



## **Recommended Guidelines for Developing a Training Manual**

The scientific working group maintains the view that individual laboratories should be afforded the freedom to formulate their own training programs. This outline is offered to help guide in the development of a forensic firearm and toolmark training program by providing elements that are considered essential or recommended. These training guidelines have been divided into four discrete, though overlapping areas of consideration. Individual subcommittees were established to provide initial drafts which were then reviewed by the entire attending body of SWGGUN.

### **I. New Examiner Training Guidelines**

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### **II. Forensic Science Technician/Laboratory Aid (FST/LA)**

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### **III. NIBIN Technicians Training Guidelines**

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## **Recommended Guidelines for Developing a Training Manual**

### **1. New Examiner Training Guidelines**

- 1.1. **Scope and Use**-Laboratory directors are responsible for training and evaluating staff members. A well-designed training program should provide the information upon which a competent decision concerning an examiner's qualifications can be made. A training program should allow for modification so as to suit the particular needs of the agency and the trainee. It should provide for regular and frequent evaluation through written and practical examinations, and provide adequate documentation of the trainee's progress. With these considerations in mind, the following guidelines for establishing a training program are offered.
- 1.2. **Evaluation and Assessment**-Initial evaluation and assessment of the trainee should be conducted.
  - 1.2.1. A review of previous education, training, and experience will help to establish a baseline for, and tailor the program to the needs, strengths and weaknesses of the trainee.
- 1.3. **Modular Program**-The modular concept provides a great deal of flexibility in customizing the training program.
  - 1.3.1. Modular training programs with regular progress reviews.
  - 1.3.2. Ability to eliminate modules based on documented prior training and experience.
  - 1.3.3. Provides for more efficient expenditure of time and resources.
- 1.4. **Testing**-Testing evaluates the trainee's grasp of the subject matter and any need for remedial training.
  - 1.4.1. Written assessment and testing at the end of each module. Documentation of the completion of a module should be prepared and evaluated before the trainee moves to the next module.
  - 1.4.2. Practical competency testing with pass/fail grading.
  - 1.4.3. Competency testing should be reality-based and evaluate the trainee's ability to examine representative evidence samples.
  - 1.4.4. A comprehensive final examination will demonstrate the trainee's ability to integrate all of the elements required to perform actual casework.
- 1.5. **Oral Boards**-Technical oral boards can be used to evaluate the trainee's verbal ability to explain the concepts presented in a particular module.

- 1.6. **Moot Courts**-Moot courts provide exposure to the stress of the adversarial trial and provide a means of evaluating the trainee's knowledge and verbal skills.
- 1.7. **External Training**-Opportunities to visit laboratories, manufacturing plants, and museums should be afforded the trainee. Membership in forensic organizations and attendance at forensic meetings should be encouraged.
- 1.8. **Research paper**-The trainee should be encouraged to prepare a research paper suitable for publication or presentation.
- 1.9. **Administrative Guide**-An administrative guide is designed to document all training and to provide evidence to certify a trainee as qualified to perform firearms and toolmark examinations.
- 1.10. **Resource**-The Association of Firearm and Tool Mark Examiners (AFTE) Training Manual is one example of a resource that meets these criteria.

## 2. Forensic Science Technician/Laboratory Aid

- 2.1 **Scope and Use**-The FST/LA assists a court- qualified firearms and toolmark examiner in the handling, preparation and examination of evidence. Each individual laboratory will determine the extent of the technician/aid's involvement. The FST/LA differs from a court qualified firearms and toolmark examiner in that he/she works under the direction of the examiner and does not render written opinions and/or conclusions regarding identifications or exclusions of physical evidence. This document is not intended as a complete training program but to provide the FST/LA with the basic knowledge and skills required to become a productive and competent addition to the discipline. Laboratories should ensure that adequate time and resources are devoted to properly train the forensic technician.
  - 2.1.1 At the completion of this course the FST/LA may be able to perform the following:
    - 2.1.1.1. Receive and return evidence for the Firearm and Toolmark section.
    - 2.1.1.2. Recognize and document physical evidence.
    - 2.1.1.3. Correctly and accurately document worksheets and/or notes.
    - 2.1.1.4. Prepare solutions, reagents and testing materials required for casework.
    - 2.1.1.5. Perform firearms safety checks.
    - 2.1.1.6. Test fire firearms safely.
    - 2.1.1.7. Disseminate appropriate information to authorized agencies as directed.

- 2.2 **Management Responsibilities**-The FST/LA should have clear, written job descriptions. The job descriptions would include responsibilities, duties and skills commensurate with their position.
- 2.2.1 Have a documented training program for all FST/LA to include competency test(s).
- 2.2.2 Encourage and support FST/LA to participate in continuing education such as reading current discipline literature, visiting relevant manufacturing facilities, attending relevant training courses, professional seminars and meetings as well as observation of courtroom testimony.
- 2.2.3 Maintain records documenting the relevant education, training, skills and experience of FST/LA.
- 2.3 **Evidence Handling**-The FST/LA should be trained in the laboratories evidence control system to ensure the integrity of the physical evidence. Elements in this training should ensure that:
- 2.3.1 Evidence is appropriately sealed and marked for identification.
- 2.3.2 A chain of custody record for all evidence is maintained.
- 2.4 **Operational Procedures**-The FST/LA should be instructed in procedures for all expected duties in the laboratory. Some of the appropriate duties may include, but not be limited to:
- 2.4.1 Reagent and standards preparation.
- 2.4.2 Ordering laboratory supplies and ammunition.
- 2.4.3 Maintaining standard ammunition file.
- 2.4.4 Maintaining firearms reference collection.
- 2.4.5 Instrument maintenance and calibration.
- 2.4.6 Firearms safety checks.
- 2.4.7 Evidence audits, call screening and other physical support (i.e. faxing, copying and mailing).
- 2.4.8 Give tours
- 2.5 **Competency Testing**-Competency testing pertains to FST/LA engaged in the disciplines of firearms and toolmarks. The laboratory shall have and follow a written program of competency testing.
- 2.5.1 Test samples should be of sufficient numbers to ensure competency in each area of assignment.

2.5.2 The following records for competency tests shall be maintained and include:

2.5.2.1 Test identifier.

2.5.2.2 Identity of the employee.

2.5.2.3 Dates of receipts, analysis, and return for each test.

2.5.2.4 Copies of results and all data and case documentation.

2.5.2.5 Results of review by appropriate individual(s).

2.5.2.6 Corrective action, if necessary.

2.6 **Administrative Guide**-An administrative guide is designed to help document all training and to provide evidence to certify a trainee as qualified to assist in firearms and toolmark examinations.

### 3 NIBIN Technicians Training Guidelines

3.1 **Scope and Use**-Laboratory directors are responsible for training and evaluating staff members. A well-designed, training program should provide the information upon which a competent decision concerning a NIBIN technician's qualifications can be made. A training program should allow for modification, so as to suit the particular needs of the agency and the trainee. It should provide for regular and frequent evaluation through written and practical examinations, and provide adequate documentation of the NIBIN technician's progress. With these considerations in mind the following guidelines for establishing a training program are offered.

3.2 **Evaluation and Assessment**-Initial evaluation and assessment of the NIBIN technician should be conducted.

3.2.1 A review of previous education, training, and experience will help to establish a baseline for and tailor the program to the needs, strengths and weaknesses of the NIBIN technician.

3.3 **Modular Program**-The modular concept provides a great deal of flexibility in customizing the training program.

3.3.1 Modular training programs with regular progress reviews.

3.3.2 Ability to eliminate modules based on documented prior training and experience.

3.3.3 Provides for more efficient expenditure of time and resources.

3.4 **Testing**-Testing evaluates the NIBIN technician's grasp of the subject matter and any need for remedial training.

- 3.4.1 Written assessment and testing at the end of each module. Documentation of the completion of a module should be prepared and evaluated before the NIBIN technician moves to the next module.
- 3.4.2 Practical competency testing with pass/fail grading.
- 3.4.3 Competency testing should be reality based and evaluate the NIBIN technician's ability to examine representative evidence samples.
- 3.4.4 A comprehensive final examination will demonstrate the NIBIN technician's ability to integrate all of the elements required to perform actual casework.
- 3.5 **Oral Boards**-Technical oral boards can be used to evaluate the NIBIN technician's verbal ability to explain the concepts presented in a particular module.
- 3.6 **Moot Courts**-Moot courts provide exposure to the stress of the adversarial trial and provide a means of evaluating the NIBIN technician's knowledge and verbal skills.
- 3.7 **External Training**-Opportunities to visit laboratories, manufacturing plants, and museums should be afforded the trainee. Membership in forensic organizations and attendance at forensic meetings should be encouraged.
- 3.8 **Research paper**-The NIBIN technician should be encouraged to prepare a research paper suitable for publication or presentation.
- 3.9 **Administrative Guide**-An administrative guide is designed to document all training and to provide evidence to certify a NIBIN technician as qualified to perform NIBIN examinations.
- 3.10 **Resource**-The following is an example of a modular training program which might be used:
  - 3.10.1 **Introductory Material:**
    - 3.10.1.1 Administrative orientation.
    - 3.10.1.2 General Laboratory Safety Training.
    - 3.10.1.3 Familiarization of Laboratory and Department Policies and Procedures.
    - 3.10.1.4 General evidence handling instruction.
  - 3.10.2 **Firearm Safety and Operation**-This block of instruction will focus on:
    - 3.10.2.1 The general safety on the firing range, in the laboratory range environment, and in any other areas that a

firearm may be encountered. 2.2 The different types of firearm actions will be studied. 2.3 The NIBIN technician will be expected to read literature and publications pertaining to firearm actions. 2.4 The NIBIN technician will be expected to demonstrate he/she can safely operate firearms of all types (actions). 2.5 Exposure to unsafe firing conditions and the use of remote firing devices.

3.10.3 **Operation of Laboratory Equipment**-This block of instruction will focus on the operation of the laboratory equipment, which will be used during the duties of the NIBIN technician.

3.10.3.1 The NIBIN technician will be expected to read the instruction manuals of the instruments to be used.

3.10.4 **Ammunition**-This block of instruction will focus on all types of firearm ammunition and their components (casings, primers, powder, and projectiles). The NIBIN technician will be expected to read literature and publications pertaining to firearm ammunition.

3.10.4.1 The NIBIN technician will be expected to demonstrate he/she can identify and characterize ammunition and components.

3.10.4.2 Study of headstamps on cartridges.

3.10.5 **Test firing Procedures**-This block of instruction will focus on the test firing of firearms for entry into the ballistic imaging system.

3.10.5.1 The NIBIN technician will be expected to observe and then demonstrate proper procedure when test firing in all laboratory conditions.

3.10.6 **Comparison of Fired Casings**-This block of instruction will focus on the comparison of test fired and evidence firearm casings. The marks on fired cartridge casings will be explored and an understanding of class and individual characteristics will be studied.

3.10.6.1 The NIBIN technician will be expected to read literature and publications pertaining to firearms comparisons.

3.10.6.2 The NIBIN technician will be expected to demonstrate he/she can identify class and individual, reproducible and recognizable characteristics on fired casings (firing pin, breechface marks, extractor and ejector marks).

3.10.6.3 The NIBIN technician will observe actual comparisons conducted by firearm examiners.

3.10.7 **Comparison of Bullets**-This block of instruction will focus on the comparison of test fired and evidence bullets. The marks on fired bullets

will be explored and an understanding of class and individual characteristics will be studied.

3.10.7.1 The NIBIN technician will be expected to read literature and publications pertaining to firearm and bullet comparisons.

3.10.7.2 The NIBIN technician will be expected to demonstrate he/she can identify class and individual, reproducible and recognizable characteristics on fired bullets.

3.10.7.3 The NIBIN technician will observe actual bullet comparisons conducted by firearm examiners.

3.10.8 **NIBIN Computer System**-Representatives of the developer of NIBIN will conduct this training. It will focus on the computer system and data entry and retrieval from the system.

3.10.8.1 Study of the "Glossary of Terms" in the NIBIN manual.

3.10.8.2 Understand and be capable of differentiating between 2 and 3 dimensional images 8.3 Includes entry of images and data into the system, retrieval of images and data and correlations of images entered.

#### 4 Continuing Education for Trained Examiners

4.1 **Scope and Use**-Firearm and toolmark examiners need to maintain an appropriate level of knowledge concerning the many aspects of firearm and toolmark examination. Emphasis should remain in place for continuing education throughout an examiner's career. The tools and techniques involved in firearm/toolmark component production and forensic analysis are continuously evolving. The trained firearm and toolmark examiner needs to remain aware of new product developments and should keep informed about research, new methods and changing technology in order to enhance effective examination and comparison of evidence. Firearm and toolmark examiners should work to develop and maintain professional contacts within the discipline. Several continuing education resources are recommended to the firearms and toolmark examiner to maintain a technical awareness within the profession. These may include:

4.1.1 Participation in professional organizations.

4.1.2 Specialized training programs.

4.1.3 Armorer's schools.

4.1.4 Industry trade shows.

4.1.5 Manufacturers tours.

4.1.6 Laboratory tours.



- 4.1.7 Internal laboratory training.
- 4.1.8 College coursework, such as graduate or continuing education programs in forensic science.
- 4.2 **Professional Organizations**-Firearm and toolmark examiners should be encouraged to join and participate in professional organizations that improve their fields of expertise. Professional organizations may include but are not limited to:
  - 4.2.1 The Association of Firearm and Toolmark Examiners (AFTE).
  - 4.2.2 Regional firearms and toolmark meetings.
  - 4.2.3 Other identification, criminalistics and forensic organizations.
- 4.3 **Specialized Training**-Firearm and toolmark examiners may take advantage of general training programs or specialized schools that provide a broad perspective and a balanced training curriculum. This training may be offered by federal, state and local government, as well as private organizations.
- 4.4 **Armorer Schools**-Manufacturer armorer schools and vocational college gunsmithing programs are recommended to firearms examiners as a means of providing technical training to improve skills for function examinations and mechanical failure analysis, and also as specialized training to aid in the safe handling of recovered firearms. Armorer schools may be provided or supported by:
  - 4.4.1 Firearms manufacturers that offer courses either on site or as field schools.
  - 4.4.2 Regional and international meetings such as the AFTE Annual Training Seminar.
  - 4.4.3 Courses hosted or supported by local law enforcement agencies or academies.
- 4.5 **Trade Shows**-Manufacturers trade shows are strongly recommended venues for obtaining information and reference literature about new developments and trends in the firearms and ammunition industry. Additionally, it provides a mechanism to create industry contacts that can be valuable for casework related examinations. These may include:
  - 4.5.1 The annual Shooting Hunting and Outdoor Trade (SHOT) Show.
  - 4.5.2 Law enforcement trade shows.
  - 4.5.3 Other specialized trade shows related to firearms, ammunition, tools/tool manufacturing, locks/security devices, and microscopy.
- 4.6 **Manufacturing Facility Tours**-Examiners should strive to remain aware of the various manufacturing processes used in the production and finishing of

firearms, ammunition and tools.

4.6.1 Firearm examiners are encouraged to tour/visit manufacturing facilities that produce firearms, ammunition and related components.

4.6.2 Toolmark examiners are encouraged to tour/visit related manufacturing facilities to maintain an understanding of the processes that are used for producing finished surfaces that may be encountered in toolmark case work.

4.6.3 Visits to machine shops to observe machining methods, metal fabrication processes and surface finishing techniques are encouraged.

4.7 **Laboratory Tours**-Firearm and toolmark examiners can gain insight into alternative examination methods, standards of practice, reporting techniques, and alternative instrumentation by visiting and touring the laboratories of other firearm and toolmark examiners.

4.8 **Internal Laboratory Training**-Laboratories should recognize the need for firearm examiners to participate in discipline specific training provided by their department and provide appropriate reference materials such as:

4.8.1 AFTE Journal and other forensic publications.

4.8.2 Publications related to firearms, ammunition and tools.

4.8.3 Industry publications regarding current trends in the use of firearms, ammunition and tool mark related production.

4.8.4 Training video tapes.

4.8.5 CD-ROM training and reference materials.

4.8.6 On-line education/resources.

4.9 **Professional Development**-Departmental administration and laboratory management have the responsibility to provide for the professional development of their staff in the following areas:

4.9.1 Organized training program attendance.

4.9.2 The annual AFTE Training Seminar.

4.9.3 Regional training seminars.

4.9.4 Armorer schools.

4.9.5 Agency sponsored training sessions.

4.9.6 Inter-agency sponsored training.

- 4.9.7 Technical resources maintained by the laboratory.
  - 4.9.8 AFTE journal.
  - 4.9.9 Other forensic firearms related journals and periodicals.
  - 4.9.10 Firearm and ammunition reference collections and updates.
  - 4.9.11 Equipment and technology upgrade training.
  - 4.9.12 Support for new technical developments.
  - 4.9.13 Research and development projects that provide benefit for the examiner, the laboratory, and/or the forensic community.
- 4.10 **Available Training Time**-The SWGGUN does not mandate a specific number of hours that forensic firearm and toolmark examiners should participate in continuing education. However, we recommend that laboratories plan to provide a sufficient amount of time to facilitate effective continuing education as outlined above.

## Appendix 1- References

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### Appendix 2- Revisions

<b>Date</b>	<b>Section</b>	<b>Changes</b>
4/18/12		Added Appendix 1 and 2