaining effective separation between incompatible activities to prevent cross-contamination.

5.3.4

Access to and use of all examination areas in the North Carolina Department of Secretary of State Digital Forensic Laboratory is controlled and limited.

5.3.4.1

North Carolina Department of Secretary of State laboratory procedures and/or practices for security are found in the Digital Forensic Laboratory Security and Safety plan.

5.3.5

The North Carolina Department of Secretary of State Safety Manual requires good housekeeping in all North Carolina Department of Secretary of State laboratories. Special housekeeping procedures will be created when necessary to ensure the quality of examinations.

5.3.6

The North Carolina Department of Secretary of State Safety Manual documents the North Carolina Department of Secretary of State laboratory's health and safety program.

5.4 Test methods and method validation

5.4.1 General

Digital Forensic Laboratory standard operating procedures as well as validations are a key element in establishing and maintaining quality within the North Carolina Department of Secretary of State Digital Forensic Laboratory. It is the policy of the North Carolina Department of Secretary of State Digital Forensic Laboratory for analysts to have and use written procedures for all examinations within their scope. These procedures include, when necessary, handling, transfer, storage and preparation of evidence to be examined; a section on calculations, including any statistical techniques for the analysis of examination data; and a section on limitations of the procedure including any environmental conditions affecting quality. All digital forensic standard operating procedures used in the North Carolina Department of Secretary of State Digital Forensic Laboratory will be reviewed and approved prior to implementation.

The Digital Forensic Laboratory will have procedures and/or instructions for operating North Carolina Department of Secretary of State Digital Forensic Laboratory equipment where the absence of such instructions would jeopardize the results of tests. Procedures will also exist for handling and preparing evidence for examination to ensure the quality of the results. Any deviations from a standard operating procedure will follow the Administrative Procedure for Exceptions.

5.4.2 Selection of methods

Analysts will select appropriate technical procedures to meet the needs of the contributor while taking into account the nature of the evidence and the facts of the case. These technical procedures should be published either in international, regional or national standards, or by reputable technical organizations, or in relevant scientific texts or journals, as specified by the manufacturer of the equipment or developed by the North Carolina Department of Secretary of State Digital Forensic Laboratory. If the North Carolina Department of Secretary of State Digital Forensic Laboratory uses a standard procedure, it will use the latest version when possible. The standard procedure will be supplemented with additional details to ensure consistent application. The North Carolina Department of Secretary of State Digital Forensic Laboratory will confirm that it can properly use a standard procedure prior to introducing it for forensic examinations. The confirmation will be repeated if the standard procedure changes. North Carolina Department of Secretary of State laboratory-developed technical procedures or procedures adopted by the North Carolina Department of Secretary of State Digital Forensic Laboratory, including standard procedures, are used as deemed appropriate.

5.4.3 Laboratory-developed methods

When a discipline develops a technical procedure, it will be a planned activity that is performed by qualified personnel with adequate resources. Any significant changes occurring during the development of the procedure will be effectively communicated to all personnel involved in the development process.

5.4.4 Non-standard methods

Disciplines will use validated technical procedures; however, this does not preclude the analyst from deviating from a procedure if the nature of the evidence precludes the use of a standard operating procedure. Changes to or deviations from a technical procedure must be within the bounds of good laboratory practice, documented, justified and approved according to the Administrative Procedure for Exceptions.

5.4.5 Validation of methods

5.4.5.1

Appropriate validation studies will be conducted on new technical procedures used for the analysis of evidence.

5.4.5.2

Validations for new technical procedures will be performed to ensure the procedure produces reliable results.

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The Administrative Procedure for Validations outlines the requirements for proceeding with the validation process. The validation process determines the limitations of the procedure, the conditions under which reliable results can be obtained, and the critical aspects of the procedure that must be carefully controlled and monitored. Disciplines will maintain records of the validation including, but not limited to, the procedure used, the results, and a statement as to whether the technical procedure is fit for its intended use.

5.4.5.3

When validating a technical procedure, the scope and accuracy will be assessed to ensure that the procedure meets the requirements of a given application.

5.4.5.4

The reliability of a validated technical procedure that is new to the North Carolina Department of Secretary of State Digital Forensic Laboratory will be confirmed in-house against any documented performance characteristics of that procedure prior to first use. Records of performance checks conducted during the validation process will be maintained either online or in the laboratory for future reference.

5.4.6 Estimation of Uncertainty of Measurement

The North Carolina Department of Secretary of State Digital Forensic Laboratory is in compliance with the most current, published version of the *ASCLD/LAB Policy on Estimation of Uncertainty of Measurement*.

5.4.6.1

The North Carolina Department of Secretary of State Digital Forensic Laboratory does not perform calibration services.

5.4.7 Control of Data

5.4.7.1

All examiners will ensure that manual calculations and data transcriptions relevant to examinations are checked for accuracy.

5.4.7.2

When computers or automated equipment are used for forensic examinations, sections will ensure that:

- Computer software developed in-house is documented, evaluated and validated prior to use;
- Procedures for protecting test data maintain the integrity and confidentiality of the data;
- Operating conditions and maintenance are such that computers and automated equipment function properly.

5.4.7.2.1

North Carolina Department of Secretary of State laboratories shall implement appropriate measures to prevent unauthorized access to computer systems used for examining electronic data.

5.5 Equipment

5.5.1

The North Carolina Department of Secretary of State Digital Forensic Laboratory is furnished with, or has access to, all items needed for the correct performance of forensic examinations. All instruments and equipment having an effect on the accuracy or validity of forensic examination results will be properly maintained and performance checked. Requirements for instrument performance checks and maintenance are specified in the standard operating procedures.

5.5.2

Equipment and its software used for the examination of evidence must meet the requirements of the relevant standard operating procedure. Before being placed into service, equipment will be performance checked to verify that it meets the laboratory's specifications. Validation programs for equipment having a significant effect on the results will be established as appropriate. Equipment will also be performance checked before use in accordance with digital forensic standard operating procedures.

5.5.3

North Carolina Department of Secretary of State Digital Forensic Laboratory equipment will be operated by qualified personnel. Manufacturer's manuals and up- to-date instructions for the use and maintenance of equipment will be available to the appropriate personnel.

5.5.4

North Carolina Department of Secretary of State Digital Forensic Laboratory instruments, equipment and their associated software used for forensic examinations will be uniquely identified.

5.5.5

Records of each instrument and its associated software used for forensic examinations will be maintained according to the Administrative Procedure for Equipment Records.

5.5.6

Procedures for appropriate use and planned maintenance of measuring equipment to ensure proper functioning are found in the discipline standard operating procedures.

5.5.7

Any instrumentation that is malfunctioning will be taken out of service and clearly labeled to prevent use until repairs are completed. Only when it is shown by a performance check to operate correctly will the equipment be returned to service. Determine the effect of the malfunction, if any, on test results and implement the standard for control of nonconforming testing (DFLQM 4.9) when necessary.

5.5.9

Performance checks must be satisfactorily completed by the Digital Forensic Lab analyst on any instrument that goes outside the control of the North Carolina Department of Secretary of State Digital Forensic Laboratory prior to its return to service.

5.5.12

Instrumentation used for forensic examinations, including both hardware and software, will be safeguarded from adjustments which would invalidate the test results.

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5.6 Measurement Traceability

This section is Not Applicable to a Digital Forensic Laboratory.

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5.7 Sampling

This section is Not Applicable to a Digital Forensic Laboratory.

5.8 Handling of Test Items

5.8.1

The Administrative Procedure for Evidence Handling and Case Management gives guidance for the handling of evidence, which protects the integrity of evidence, the interests of the North Carolina Department of Secretary of State Digital Forensic Laboratory and the interests of the contributor.

5.8.1.1

The North Carolina Department of Secretary of State Digital Forensic Laboratory uses the LIMS system to document all internal transfers of evidence from the time of receipt. This documentation tracks the chain of custody for each evidence container submitted for analysis. This system includes identification, of the person/location receiving the evidence; the date of receipt or transfer; and the unique identifier of the evidence.

5.8.1.1.1

When evidence is sub-divided in the North Carolina Department of Secretary of State Digital Forensic Laboratory, sub-items will be tracked in the LIMS system.

5.8.1.1.2

The North Carolina Department of Secretary of State Digital Forensic Laboratory will ensure that all evidence accepted and stored in the laboratory is properly sealed.

5.8.2

The North Carolina Department of Secretary of State Digital Forensic Laboratory will identify items of evidence according to the Administrative Procedure for Evidence Handling and Case Management. These procedures ensure that items of evidence are uniquely identified and provide for sub-divided evidence. Evidentiary items will be transferred within and from the North Carolina Department of Secretary of State Digital Forensic Laboratory according to the Administrative Procedure for Evidence Handling and Case Management.

5.8.3

Upon receipt of evidence, departures from normal or specified conditions will be documented in the LIMS narrative. The contributor will be contacted when the suitability of an item of evidence for examination is questionable or the request for examination is unclear. This communication will be documented in the LIMS narrative or in writing to be maintained in the case notes.

5.8.4

The North Carolina Department of Secretary of State Digital Forensic Laboratory will ensure the integrity of evidence by protecting items from loss, cross-transfer or deleterious change during storage, handling, and preparation according to the Administrative Procedure for Evidence Handling and Case Management. Appropriate handling instructions provided with an item will be followed. When evidentiary items have to be stored or handled under specified environmental conditions, these conditions will be maintained, monitored and recorded.

5.8.4.1

Any evidence not in the process of examination that must be placed in a container to protect it from loss, cross-transfer or contamination will be stored under proper seal.

5.8.4.2

The Administrative Procedure for Evidence Handling and Case Management describes the measures taken to secure unattended evidence which is in the process of being examined.

5.8.4.2.1

Laboratory evidence will not be maintained unsealed for a period of longer than one year.

5.8.4.3

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Each item of evidence will be marked to ensure that it is uniquely identified and traceable to the North Carolina Department of Secretary of State Digital Forensic laboratory case number. If the evidence does not lend itself to marking, its proximal container or identifying tag will be marked.

5.8.4.4

When evidence can only be recorded or collected by photography or digital capture and the image itself is not recoverable, the photograph, negative or digital image of the image will be treated as evidence.

5.8.4.5

Evidence collected from a crime scene by North Carolina Department of Secretary of State Digital Forensic laboratory members will be protected from loss, cross-transfer, contamination and/or deleterious change whether in a sealed or unsealed container during transportation to a North Carolina Department of Secretary of State laboratory or other appropriate evidence facility. Where relevant, further processing to preserve, evaluate, document, or render evidence safe will be accomplished prior to final packaging. Additionally, crime scene evidence will be properly identified, packaged and entered into the North Carolina Department of Secretary of State laboratory evidence control system as soon as possible.

5.8.4.6

North Carolina Department of Secretary of State Digital Forensic laboratory will have procedures for the operation of individual characteristic databases.

5.8.4.6.1

The North Carolina Department of Secretary of State LIMS Database treats digital forensic case samples as examination records.

5.8.4.6.2

Each Digital Forensic submission to the Database will have a unique identifier.

5.8.4.6.3

North Carolina Department of Secretary of State Database samples under the control of the laboratory shall be protected from loss, cross transfer, contamination and/or deleterious change.

5.8.4.6.4

Access to North Carolina Department of Secretary of State Database samples under the control of the laboratory shall be restricted to those persons authorized by the laboratory director.

5.9 Assuring the Quality of Test Results

5.9.1

North Carolina Department of Secretary of State Digital Forensic laboratory will have quality control procedures for monitoring the reliability of forensic examinations. The resulting data will be recorded in such a way that trends are detectable and, where practicable, statistical techniques will be applied to the reviewing of the results.

5.9.1.1

Standard operating procedures specify the use of appropriate standards and controls. Any standards or controls used will be recorded in the technical records.

5.9.2

North Carolina Department of Secretary of State Digital Forensic laboratory will have procedures for evaluating quality control data against defined criteria. When quality control data are found to fall outside established criteria, appropriate actions will be taken to prevent incorrect results from being reported.

5.9.3

Proficiency testing is an integral part of the North Carolina Department of Secretary of State Digital Forensic laboratory's quality system. It is one of many quality control measures used to monitor the North Carolina Department of Secretary of State Digital Forensic Laboratory's own performance as well as identify areas where improvement may be needed. The North Carolina Department of Secretary of State Digital Forensic laboratory proficiency testing program is documented in the Administrative Procedure for Proficiency Testing and the Laboratory Administrative Procedures Manual Appendix. Proficiency testing applies to each analyst who performs examinations and casework.

5.9.3.1

The North Carolina Department of Secretary of State Digital Forensic Laboratory analyst will follow the appropriate standard operating procedures when participating in proficiency testing programs.

5.9.3.2

The North Carolina Department of Secretary of State Digital Forensic Laboratory proficiency testing program will comply with the *ANSI-ASQ National Accreditation Board AR 3028*.

5.9.3.3

The analyst who participates in casework activities will successfully complete at least one internal or external proficiency test per calendar year per discipline.

5.9.3.3.2

All analysts who participate in casework activities will successfully complete at least one internal or external proficiency test during each five year accreditation cycle in each category of testing appearing on the laboratory's Scope of Accreditation in which the individual performs testing. The North Carolina Department of Secretary of State Digital Forensic laboratory will have a documented schedule for proficiency testing which is being followed by all analysts.

5.9.3.4

The North Carolina Department of Secretary of State Digital Forensic laboratory will participate annually in, and successfully complete, at least one external proficiency test for each forensic discipline in which it conducts examinations. ANAB- approved proficiency test providers will be used where available. If there is not an ANAB- approved test provider available for a particular discipline, the North Carolina Department of Secretary of State Digital Forensic laboratory will administer a proficiency test according to the discipline's annual proficiency testing plan.

5.9.3.5

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The North Carolina Department of Secretary of State Digital Forensic Laboratory maintains proficiency testing documentation according to the Administrative Procedure for Proficiency Testing.

5.9.3.6

Proficiency testing records will be maintained for at least five years. Proficiency testing results will be retained permanently by the North Carolina Department of Secretary of State Digital Forensic Laboratory.

5.9.4

Technical reviews of technical records and reports will be conducted according to the Administrative Procedure for Case File Review. Digital forensic standard operating procedures may contain additional procedures for conducting and documenting technical reviews.

5.9.4.1

At a minimum, technical reviews will include a review of all examination records and reports to ensure the following: conformance with North Carolina Department of Secretary of State technical procedures and laboratory policy and procedures; accuracy of the report; that the data supports the results and/or conclusions in the report; that associations are properly qualified in the report; and that the report contains all the required information.

5.9.4.2

Technical reviews must be conducted by individuals authorized by laboratory management having expertise gained through training and experience in the category of testing being reviewed. The reviewer must have knowledge of current North Carolina Department of Secretary of State technical procedures.

5.9.4.3

Technical reviews will not be conducted by the author or co-author of the examination records or report being reviewed.

5.9.5

Administrative reviews on all documentation in the case file will be conducted prior to release and according to the Administrative Procedure for Case File Review. Digital forensic standard operating procedures may contain additional procedures for conducting and documenting administrative reviews. Administrative reviews must be conducted by someone other than the author of the report.

5.9.5.1

At a minimum, administrative reviews will include the following: a review of the report for spelling and grammatical accuracy; a review of all administrative and examination records for unique identifiers; and a review of the report to ensure all key information is included.

5.9.6

The North Carolina Department of Secretary of State Digital Forensic Laboratory will follow the Administrative Procedure for Testimony Review. All testifying personnel will be monitored and evaluated. Each member will be given feedback by their supervisor or designee. If the evaluation is less than satisfactory, then it will be investigated to determine if further action is needed.

5.9.7

Records of testimony review will be retained for at least five years.

5.10 Reporting the Results

5.10.1 General

North Carolina Department of Secretary of State Digital Forensic laboratory members will accurately, clearly, unambiguously and objectively report the results of each examination according to the Administrative Procedure for Laboratory Reports. North Carolina Department of Secretary of State Digital Forensic laboratory reports will include information regarding the examinations conducted and any information necessary for the interpretation of the examination results.

5.10.1.1

The Administrative Procedure for Laboratory Reports indicates what types of reports may be issued by North Carolina Department of Secretary of State Digital Forensic laboratory analyst.

5.10.2 Content of Reports of Examination

North Carolina Department of Secretary of State Digital Forensic laboratory case records will contain all information required under ISO 17025 standards 5.10.2 and 5.10.3. The Administrative Procedure for Laboratory Reports provides guidance for the content of North Carolina Department of Secretary of State Digital Forensic laboratory reports.

5.10.3 Additional Report of Examination Guidelines

5.10.3.1

North Carolina Department of Secretary of State Digital Forensic laboratory reports may include additional information when it is necessary for the interpretation of the examination results according to the Administrative Procedure for Laboratory Reports.

5.10.3.2

North Carolina Department of Secretary of State Digital Forensic laboratory reports may include additional information regarding sampling when it is necessary for the interpretation of the examination results according to the Administrative Procedure for Laboratory Reports.

5.10.3.3

North Carolina Department of Secretary of State laboratory reports are issued according to the Administrative Procedure for Laboratory Reports.

5.10.3.4

Analysts and technologists who issue findings, including writing reports and providing testimony, based on the technical records generated by another person will document the review of the technical records.

5.10.3.5

The significance of an association will be included in North Carolina Department of Secretary of State Digital Forensic laboratory reports.

5.10.3.6

When comparative examinations result in the elimination of an individual or an object in the absence of an identification, the report will clearly communicate the elimination.

5.10.3.7

When a definitive conclusion cannot be reached, the reason will be clearly stated in the case report.

5.10.4 Calibration Certificates

The North Carolina Department of Secretary of State Digital Forensic Laboratory does not issue calibration certificates.

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5.10.5 Opinions and Interpretations

Opinions and interpretations are identified in NORTH CAROLINA DEPARTMENT OF SECRETARY OF STATE laboratory reports. The analyst will document the basis for his/her opinions and/or interpretations in the case record.

5.10.6 Testing Results Obtained from Subcontractors

When the North Carolina Department of Secretary of State Digital Forensic Laboratory subcontracts or facilitates forensic examinations, the entity conducting the examinations will provide a report of their results, in writing or electronically, to the Digital Forensic laboratory. A copy of this report will be retained as part of the North Carolina Department of Secretary of State Digital Forensic laboratory case file. When North Carolina Department of Secretary of State Digital Forensic laboratory reports contain results of tests performed by an expert outside the North Carolina Department of Secretary of State Digital Forensic Laboratory, those results will be clearly identified.

5.10.7 Electronic Transmission of Results

The transmission of all North Carolina Department of Secretary of State Digital Forensic laboratory reports and examination results by telephone, facsimile or other secure electronic means must follow the Administrative Procedure for Laboratory Reports.

5.10.8 Format of Report of Examination

North Carolina Department of Secretary of State Digital Forensic laboratory reports are formatted according to the Administrative Procedure for Laboratory Reports.

5.10.9 Amendments to Reports of Examination

Once North Carolina Department of Secretary of State Digital Forensic laboratory reports have been issued, any amendments or supplements must be made in the form of another report and will meet all the requirements of the Administrative Procedure for Laboratory Reports.