QUALITY ASSURANCE PROGRAM

Quality assurance is an organized approach to assessing an individual's or organizations work product in order to assure that minimum established criteria and/or standards are being maintained. The following topics will be addressed:

I. GOAL

It is the goal of firearm examiners to insure the quality, integrity, and accuracy of the examinations and analysis as set forth in their section Mission Statement through the implementation of a Quality Assurance Program and to:

1. Provide such services to law enforcement agencies, attorneys, and courts in criminal matters in accordance with the policies of the laboratory.

2. Provide expert witnesses for criminal judicial proceedings in accordance with the policies of the Laboratory.

II. OBJECTIVES

It is the objective of the Quality Assurance Program to:

1. Monitor, on a routine basis, the examinations and analyses of the firearms examiners by means of quality control standards and proficiency tests.

2. Verify that all section protocols and procedures are within established performance criteria, that the quality and validity of the analytical data are maintained and that the raw data gathered provides a sound foundation for reliable conclusions.

3. Ensure that problems are noted and that corrective action is taken and documented.

III. MISSION STATEMENT

1. EXAMINATIONS, REPORTS AND TESTIMONY

To perform accurate, complete and timely forensic examinations, produce related formal reports of results and render expert testimony for judicial systems in regard to the following forms of physical evidence:

a. Firearm and ammunition components

b. Gunshot residues and related distance determinations

c. Tool marks and fractured items

d. Obliterated serial numbers

2. RESEARCH

To initiate and foster research and development efforts directed toward advancing the state of the art within the disciplines and sub-disciplines of the firearm section.

IV. QUALITY ASSURANCE POLICY

The firearm examiners have the responsibility of examining large quantities of evidence involved in criminal/civil investigations being conducted by law enforcement and other agencies. Because of the serious nature of the investigations and the consequences involved the quality control of the examiners work product must be of the highest level. It is our policy to maintain quality controls which meet or exceed those advocated by the American Society of Crime Laboratory Directors (*ASCLD*) and the Association of Firearms and Toolmark Examiners (*AFTE*) and to maintain complete documentation of this effort through the Quality Assurance Manual. The goal is to insure the quality, integrity, and accuracy of all examinations and analysis performed by the firearm section.

The Laboratory Director appoints a Quality Assurance (QA) Manager. The QA Manager will insure that all policies pertaining to QA are followed within the firearm section. An annual audit of the QA Manual will be conducted by the QA Manager to determine if the current program is adequate.

The QA Manager will be responsible for the proper validation of any new scientific technique that has been introduced into the laboratory.

V. ORGANIZATIONAL CHART

The organizational chart for the _____ is enclosed. This chart shows the lines of command, control and responsibility.

VI. SELECTION PROCESS

A. General Qualifications

A potential firearm and/or toolmark examiner must be of good moral character, high integrity, good repute, and must possess high ethical and professional standards. The candidate should exhibit maturity, be capable of analyzing data and making decisions and conclusions on that analysis. The candidate should possess the ability to observe and identify detail through various microscopes.

B. Educational Qualifications

1. At a minimum the candidate should possess a baccalaureate degree or its equivalent with major course work in physical science, criminalistics, criminal justice, industrial technology, or related fields of study.

2. Full time laboratory training and experience in the field of firearms and toolmark identification may be considered in lieu of the educational requirements listed in B1.

C. Firearms Section Specific Qualifications

The enclosed position postings contain the Firearm Section-specific requirements for the various positions within the laboratory.

VII. ADMINISTRATIVE POLICIES AND PROCEDURES

1. PERSONNEL

Policies pertaining to Personnel matters (*hiring, termination, leave, etc.*) are detailed in the Laboratory Personnel Policies.

2. CASE REVIEW

All cases generated by firearm examiners will be subject to an administrative review before the report is released for distribution. This review will be conducted by the Senior Examiner or his designee. Each case file will be reviewed to insure it is complete, correct and in the proper format. The reviewer will initial and date the case file upon completion of the review process indicating the file is complete and administratively correct. The following items will be used as a checklist for this review:

a. The report is in proper format using standard terminology.

b. All requests for examination have been addressed in the report.

c. Each page in the case file has a sequential page number and the total number of pages will be recorded on page one. Each page will be initialed by the examiner and dated.

d. Notes will be legible and use only standard abbreviations. Corrections should be lined out and initialed.

e. Results listed in the body of the report must be substantiated and supported in the examiner's notes.

f. All evidence should be described in the examiner's notes and include a description of the packaging and condition upon receipt.

g. All ancillary documentation (*subpoenas, letters, telephone conversation records, etc.*) should be present in the case file, be marked with the case number, the examiner's initials, and be incorporated into the numbered note page sequence.

Case file retention and case numbering methods are addressed in the Laboratory Administrative Policies.

VIII. TECHNICAL POLICIES AND PROCEDURES

The written standard operating procedures detailing minimum procedural requirements for examinations performed by firearm examiners are set forth in the Protocol Manuals for all examinations performed.

The QA Manager will be responsible for the proper validation of any new scientific technique that has been introduced into the laboratory.

Routine technical (*peer*) reviews of case files will be conducted. At a minimum twenty percent (*20%*) or twenty (20) of the completed case files from each firearm examiner will be reviewed per month. Another firearm examiner using the attached checklist will conduct the review. The review will be done to insure technical protocols have been followed and the results are consistent with the analyses performed. The Laboratory Director or his designee will maintain results of the technical reviews and insure that reviewers are rotated to maintain impartiality.

A copy of the case Review form is enclosed.

CASE FILE REVIEW FORM

Case File No: _____

Review Month and Year: _____ Examiner: _____

	YES	NO	REPORT
1.	_____	_____	Is the report format and wording in accordance with Laboratory guidelines?
2.	_____	_____	Have the requested examinations been addressed?
3.	_____	_____	Are the results clearly communicated to the reader?
4.	_____	_____	Are the proofreader's initials present on the case file?
5.	_____	_____	Are the appropriate additional samples being requested if needed?
6.	_____	_____	Is the disposition of the evidence included, if appropriate? (Not appropriate)
			NOTES
7.	_____	_____	Is the evidence properly described?
8.	_____	_____	Does the case number, examiner's initials, date, and page number appear on all pages?
9.	_____	_____	Is there a description of the evidence packaging and sealed condition?
10.	_____	_____	Are the notes organized, neat and understandable?
11.	_____	_____	Are the applicable work sheets properly utilized?
			SUPPORTING DOCUMENTATION
12.	_____	_____	Are all graphs, charts, etc., included to support the examinations conducted?
13.	_____	_____	Are all graphs and charts labeled properly?
14.	_____	_____	Have photographs been prepared and included, if appropriate?
15.	_____	_____	Is the chain of custody current as of this date?
			CONCLUSIONS
16.	_____	_____	Have the appropriate tests been performed?
17.	_____	_____	Was the proper number of tests performed to obtain valid results?
18.	_____	_____	Do the tests performed conform to the section's protocol?
19.	_____	_____	Were conclusions drawn and fully supported by the data?

Comments (*All " No " answers will be explained*):

_____

_____

_____

Reviewer's signature _____ Date _____

IX. EVIDENCE HANDLING & CONTROL POLICIES AND PROCEDURES

The Laboratory Policies and Procedures concerning evidence will govern handling of evidence received in the laboratory to include the documentation of evidence transfers and disposition. Each examiner will insure the integrity of all evidence in their possession is maintained.

X. TRAINING

The AFTE Training Manual, Trainer's Manual, and Administrative Guide are the standards by which minimum requirements for training in the Forensic Science Field of Firearm and Toolmark Examinations are determined for personnel assigned to the Firearm Section as examiners or technicians. All training will be documented and correlated to the Training Manual.

The Laboratory Director will maintain records of training received by qualified examiners and technicians of the Firearm Section.

XI. TECHNICAL RESOURCES

The following lists of resources are available to all firearm examiners and technicians so they can maintain their standards of qualification in the field:

A. Firearms Reference File

B. Standard Ammunition File

C. Reference library

D. DRUGFIRE System

E. Bulletproof System

D. Participation in firearm and toolmark schools and seminars on a minimum of a biannual basis.

F. Attendance by examiners at professional association meetings (*AFTE, IAI, or MAAFS*) at least once in a three (*3*) year period.

G. Examiners should routinely attend firearm, cartridge, tool, and security trade shows exhibits, and demonstrations.

XII. PROFICIENCY TESTING

A proficiency testing program is a reliable method of testing the validity of technical procedures and verifying the quality of each examiner's work product. It is designed to be confidential and is used to determine areas of strength and ability or needed training and procedural deficiencies.

The laboratory will conduct ongoing external and internal proficiency testing. The Laboratory Director will maintain records concerning testing and any corrective action taken. He will coordinate the preparation and distribution of the different types of proficiency tests.

The three basic areas of testing are listed below and should comply with current ASCLD standards:

a. **Open testing**

These tests will be prepared within the laboratory and represent a typical firearm case received at the laboratory. Each examiner will participate in taking this type of test annually.

b. **External testing**

This type of test is obtained from an outside provider who has approval for preparation and distribution of such tests from ASCLD. At least one such proficiency test will be taken by the Firearm Section annually.

c. **Blind testing**

This type of test will be coordinated with the Laboratory Director or his designee who will arrange for a sample case to be prepared and submitted in the normal manner. These will be assigned as a normal case assignment. At least one blind test will be provided to the firearm section annually.

XIII. COURT REVIEW AND FEEDBACK

At least once a year the Laboratory Director or his designee will monitor each firearm examiner assigned to the laboratory during court presentations by the examiner. The review will include the areas of appearance, poise, performance under cross-examination and effectiveness of presentation (*e.g., technical knowledge and the ability to convey scientific concepts in understandable terms*). A record of each trial review will be maintained and will include any remedial action deemed necessary by the reviewer.

A copy of the Expert Testimony Evaluation form is attached.

EXPERT TESTIMONY EVALUATION

Case File No: _____

Court Month and Year: _____ Examiner: _____

Court Location: _____ Evaluator: _____

	YES	NO	
1.	_____	_____	Appearance met department standards for court testimony?
2.	_____	_____	Proper courtroom demeanor presented throughout the court appearance?
3.	_____	_____	Were qualifying questions asked?
4.	_____	_____	Did the examiner answer these questions completely?
5.	_____	_____	Was the examiner qualified as an expert?
6.	_____	_____	Did the examiner speak clearly and concisely?
7.	_____	_____	All evidence clearly identified?
8.	_____	_____	Laboratory examinations thoroughly described?
9.	_____	_____	Proper terminology used and scientific terms explained?
10.	_____	_____	Conclusions accurate and valid?
11.	_____	_____	Demonstrations or visual aids used?
12.	_____	_____	Stayed within expertise limitations?
13.	_____	_____	Proper eye contact with jury members, judge and attorneys?
14.	_____	_____	Maintain impartiality during direct and cross-examinations?
15.	_____	_____	Answered questions directly without shading for either side?
16.	_____	_____	Maintained professional image throughout proceedings?

Comments:

Date testimony reviewed with the examiner: _____

Signature of Evaluator: _____

Signature of Examiner: _____

XIV. EQUIPMENT MAINTENANCE

All assigned comparison microscopes, stereo microscopes, balances and scales will receive annual cleaning and calibration from an outside contract source. Records pertaining to the work performed and deficiencies noted will be maintained.

Examiners will be familiar with the proper method of calibration of the comparison and stereo microscopes and will periodically perform this type of calibration. An informal log listing the date and examiner conducting the calibration will be maintained near the item of equipment.

MICROSCOPE CALIBRATION PROTOCOL

A. STEREO MICROSCOPE CALIBRATION TO INSURE ACCURACY OF DIRECT MEASUREMENT

1. Place microscope on a flat horizontal surface (*lab bench, table, etc.*)
2. Insure that the microscope has a micrometer disc reticle (*MDR*) installed properly and that the MDR is in sharp focus.
3. Place known standard on a flat horizontal surface in the field of view and insure that the known standard is in focus.
4. Using the MDR and the known standard, superimpose the 0.1" MDR over 0.1" on the known standard when the magnification control knob on the stereo microscope is at or near "*full scale*.≅
5. Mark the correct position for "*full scale*" measurement on the magnification control knob of the stereo microscope.
6. Using the MDR and the known standard, superimpose the 0.1" MDR over 0.2" on the known standard when the magnification control knob on the stereo microscope is at or near "*half scale*.≅
7. Mark the correct position for "*half scale*" measurement on the magnification control knob of the stereo microscope.
8. To insure accuracy of this calibration, repeat steps 1 through 7 using a second known standard.

B. COMPARISON MICROSCOPE CALIBRATION TO INSURE CONSISTENCY OF MAGNIFICATION BETWEEN LEFT AND RIGHT OPTICAL SYSTEMS.

1. Place known standards on each stage of the comparison microscope and insure that these known standards are in focus on each stage and are in the same plane relative to each other.
2. Move these known standards until the graduations of one of the known standards correspond exactly with the graduations on the second known standard.
3. Photograph the two known standards.
4. Using each of the known standards as a reference, calculate the magnification of each set of objective lenses on the comparison microscope by dividing the distance covered on each photograph by the actual measurement between specific graduations on the known standards.
5. This calibration should not replace biannual cleaning and calibration of the comparison microscope; but it should be done periodically to insure consistency of magnification.

XV. CHEMICAL HYGIENE & SAFETY

The written standard operating procedures detailing minimum requirements for safety and chemical hygiene are set forth in the Laboratory Chemical Hygiene & Safety Manual.