



SWGGUN QUALITY ASSURANCE GUIDELINES

1.0 Scope and Use

It is the goal of a forensic laboratory's firearms and toolmarks program to provide the users of these services access to quality firearms and toolmarks evidence examinations. These guidelines provide a framework of standards for quality and integrity in the firearms and toolmarks examination processes, evidence handling, evidence evaluation, reporting and testimony. This document pertains to the personnel performing firearms and toolmarks evidence examination in forensic laboratories.

2.0 Definitions

As used in these guidelines, the following terms are defined as follows:

Administrative Review: A review of the report and supporting documentation for compliance with laboratory policies and for editorial correctness.

Audit: An inspection for the purpose of evaluating laboratory functions and compliance with established criteria.

Calibration: The set of procedures, which establish a known value to an instrument's reading.

Examiner: An individual who conducts and/or directs the analysis of evidence; interprets the data and reaches conclusions.

Proficiency Test: A quality assurance measure used to monitor performances and quality through the examination and interpretation of a prepared sample whose results have previously characterized.

Quality Assurance: Planned systematic actions used to ensure that a service or product will meet specified requirements for quality.

Quality Control: Daily operational procedures designed to ensure quality.

Technical Review: An evaluation of evidence and/or a report and supporting documentation to ensure an appropriate basis for the conclusions. Such a review is conducted by a second individual qualified in the discipline.

Technical/Laboratory Aide: An individual who performs basic analytical procedures on evidence items under the supervision of a qualified examiner. Technicians/Laboratory Aides do not evaluate evidence or reach conclusions.

Validation: The process or processes by which a procedure or technique is

evaluated to assess the reliability of the procedure and to determine the conditions under which accurate results can be obtained.

Verification: an independent evaluation of a conclusion by an individual having expertise in the discipline being reviewed.

3.0 Facilities

The laboratory shall have a facility that is designed to provide adequate safety and security as well as to minimize contamination. The laboratory shall ensure that:

- 3.1 Access to the laboratory is controlled and limited.
- 3.2 Access to the firearms and toolmarks area is controlled and limited.
- 3.3 Facilities permit evidence to be stored in such a manner so as to prevent loss, contamination and/or deleterious change.

4.0 Evidence Handling

The laboratory shall have and follow a documented evidence control system to ensure the integrity of the physical evidence. Such a system shall ensure that:

- 4.1 Evidence is appropriately sealed and marked for identification.
- 4.2 A chain of custody record for all evidence is maintained.
- 4.3 Secure areas with limited access exist for evidence storage.

5.0 Personnel

The laboratory personnel shall have education, training and experience commensurate with their duties. The laboratory shall:

- 5.1 Have written job descriptions for personnel to include responsibilities, duties and skills.
- 5.2 Have a documented training program for all Examiners and Technicians/Laboratory Aides to include a competency test(s).
- 5.3 Encourage and support employees to participate in continuing education such as: reading current discipline literature, visiting relevant manufacturing facilities, attending relevant training courses, professional seminars and meetings.
- 5.4 Maintain records on the relevant education, training, skills and experience of technical personnel.

6.0 Equipment and Materials

The laboratory shall use only suitable and properly operating equipment for the procedures employed. Material must be of suitable quality and compatible with the methods employed.

- 6.1 The laboratory shall have a documented program for the calibration of instruments and equipment. Where available and appropriate, standards traceable to national or international standards shall be used for calibration.
- 6.2 The laboratory shall have a documented program to ensure that instruments and equipment are properly maintained. New instruments and equipment shall be calibrated before being utilized in casework.
- 6.3 Reagents prepared and stored in the laboratory must be labeled and tested prior to their use in casework. Labels shall include the identity of the reagent, the identity of the person who prepared the reagent, special handling instruction (if applicable), and preparation/expiration date (if applicable).

7.0 Analytical Procedures

The firearms and toolmarks disciplines shall have and follow accepted, written procedures for the analysis of physical evidence.

- 7.1 The laboratory shall have a recommended protocol for each routine examination technique utilized.
- 7.2 The standard operating protocols shall identify the procedures which include: the equipment and materials necessary, examination steps, general guidelines for the interpretation of data, safety precautions (if applicable) and references.
- 7.3 The examiner shall use accepted / validated techniques and procedures for the analysis of evidence

8.0 Verification of Conclusions ¹

A laboratory shall have policies in place to verify conclusions reached within the firearm and toolmark discipline. These evaluations, which result in a conclusion include, but are not limited to, comparisons, distance determinations and serial number restorations.

- 8.1 Personnel performing verifications should be properly trained in the discipline; and their subsequent ability to perform these tests should be formally assessed as per laboratory protocols.
- 8.2 As defined by the laboratory's policy, the verification process should include a mechanism of how cases are selected for review. In cases other than 100% verification, the analyst should not choose which cases will be verified.
- 8.3 It is recommended that a new examiner have all (100%) casework verified for a period of time as defined by laboratory policy.

- 8.4 The laboratory shall have a protocol as to the acceptable method of verification. It is strongly recommended that the verification be performed by evaluating the physical evidence.
- 8.5 Documentation of the verification should be indicated in the case record.
- 8.6 The laboratory shall have a procedure for addressing situations involving a discrepancy of conclusions.

9.0 Reporting of Results

The laboratory shall have and follow procedures for note taking and the reporting of results.

- 9.1 The laboratory shall maintain in the case record all documentation generated by examiners related to the case analysis.
- 9.2 Technical Review: A laboratory shall have policies in place for the technical review of examination documentation and reports within the firearm and toolmark discipline. The procedure shall ensure that the conclusions of an examiner are reasonable, within the constraints of validated scientific knowledge, and supported by the examination documentation. The procedure shall define the scope of the technical review, establish the parameters of the review process, specify how technical reviews are documented, and describe a course of action to be taken if a discrepancy is found. [5.9.4]
 - 9.2.1 The laboratory shall establish the number of cases to be reviewed
 - 9.2.2 Technical reviews shall be conducted by a second individual qualified in the discipline.
 - 9.2.2.1 An individual conducting the technical review need not be an active analyst in the discipline or currently being proficiency tested in the discipline
 - 9.2.3 Technical reviews should not shift the perceived responsibility for the scientific findings from the examiner to the reviewer.
- 9.3 Administrative Review: The laboratory shall establish a procedure which requires administrative review of the case file prior to the release of each report. Laboratory policy shall define the scope of the review, who may conduct administrative reviews and how the administrative review is documented. [5.9.5]
 - 9.3.1 Administrative reviews, in whole or part, may be independent of technical reviews or may be combined as one process.

10.0 Proficiency Testing

Proficiency testing pertains to Examiners and Technicians/Laboratory Aides engaged in the disciplines of firearms and toolmarks. The laboratory shall have and follow a written program of proficiency testing.

- 10.1 At least one proficiency test in each practiced discipline must be completed annually by personnel actively engaged in the analysis of firearms and toolmarks evidence.
- 10.2 Test samples must be of sufficient quality that a conclusion can be drawn from the results of the analysis/comparison.
- 10.3 The following records for proficiency tests shall be maintained:
 1. Test identifier
 2. Identity of the employee
 3. Dates of receipts, analysis, and return for each test
 4. Copies of results and all data and case documentation
 5. Results of review by appropriate individual(s)
 6. Corrective action, if necessary
- 10.4 The laboratory shall establish and follow procedures for corrective action whenever discrepancies are identified in proficiency testing.

11.0 Validation of New Techniques and Procedures

The laboratory shall validate techniques and procedures for the analysis of evidence.

- 11.1 Any techniques and procedures shall be validated prior to utilization in casework.
- 11.2 New techniques and procedures must undergo validation to ensure accuracy and reproducibility prior to utilization in casework.
- 11.3 Validation shall be performed and documented by the laboratory.
- 11.4 Peer review can be part of the validation process.

12.0 Testimony Monitoring

The laboratory shall establish and follow a program of testimony monitoring for all firearms and toolmark examiners. The purpose is to insure that the testimony clearly conveys the results of analysis in a reliable, accurate, factual and unbiased manner.

- 12.1 The frequency of monitoring shall be established. Yearly monitoring is recommended.
- 12.2 Appropriate records of such monitoring shall be maintained.
- 12.3 Corrective action procedures shall be established and followed for problems identified during testimony monitoring.

13.0 Safety

The laboratory shall provide a safe working environment for personnel.

- 13.1 The laboratory shall operate in accordance with the regulations of the pertinent government environmental, health and safety authorities.
- 13.2 Laboratory safety manuals and training will be available to all designated laboratory personnel and must address the handling of safety issues.
- 13.3 A Material Safety Data Sheet (MSDS) file shall be maintained for chemicals used in the firearms/toolmarks area.
- 13.4 All chemicals, biohazards, explosive materials and supplies must be stored and disposed of in accordance with applicable regulations and laboratory policies.

14.0 Audits

Personnel responsible for the quality assurance program should conduct audits at least once a year. The audit should address the following areas:

1. Quality assurance program
2. Personnel
3. Facilities
4. Equipment calibration and maintenance
5. Proficiency testing
6. Testimony monitoring
7. Training
8. Casework records
9. Safety

15.0 References

1. ASCLD/LAB International, 2006 Supplemental requirements for the accreditation of forensic science laboratories, effective January 24, 2006