Accreditation Plan

For a digital forensics lab to be accredited, the ANSI-ASQ National Accreditation Board (ANAB) has to audit the forensic lab's tasks and operations to approve the quality and integrity of the work being done within the lab. To apply for proper accreditation for the forensic lab, will include proof of documents to be considered and to further move on to the formal application process.

The most current documents needed for application of ANAB accreditation:
1. A licensed copy of the international standard (ISO/IEC 17025: testing and calibration, ISO/IEC 17020: inspection).
2. MA 3033 accreditation manual
3. AR 3125: testing and calibration, AR 3120: inspection, and AR 3181: property and evidence control units
4. The application and draft scope documents
5. Possible additional requirements such as FBI Quality Assurance Standards, ABFT checklist, and MD OHCQ

The ISO standards may be purchased by the national standards bodies.
For requirement of ISO/IEC standard, the ANSI-ASQ National Accreditation Board requires submission of ownership of a licensed copy of the standard by an ISO/IEC Document Ownership Certification FM 3058 form to QualityMatters@anab.org.

Additional requirements in preparation for ANAB application:
1. An internal audit
2. PT/ILC

Formal Application:
For the initial assessment, an accreditation application for each location needs to be submitted to QualityMatters@anab.org. This has to be done electronically in English or Spanish.
- If application is submitted to ANAB and unpursued accreditation for a period of a year, a new application and fees may be required.

List of approved Accreditation testing programs in the United States:
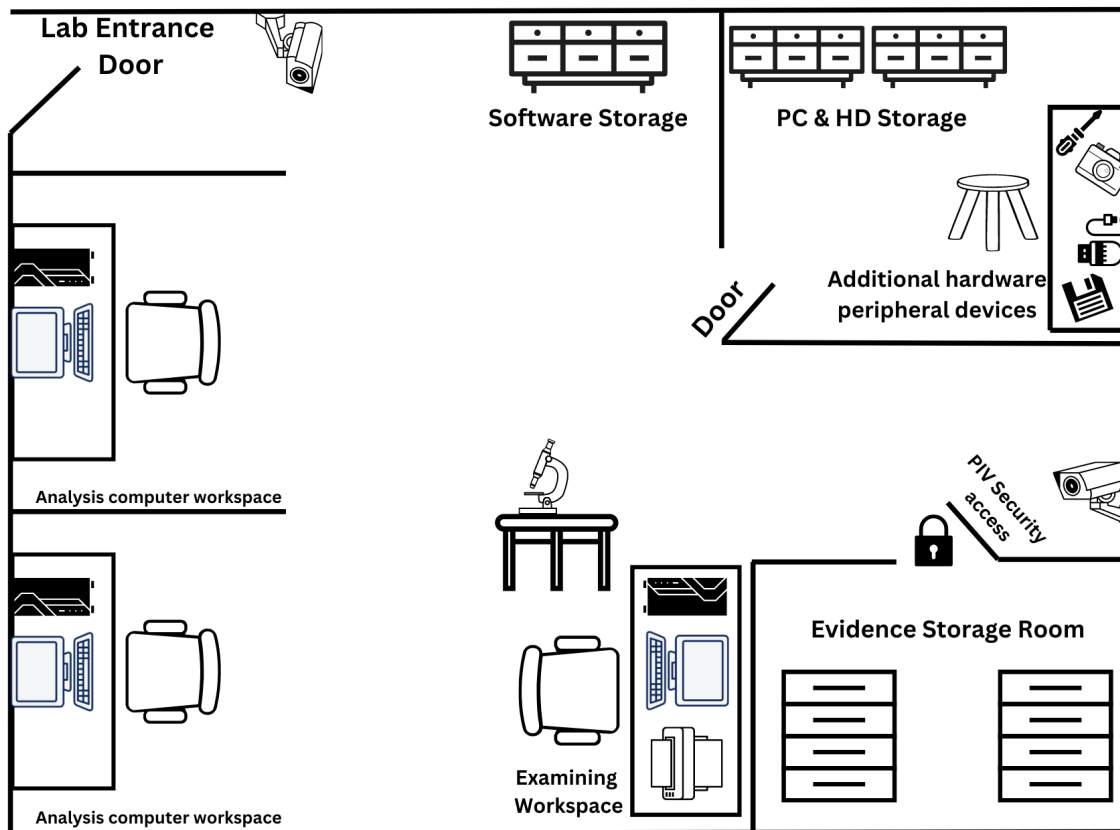1. ANSI-ASQ National Accreditation Board (ANAB)
2. US Department of Defense (DoD) Environmental Laboratory Accreditation Program (DoD ELAP)
3. FDA LAAF - Laboratory Accreditation for Analyses of Foods

Steps of Assessment of Accreditation Process

Translation and Interpretation Services	English will be used and if another language is needed, this will have to be done prior.
Scheduling Assessment	Set an assessment activity date that fits the best date.
Appointment of Assessment Team	This is the determinate of the assessment team and duration of activity.
Logistics of the Assessment	Team leader makes and Assessment Activity Plan before the actual assessment.
Conformance Checklist	A mandatory completion of ANAB electronic conformance checklist is required.
Document Review	The initial review by the team leader will be completed.
Opening Meeting	Rules and safety protocols will be discussed in a meeting.
Assessing Objective Evidence	The assessment of conformance, competence, and effectiveness will transpire.
Corrections	The team leader will review and either accept or not accept corrections.
Results	The team leader will determine the results based off what the assessment team has found.
Closing Meeting Report	The team leader formally speaks of results and findings to everyone in a meeting.
Resolution of Findings of Nonconformance	Within 30 days of closing meeting, updates are required to show nonconformities found during the assessment.
Improvement Opportunities	It is not required to take action on opportunities for improvement.

Report After Resolution of Nonconformities	The report will have a summary of actions made to change and update each nonconformity.

Forensic Laboratory Layout

Lab Entrance Door

Software Storage

PC & HD Storage

Additional hardware peripheral devices

Door

Analysis computer workspace

Analysis computer workspace

PIV Security access

Evidence Storage Room

Examining Workspace

Inventory

Hardware:
- A digital camera
- USB cables
- FireWire
- USB adaptors
- External CD and DVD drives
- Floppy disks
- Extra cables
- Tools for the computers in the lab: Screwdrivers, socket wrench, flashlight, and an antistatic wrist strap

Software: Current and old
- Microsoft Office
- WinHex
- Python
- Quick View
- Quicken
- WPS Office and WordPerfect

Forensic Tools:
- Autopsy and Sleuth Kit
- EnCase
- Bulk Extractor
- Registry Recon
- Volatility
- Wireshark
- XRY
- CAINE

<div align="center">**Maintenance Plan**</div>

In order for the lab to properly stay updated a reliable for cases and the individuals using the equipment within the lab, practices need to be put in place. These practices will include requirements, equipment maintenance, and planning ahead for equipment upgrades. These practices will be looked over by a laboratory manager who has some of the most important roles within the lab.

<div align="center">**Roles/Responsibilities**</div>

Forensic Technicians:
- Collect evidence
- Identify evidence
- Classify evidence
- Analyze physical evidence
- Analyze data from computers or other digital devices connected to the given case
- Record samples
- Receive and log evidence
- Prepare reagents
- Prepare media
- Prepare reports
- Prepare solutions
- Perform tests on devices or any substances used in connection to case
- Monitor inventory and supplies for the lab
- Testify on evidence they found in a criminal case

Education:
- Associate degree, bachelor's degree, and forensic training programs are a minimum.
- The common recommendation for a forensic lab technician is a 4-year degree and other certifications are an added plus.
- Employers look for individuals who have participated and completed programs that are accredited by the AAFS Forensic Science Education Program Accreditation Commission.
- For forensic technicians, on the job extensive training is important before independent work.
- Training in the workplace can be anywhere from 6 months to 1 year.

Lab Manager:
- Collects and stores physical evidence
- Oversee and supervise lab examinations of evidence
- Supervising the forensic technician support team
- Develop and coordinate procedures in the response department, state, and federal, plans, policies, and resources
- Monitor and give recommendations for the lab budget
- Conduct tests
- Evaluate test results and make recommendations of the findings
- Have accountabilities for all of the activities being completed in the lab
- Photograph crime scenes
- Make diagrams or presentations for reports
- Correlate with officers on laboratory test results
- Stay up to date with scientific advancements in the field to keep the lab up to date
- Prepare fingerprints found

Education:
- Minimum of bachelor's degree in chemistry, Criminalistics, Forensic Science, or Physical Science.
- Bachelor's degree with a 5-year minimum in advancing crime laboratory experience with 2 years of American Society of Crime Laboratory Directors/Laboratory Accreditation Board scientific disciplines is also accepted.
- Skills needed in collection, preservation, documentation, and analysis of physical evidence recovered from crime scenes and pass annual proficiency tests.
- Knowledge with police terminology in the field from education and experience

Maintenance practices

In a forensic lab there are requirements set in place for the maintenance practices and performance of the forensic lab. The lab manager will make sure there is an equipment inventory that includes the item, manufacturer and model, serial number, and location and keep them up to date. Procedures such as specifications for the calibration laboratory, specified requirements, and interval of calibration should be included in a task of managers. The calibration will have to be proven satisfactory in the maintenance practice. Maintenance of equipment should be specified in a technical procedure in the lab. There should be documenting procedures of all the equipment within the lab. There needs to be preventative maintenance for each equipment item and recorded after they are completed. After the maintenance practices have been performed, records should be maintained. These records can include the type, identification, date of maintenance, repairs made, individual who performed maintenance, of the equipment items. If equipment is unable to work or has been overloaded, it will need to be put out of service. For equipment in the lab, schedules for upgrades need to be set in place once identified to keep everything up to date and organized. The computing components normally last 18 to 36 months and newer versions are coming out more frequently. This is important to maintain an upgraded system for all the equipment and its data.

Equipment and Lab Security

For the lab to remain safe, technicians and lab managers have to be very careful in their actions. The devices and hardware and software are still able to be hacked and have to take extra security precautions within them as well. To access the evidence storage room there is PIV security. This Personal Identity Verification will only allow access to individuals who have been given it. The PIV card will allow identity proofing and enrollment activities. To this section of the lab there will also be security camera surveillance in the case of unauthorized access and keeping record of who goes in and out of the area. This will also be at the front section of the lab, and they will turn in multiple directions to cover the majority. The devices in the lab will be secured by design and have built-in security. They will also have many measures of access including two-factor authentication. The data on the devices will be managed by the lab manager to make sure it is encrypted and safe.

References

Dutton, G. (2021, August 23). *Lab security tips for Cyber and physical threats*. Lab Manager. https://www.labmanager.com/lab-security-tips-for-cyber-and-physical-threats-26570

Forensic lab technician jobs, education and salary information. How to Become a Crime Scene Investigator | CSI Education. (2021, October 20). https://www.crimesceneinvestigatoredu.org/forensic-lab-technician/

Murray City Corporation. (2011, December 1). Forensic Laboratory Manager. https://www.murray.utah.gov/DocumentCenter/View/366/Forensic-Laboratory-Manager?bidId=

NCSCL Quality Manager. (2017, December 18). *Procedure for equipment calibration and maintenance*. North Carolina State Crime Laboratory. https://forensicresources.org/wp-content/uploads/2019/07/Equipment-Calibration-and-Maintenance-12-18-2017.pdf

Personal identity verification (PIV). NIST. (2023, March 20). https://www.nist.gov/identity-access-management/personal-identity-verification-piv

Poston, H. (2021, January 8). *Popular Computer Forensics Top 19 Tools [updated 2021]*. Infosec. https://resources.infosecinstitute.com/topics/digital-forensics/computer-forensics-tools/

Steuart., B. N., Amelia Phillips, Christopher. (2018). *Guide to computer forensics and investigations: Processing digital evidence*. CENGAGE LEARNING.

U.S. Bureau of Labor Statistics. (2023, April 25). *Forensic science technicians*. U.S. Bureau of Labor Statistics. https://www.bls.gov/oes/current/oes194092.htm

Vice President of the ANSI National Accreditation Board. (2023, January 18). *ISO/IEC 17025 forensic - documents and resources*. ANAB. https://anab.ansi.org/resource/iso-iec-17025-forensic-documents-resources/