TABLE OF CONTENTS

1. SCOPE OF OPERATIONS
1.1. Firearm and Toolmark Section
1.2. History of the Firearm and Toolmark Section
1.3. Mission Statement
1.4. Goals and Objectives
1.5. Code of Ethics
1.6. Organization and Staffing
1.7. List of Locations, Addresses and Phone Numbers
1.8. Organizations Chart
1.9 Section Descriptions and Responsibilities
1.10 Hours of Operation
1.11 Manuals
1.12 Customer Service
1.13 Management System
1.14 Planning and Development
1.15 Purchasing Supplies and Services
1.16 Management Review
1.17 Equipment and Supply Inventory

2. FACILITY DESIGN AND SECURITY
2.1 Physical Plant/Space and Design
2.2 Security

3. QUALITY ASSURANCE
3.1 Proficiency Testing
3.2 Court Testimony Monitoring
3.3 Case Review
3.4 Laboratory Audits
3.5 Validation
3.6 Instruments and Equipment
3.7 Reagents
3.8 Document Management
3.9 Deviation from Documented Procedures
3.10 Quality Issues
3.11 Suggestions/Complaints
3.12 Customer Survey
3.13 Reference Standards/Materials
3.14 Reference Collections and Databases
3.15 Examination Verification
3.16 Contamination Detection and Prevention

4. LABORATORY RECORDS
4.1 Case Record
4.2 Laboratory Reports
4.3 Release of Records Information
4.3.1 Release of Information
4.3.2 Release of Information to the News Media
4.3.3 Open Records Request
4.3.4 Discovery Orders
4.3.5 Requests for Reports
4.4 Removal of Records for Court
4.5 Archiving Laboratory Case Files
4.6 Expunctions
4.7 Control of Laboratory Records

5. EVIDENCE PROCEDURES
5.1 General Practices
5.2 Observation by Outside Experts
5.3 Evidence Disposal
5.4 Destruction of Hazardous Substances
5.5 Outsourcing

6. LABORATORY SAFETY

7. PERSONNEL
7.1 Documents
7.2 Subpoenas
7.3 Private Case Consultations
7.4 Testimony for Previous Employers
7.5 Attendance
7.6 Certification of Analysts
7.7 Employee Training Program
7.8 Employee Approval for Casework
7.9 Employee Career Development
7.10 Continuing Education
7.11 Internship Program
7.12 Volunteer Program
7.13 Rider Program

8. COMPUTER RESOURCE MANAGEMENT

9. Forms

This Section Specific Standard Operating Procedures contain policies and procedures that are supplemental to the Division Standard Operating Procedure Manual.

1. SCOPE OF OPERATIONS

1.1 Firearm and Toolmark Section

The Firearm and Toolmark Section was created in 1984 and is responsible for: comparing bullets, cartridge cases or ammunition to a suspect firearm; matching fractured items to their source; comparing marks left at a scene with suspect tool; and restoring obliterated serial numbers. The section utilizes the National Integrated Ballistic Information Network (NIBIN) system, which is an image-based database and national computer network designed and supported by the ATF.

1.2 History of the Firearms Section

No Supplemental Requirements

1.3 Mission Statement

No Supplemental Requirements

1.4 Goals and Objectives

No Supplemental Requirements

1.5 Code of Ethics

No Supplemental Requirements

1.6 Organization and Staffing

No Supplemental Requirements

1.7 List of Locations, Addresses and Phone Numbers

No Supplemental Requirements

1.8 Organizational Chart

No Supplemental Requirements

1.9 Section Descriptions and Responsibilities

No Supplemental Requirements

1.10 Hours of Operation

- Laboratory Hours

The section staff shall adhere to the hours of operation as defined in the Division Manual.

- Call Outs
  - A callback roster is utilized for requests for assistance at scenes involving the discharge of a firearm. In the event that additional personnel are needed beyond the initial call out, those personnel will be contacted via pager and advised to respond for assignment.
  - On-Call personnel have a maximum of one hour to respond to the scene when not on duty.

1.11 Manuals

No Supplemental Requirements

1.12 Customer Service

No Supplemental Requirements

1.13 Management System

No Supplemental Requirements

1.14 Planning and Development

No Supplemental Requirements

1.15 Purchasing Supplies and Services

There are no critical supplies identified for the section.

1.16 Management Review System

No Supplemental Requirements

1.17 Equipment and Supply Inventory

No Supplemental Requirements

2. FACILITY DESIGN AND SECURITY

2.1 Physical Plant/Space and Design

No Supplemental Requirements

2.2 Security

- The section maintains the following storage locations within the laboratory (ASCLD/LAB 5.3.4.1.f and ASCLD/LAB 5.8.4.2):
  - Long Term (Bulk) Storage
    - The firearms evidence storage room is located within the operational area of the section is utilized for the storage of bulk evidence and evidence awaiting processing.
    - The firearms evidence storage room is locked when the lab is unattended. (ASCLD/LAB 5.8.4.1)
  - In-Process Storage
    - Within the Firearms Evidence Storage Room are individually secured evidence cabinets. One key will be kept in the lock when not in use. When an item of evidence is placed in an evidence cabinet, the employee will remove the key and maintain custody of the key until the evidence is removed. The key will then be placed back in the lock for future use.
  - For large items that do not fit into the individual lockers, the evidence will be secured in the firearms evidence storage room.Test fire evidence is stored within the laboratory in the designated storage drawers. Periodically test fire evidence is transferred to the Evidence Control Section for long term storage.

3. QUALITY ASSURANCE

3.1 Proficiency testing

No Supplemental Requirements

3.2 Court Testimony Monitoring

No Supplemental Requirements

3.3 Case Review

No Supplemental Requirements

3.4 Laboratory Audits

No Supplemental Requirements

3.5 Validation

No Supplemental Requirements

3.6 Instruments and Equipment (ISO 5.1.1 and 5.5)

- The following equipment has been identified as critical equipment within the laboratory:
  - Rulers utilized for barrel/overall length determination of altered/modified shotgun/rifle.

- **Comparison Microscope**
  - The comparison microscope will undergo an external calibration annually.
  - All repairs and maintenance will be performed by a qualified service provider.

- **Trigger Pull Spring Gauge**
  - Performance verification of the trigger pull spring gauge at conducted quarterly.
    - Weigh a minimum of two trigger pull weight standards and record the measurements. Appropriate weight standards will be used depending on the capacity of the spring gauge.
    - If the observed measurement is not within 0.5 lb., the spring gauge will be removed from service and repaired prior to use in casework or replaced.

- **Chronograph**
  - Examiners will perform performance verification of the equipment prior to each use.
  - The performance verification is an internal check within the unit that, when performed, will indicate pass or fail. If a fail message is received the equipment will not be used until repaired.
    - Pass results of the performance check will be documented in the case file.

- The results of the performance check (pass or fail) will be documented in LAM.

- **Sound Meter**
  - Examiners will perform a performance verification of the equipment prior to each use.
  - Prior to use, the sound meter will be checked using the acoustic calibrator and the sound meter software. Two frequencies (94db and 114db) will be evaluated. The calibrator will provide and store the results of the test as "Test Failed" or "Test OK". If the test fails, the sound meter will be serviced by an external vendor and repaired before use on casework.
    - Pass results of the performance check will be documented in the case file.
    - The results of the performance check (pass or fail) will be documented in LAM.

- **Rulers**
  - Rulers used for critical measurements must be performance checked.
  - Performance verification is conducted annually for each ruler used in critical measurements by measuring at least two standard lengths or distances established with a NIST traceable measuring device.
    - The appropriate tape measure or ruler will be identified and used for lengths or distances being measured and precision required.
    - If the critical measuring device is damaged or the observed measurements are not within 0.0625 inches (1/16") of the reference standard, the measuring device will be taken out of service and replaced.
  - Performance checks will be documented in LAM.

3.7 Reagents

- All reagents used for examination results are verified to ensure quality prior to use on evidence.

- All control procedures are outlined in the Technical Manual.

3.8 Document Management

No Supplemental Requirements

3.9 Deviation from Documented Procedures

No Supplemental Requirements

3.10 Quality Issues

No Supplemental Requirements

3.11 Suggestions/Complaints

No Supplemental Requirements

3.12 Customer Survey

No Supplemental Requirements

3.13 Reference Standards/Materials

No Supplemental Requirements

3.14 Reference Collections and Databases

- Firearms Reference Collection
  - A Firearms Reference Collection is maintained by the laboratory for various scientific reasons, including:
    - To identify the make, model and source of evidence firearms.
    - To provide exemplar firearms for various scientific testing purposes that might otherwise compromise an evidence firearm.
    - To provide an exemplar resource for training new forensic scientists/evidence technicians or in developing new technology for the scientific examination of firearms.
    - To provide a source of firearms parts for the temporary repair of evidence firearms for test-firing purposes.
    - To provide a resource for the identification of firearms parts recovered at a crime scene.
    - To provide a resource for the location and style of firearm serial numbers.
  - Procedure
    - The Firearms Reference Collection must be maintained under strict regulations and controls. Firearms which are deemed unsuitable for scientific purposes should be verifiably destroyed. The Firearm/Toolmark Section assumes responsibility for security and control of these firearms.

- A record in the Laboratory Asset Manager (LAM) will be made as soon as applicable for a firearm intended for the reference collection in the Firearms Reference Collection inventory. The entry should include:
  a) Number assigned.
  b) Date received at the laboratory.
  c) Person receiving the firearm for addition to the collection.
  d) Caliber of the firearm.
  e) Make, brand and manufacturer, if known.
  f) Model number(s) and/or name.
  g) Type of action.
  h) Finish on firearm.
  i) The barrel length of the firearm.
  j) The serial number as stamped on the firearm.
     - "NONE" if the serial number does not exist or cannot be found.
     - "OBLIT" if the serial number has been obliterated.
  k) Notes regarding transfers, destruction, location case numbers, etc.
- It is recommended that a receipt be issued for every firearm received for the reference collection or destruction utilizing the LAM.
- The Firearms Reference Collection should be displayed and maintained in such a manner as to prevent the firearms deterioration and to facilitate their inventory, safety and control.
- All firearms placed in the reference collection will be entered and tagged with a LAM asset tag in such a manner so as to display that firearm's location within the collection.
- Reference firearms may be checked out by court officers for demonstrative evidence for court proceedings. The transfer will be documented in the LAM.
- Reference firearms may also be checked out by section staff to support case analysis or training. If the firearm is not to leave the possession of the examiner a check out tag will replace the firearm in the reference library which will exhibit the tag #, the date/time and the examiner checking out the weapon. This does not have to be documented in LAM.
- It is the responsibility of the receiver to return the firearm as soon as the court proceeding or testing is completed.
- Upon return from an external source, the firearm will be inspected to ensure that it is the same firearm and in the same condition as it was when it was released by a Firearms Examiner.
- The return transfer will be documented in LAM.
- Upon return from section staff, the checkout out tag will be replaced with the firearm.
- The inventory of the reference firearms is maintained within LAM

- An annual audit will be conducted of the firearms reference collection.
- The audit should be conducted by person(s) not associated with the care and custody of the collection.
- The audit will encompass the following:
  - Total inventory of the collection
  - Reconciliation of the inventory
  - Accounting of firearms not present in the collection through documentation of release.
  - The inventory record is documented and retrievable in LAM.

- The results of the audit will be reported to the Quality Assurance Manager and the Laboratory Director.

3.15 Examination Verification (ISO 4.13.2.12)

- In addition to the Division requirements of verification, the following conditions apply:
  - The Section Supervisor may request to have the conclusions (inclusions or exclusions) of any case verified.

- When an examiner has completed their notes (including documentation of any determined associations) on an assignment that will be verified, the examiner will do the following prior to technical and administrative review:
  - Ensure that all completed notes and supporting documentation have been uploaded into LIMS.
  - Temporarily reseal all evidence and transfer custody, using LIMS, to the verifying examiner or the firearms temporary evidence storage location.

- The examiner performing the verification will:
  - Authenticate the actual evidence to determine the validity of the primary examiner's opinions and conclusions.
  - Independently examine the items of evidence requiring verification.
  - Document the verification in the case file, using digital notes or a printed version of the notes from LIMS, identifying the specific evidence examined and verified, any conclusions or comments by the verifier, by whom and the date of the verification.
  - Upload into LIMS all annotated digital notes or scanned printed version , under the assignment of the original examiner.

- If inconsistencies or new identifications or determinations are discovered,
  - The verifier should discuss the observation with the analyst. A third examiner may be used to assist in resolution of the issues.
  - The verifier may offer suggestions for improvements.

3.16 Contamination Detection and Prevention

No Supplemental Requirements

4. LABORATORY RECORDS

4.1 Case Record (ISO 4.13.2.2.1)

- The start date of firearms and toolmarks laboratory examination is the date of examination located on the LIMS entry panel for the specific item(s).

- **NIBIN**
  - NIBIN is a database utilized for conducting computerized searches of firearms related evidence.
  - The NIBIN computer generates and stores data sheets of all searches and results conducted by this agency.
  - The data retained in the NIBIN system can be retrieved at any time by section staff.
  - The data contained in the NIBIN system will be considered part of the firearms case record.

4.2 Laboratory Reports

- **Reporting Guidelines**

The following guidelines are suggestions of possible wording. Variations of these guidelines may be used as applicable, appropriate, and relevant.

- **Firearms**
  - Functionality of a Firearm
    a) The submitted 9mm Luger caliber pistol is functional/operational.
    b) The submitted 9mm Luger caliber pistol is operational, however, malfunctions were detected during testing.
    c) The submitted 9mm Luger caliber pistol is not functional/operational as submitted.
    d) The submitted 9mm Luger caliber pistol was not functional /operational as submitted, as it was missing a firing pin. A firing pin from a similar APD FA Lab Reference Collection pistol was placed in the pistol. The submitted pistol was then test fired and no malfunctions were detected during testing. Item # () was examined and test fired {#} times using {laboratory/evidence} ammunition on {date}. Item # () was found to be capable of discharging live rounds of ammunition.

e) Item # () was examined and test fired {#} times using {laboratory/evidence} ammunition on {date}. Item # () was found to be capable of discharging live rounds of ammunition and functioned normally during the test.

f) Item # () was examined on {date} and was found to be in a non-firing condition. The {part} on Item #() was found to be missing/broken. A {part} from the laboratory reference collection/parts was/were temporarily assembled into the firearm. Item # () was test-fired {#} times using {laboratory/evidence} ammunition and was found to be capable of discharging live rounds of ammunition.

g) The barrel on Item #() was found to be modified. The overall length of Item # () (modified shotgun) was found to be _____inches +/- 1/8 of an inch at a coverage probability of 99.7% h)

h) The barrel on Item #() has been modified. The barrel length of item () (modified shotgun) was found to be _____ inches +/- 1/8 of an inch at a coverage probability of 99.7%.

- Item #1 ( ) is a “short-barrel firearm” as defined by Texas Penal Code § 46.01(10), and a “short barreled shotgun” as defined by The Gun Control Act: 18 U.S.C. § 921(a)(6).

- Sound Suppressors / Muffler

a) Item # (silencer) was examined on {date}. The construction of Item # consists of: an outer tube, internal baffles, internal perforated tube, a front end cap, a rear end cap*…etc.* Item #1 is consistent, by design, with a firearm silencer or firearm muffler.

b) Item # (*firearm*) / (or a laboratory firearm) was test fired # times using {laboratory/evidence} ammunition, both with and without Item #(*silencer*) attached. Item # was determined to be capable of diminishing the report of a firearm.

c) Item # () is a “firearm silencer” or “firearm muffler” as defined by The Gun Control Act: 18 U.S.C. § 921(a)(24) and a “firearm” as defined by 18 U.S.C. § 921(a)(3)(c).Item # ( ), being a device for silencing, muffling, or diminishing the report of a portable firearm, is a "firearm silencer" as defined in 18 U.S.C. 921(a)(24).

d) Item # ( ) is a silencer by design, construction, and function; therefore, it is also a "firearm silencer" as defined in 26 U.S.C. 5845(a)(7).

e) Item # ( ) bears no manufacturer's marks of identification or serial number as required by 26 U.S.C. 5842.

- *“The terms "firearm silencer" and "firearm muffler" mean any device for silencing, muffling, or diminishing the report of a*

portable firearm, including any combination of parts, designed or redesigned, and intended for use in assembling or fabricating a firearm silencer or firearm muffler, and any part intended only for use in such assembly or fabrication."

- The Gun Control Act of 1968 (GCA), at Title 18, United States Code (U.S.C.), section
- 923(i), and the National Firearms Act (NFA), at Title 26, U.S.C., section 5842(a), require
- all licensed importers and manufacturers to identify each firearm imported or
- manufactured by means of a serial number engraved or cast on the frame or receiver of the
- weapon, in such manner as the Attorney General shall by regulations prescribe. Federal
- regulations at 27 CFR 478.92(a) and 479.102(a) prescribe the requirements for serialization and other marks of identification that must be placed on firearms.

- Airguns
  a) Item # () was examined and test fired # times using evidence/laboratory CO2 cartridges and evidence/laboratory BB's/pellets on {date}. Item # () was found to be capable of discharging BB's/pellets and functioned normally during the test.
  b) Item #1 was capable of producing velocities of approximately # feet per second (ft/sec) during laboratory testing. The manufacturer's published muzzle velocity for this model is # feet per second (ft/sec).
  c) A warning label is embossed on the right side of the slide on Item #(): "*Warning: Misuse or careless use may cause serious injury or death.*"
  d) Item # (air rifle) is a variable-pump design. With # pumps, Item #1 was capable of producing velocities of approximately # feet per second (ft/sec) during laboratory testing.
  e) Item # () was examined on {date} and was determined to be in a non-firing condition. The {part} on Item #() was found to be missing/broken, rendering it inoperable as submitted.

➢ **Comparison of bullets/cartridges/cartridge cases/shotshells**

- <u>Identification/Positive Association</u>
  a) The copper-jacketed bullet was fired from the submitted 9mm Luger caliber pistol. Item #() (one 9mm Luger fired cartridge case) was

microscopically examined and compared on {date}. Item #() was positively identified as having been fired in Item #() (pistol).

b) Item #() (four 9mm Luger fired cartridge cases) was **microscopically examined and compared** on {date}. The Item# () cartridge cases were positively identified as having been fired in the same firearm. No firearm was submitted.

c) Item #() (one 9mm caliber FMJ projectile) was **microscopically examined and compared** on {date}. Item #() was positively identified as having been fired from Item #() (pistol).

- Elimination/Negative Association

a) ELIMINATION – Significant disagreement of discernible class characteristics and/or individual characteristics.

b) The copper-jacketed bullet was **microscopically examined and compared and was** not fired from the submitted 9mm Luger caliber pistol. The copper-jacketed bullet was fired from a barrel having six lands and grooves with a clockwise rotation. The manufacturer of the firearm that fired the copper-jacketed bullet is unknown, but could include commonly encountered 9mm Luger caliber models of Beretta, Smith and Wesson, or Taurus pistols.

c) Item #() (one 9mm Luger fired cartridge case) was **microscopically examined and compared** on {date}. Item #() was eliminated as having been fired in Item #() (pistol).

d) Items #() and #() (two 9mm Luger fired cartridge cases) were **microscopically examined and compared** on {date}. The Item#() and #() cartridge cases were eliminated as having been fired in the same firearm. No firearm was submitted.

e) Item #() (one 9mm caliber FMJ projectile) was examined on {date}. Item #() was eliminated as having been fired from Item #() (pistol).

- Unknown Projectile

a) The copper-jacketed bullet is a 9mm Luger caliber bullet fired from a barrel having six lands and grooves with a clockwise rotation. The manufacturer of the firearm that fired the copper-jacketed bullet is unknown, but could include commonly encountered 9mm Luger caliber models of Beretta, Smith and Wesson, or Taurus pistols.

b) The submitted jacketed bullet is consistent with 9mm Luger caliber and was fired from a firearm having six lands and grooves with a right twist. Some possible firearms would include, but not be limited to, the following: Astra, Beretta, Browning, Cobray, and Star.

- Inconclusive (ASCLD/LAB 5.10.3.7)

a) The submitted bullet/cartridge case cannot be identified or eliminated as having been fired with the submitted pistol. Item #() (one 9mm Luger fired cartridge case) was **microscopically examined and compared** on {date}. Item #() could not be positively identified or eliminated as having been fired in Item #() (pistol). However, Item # contains breech face/firing pin class characteristics consistent with Item # ().

b) Item #() (one 9mm caliber FMJ projectile) was **microscopically examined and compared** on {date}. Item #() could not be positively identified or eliminated as having been fired from Item # (pistol). However, however the general rifling characteristics of Item # (projectile) are consistent with Item #(pistol).

c) Item #(cartridge case) exhibits an insufficient quantity and quality of individual microscopic markings, therefore it could not be positively identified or eliminated as having been fired in the submitted 9mm Luger caliber pistol.

d) Item #(projectile) exhibits an insufficient quantity and quality of individual microscopic markings, therefore it could not be positively identified or eliminated as having been fired from the submitted 9mm Luger caliber pistol.

- <u>GRC determination, no firearm</u>

a) Item #() (one ~9mm caliber FMJ projectile) was examined on {date}. The general rifling characteristics of Item # are consistent with *{manufacturer(s)}, {caliber}, {type}*; however, this listing is inconclusive. No firearm was submitted.

- <u>Insufficient Markings (</u>INCONCLUSIVE)
  - Some agreement of individual characteristics and all discernible class characteristics, but insufficient for an identification.
  - Agreement of all discernible class characteristics without agreement or disagreement of individual characteristics due to an absence, insufficiency, or lack of reproducibility.

a) It could not be determined if the 9mm Luger caliber cartridge case was fired in the submitted 9mm Luger caliber pistol due to a lack of a sufficient quantity and quality of individual microscopic markings..

b) It could not be determined if the copper-jacketed bullet was fired from the submitted 9mm Luger caliber pistol due to a lack of a sufficient quantity and quality of individual microscopic markings..

- <u>Unsuitable for Microscopic Examination</u>

a) Item # (lead fragment) is consistent with the lead core portion of a jacketed projectile and does not contain rifling impressions suitable for individual identification.
b) Item #() (one small copper jacket projectile fragment) was examined on {date}. Item #() does not contain rifling impressions and is not suitable for microscopic comparison.
c) Item #() (one 9mm Luger fired cartridge case) was submitted in a severely corroded condition and is not suitable for microscopic comparison.

- Unidentifiable
  a) The submitted evidence in question cannot be identified as being fired evidence.
  b) The submitted evidence in question cannot be identified as being ammunition.
  c) Item #() cannot be identified as being an ammunition component.

- **Range/Distance Determination**
  - Non-Shot Pellet (Gunpowder/Gunshot Residues)
    a) Positive Determination
       - The muzzle of Item # ( ) firearm was approximately 6 to 18 inches from Item # ( ) garment at the time the shot was fired that produced the defect in the front of the shirt.
    b) Inconclusive
       - The distance from the muzzle of the firearm to the shirt at the time the shot was fired that produced the defect in the front of the garment could not be determined.
    c) Absence of defects / holes
    d) Item # ( ) was examined on (date). Item # ( ) does not contain defects consistent with the passage of a bullet. A gunshot residue distance determination test was not performed.
       - Distance determination tests were not performed because no bullet holes were located on the garment.
    e) Bullet defect / hole, but no residue pattern
       - The area around the defect [description of location] of item [#] was examined visually, microscopically and processed chemically for the presence of chemical residues. No residue patterns were found. The absence of residue patterns is consistent with, but is not limited to, any of the following conditions or a combination thereof:

- The shot was fired from a distance outside the range where repeatable gunshot residue patterns are produced. Using the firearm (item [#]) and [submitted ammunition or reference ammunition], test patterns were found at a maximum distance of approximately [distance]; or
- Residues were deposited but were removed or reduced; or
- There was an intervening object or masking agent that prevented the detection and/or deposition of residues on the article; or
- The firearm and/or ammunition does not deposit residue in sufficient quantity for detection on the article.Non-shot pellet (gunpowder/gunshot residues)

f) Positive Results

- Contact Shot
  - Item #1 (white T-shirt) was examined on {date}. A defect was located on the mid-chest area of the shirt. The area around this defect was microscopically examined and chemically processed for the presence of gunshot residues. Residues and physical characteristics consistent with a contact/near contact shot were found.
- Pattern of residues present, firearm submitted:
  - Item #1 (white T-shirt) was examined on {date}. A defect was located on the mid-chest area of the shirt. The area around this defect was microscopically examined and chemically processed for the presence of gunshot residues. A pattern of residues consistent with the discharge of a firearm was found.
  - Using Item #4 (pistol) and a combination of laboratory ammunition and Item #5 (evidence ammunition), test patterns were produced at various muzzle-to-target distances. The residue pattern found on the Item #1 (T-shirt) is consistent with a muzzle-to-target distance between approximately __ inches/feet and __ inches/feet.
- Pattern of residues present, no firearm submitted:
  - Item #1 (white T-shirt) was examined on {date}. A defect was located on the mid-chest area of the shirt. The area around this defect was microscopically examined and chemically processed for the presence of gunshot residues. A pattern of residues consistent with the discharge of a

firearm was found; however, no firearm was submitted. The suspected firearm is necessary to conduct laboratory test-fires for muzzle-to-target distance determination.

- Scattered gunpowder/nitrite residues, firearm submitted:
  - Item #1 (white T-shirt) was examined on {date}. A defect was located on the mid-chest area of the shirt. The area around this defect was microscopically examined and chemically processed for the presence of gunshot residues. Scattered gunpowder particles and residues were found.
  - Using Item #4 (pistol) and a combination of laboratory ammunition and Item #5 (evidence ammunition), test patterns were produced at various muzzle-to-target distances. Residues were deposited to a maximum distance of approximately __ inches/feet.
- No pattern of residues, lead wipe only:
  - Item #1 (white T-shirt) was examined on {date}. A defect was located on the mid-chest area of the shirt. The area around this defect was microscopically examined and chemically processed for the presence of gunshot residues. No residues consistent with the discharge of a firearm were found; however, residues consistent with the passage of a bullet were detected at the margins of defect #1.
- <u>Negative Results</u>
  - Item #1 (white T-shirt) was examined on {date}. A defect was located on the mid-chest area of the shirt. The area around this defect was microscopically examined and chemically processed for the presence of gunshot residues. No residues consistent with the discharge of a firearm or the passage of a bullet were found.
  - Distance determination tests were not performed due to the absence of bullet defects. .

- **Shot pellet**
  - Positive Determination
    a) The muzzle of the firearm was approximately 10 to 15 feet from the victim at the time the shot was fired that produced the shot pattern in the garment.

b) Item #1 (white T-shirt) was examined on {date}. A series of defects consistent with a shotgun pellet pattern was located on the mid-chest area of the shirt.

c) Using Item #4 (shotgun) and a combination of laboratory ammunition and Item #5 (evidence ammunition), test patterns were produced at various muzzle-to-target distances. The pellet pattern found on the Item #1 T-shirt is consistent with a muzzle-to-target distance between approximately __ feet and __ feet.

- Inconclusive (ASCLD/LAB 5.10.3.7)

a) The distance from the muzzle of the firearm to the shirt at the time the shot was fired that produced the holes in the front of the shirt could not be determined due to the absence of a distinguishable pattern..

b) Item #1 (white T-shirt) was examined on {date}. Defects consistent with shotgun pellet strikes were located; however, due to the absence of a distinguishable pattern, the muzzle-to-target distance could not be determined.

➢ **Toolmarks and Physical Match**

- <u>Identification</u>

a) The bolt cutter cut the shackle of the submitted padlock.

b) The questioned toolmarks on Item #3 (lock shackle) were positively identified as having been produced by Item #1 (bolt cutter).

c) Item #1 (knife handle) and Item #2 (knife blade) were physically matched and determined to have been a single entity prior to being fractured.

- <u>Elimination</u>

a) The bolt cutter did not cut the shackle of the submitted padlock.

b) The questioned toolmarks on Item #3 (lock shackle) were eliminated as having been produced by Item #1 (bolt cutter).

c) Item #1 (knife handle) and Item #2 (knife blade) were eliminated as having been a single entity prior to being fractured.

- <u>Inconclusive</u> (ASCLD/LAB 5.10.3.7)

a) It could not be determined if the bolt cutter cut the shackle of the submitted padlock.

b) The questioned toolmarks on Item #3 (lock shackle) could not be positively identified or eliminated as having been produced by Item #1 (bolt cutter).

c) Item #1 (knife handle) and Item #2 (knife blade) could not be positively identified or eliminated as having been a single entity prior to being fractured. An intermediate section of blade appears to be missing.

- Unsuitable

a) Item #3 (lock shackle) does not exhibit toolmarks suitable for microscopic comparison. The lock shackle is consistent with having been cut by an abrasive/grinding type tool.

- **Serial number restoration**
  - Complete Restoration

    a) The obliterated serial number on the submitted .44 Magnum caliber revolver is A1234567B.

    b) An area of obliteration was observed on the left side of the receiver of Item #1 (Beretta pistol). This is the area where the manufacturer places the serial number on this type of firearm. The serial number was found to be obliterated by a grinding type tool, exhibiting in-line signatures.

    c) Serial number restoration was successful. The serial number on the left side of the receiver was recovered as: 123456

  - Partial Restoration

    a) The obliterated serial number on the submitted .357 Magnum caliber revolver was partially recovered to read: 12???67. The middle three digits were not recovered.

    b) A partial serial number restoration was successful. The serial number on the left side of the receiver was recovered as: 1234?? The last two digits were not recovered.

  - Inconclusive (ASCLD/LAB 5.10.3.7)

    a) The obliterated serial number on the submitted .44 Magnum caliber revolver could not be determined.

    b) Serial number restoration was unsuccessful. The serial number on the left side of the receiver was not recovered.

  - Non Serial Numbered Firearms

a) Item # was field striped and observed to lack sufficient signs of an obliteration. Item # is consistent with being manufactured/marketed without a serial number placed on the receiver.

- **Trajectory Analysis**
  - Interpretation
    a) Trajectory analysis is estimation based on the physical evidence.
    b) The report should reflect a range of possible shooting positions and that the reported position(s) and angle(s) are approximations and do not reflect a reconstruction of the sequence of events.
  - "This report reflects a range of possible shooting positions and that the reported position(s) and angle(s) are approximations and do not reflect a reconstruction of the sequence of events."

4.3 Release of Records Information

No Supplemental Requirements

4.4 Removal of Records for Court

No Supplemental Requirements

4.5 Archiving Laboratory Case Files

No Supplemental Requirements

4.6 Expunctions

No Supplemental Requirements

4.7 Control of Laboratory Records

No Supplemental Requirements

5. EVIDENCE PROCEDURES

5.1 General Practices

- Evidence Packaging
  - The evidence packaging should be photographed (digitally imaged) and/or described in the documentation.

- Test Fires
  - Test fired ammunition (projectiles/cartridge cases /shot shells) obtained from evidence firearms will be maintained as evidence. **(ISO 5.8.4.6.1)**
  - Test-fires will be sub-itemized in LIMS under the firearm submitted. The chain of custody of test-fires will be tracked electronically in LIMS.
  - Evidence ammunition utilized for test-firing of evidence firearms will be documented in the notes and report.
  - Pillboxes are the recommended containers for storage, although the number of test fires, shotshells, etc., may require containers of other types (envelopes, etc.).
  - Storage containers will be labeled per Division evidence requirements, and may also include the following information if applicable:
    - Caliber
    - Manufacturer
    - Model
    - Serial number

- Toolmark Tests and Distance Test Patterns
  - Toolmark Tests and Distance Test Patterns will be maintained as evidence.
  - Toolmark tests and distance test patterns will be sub-itemized in LIMS and Versadex and submitted to the APD Evidence Control Section for storage.

5.2 Marking Evidence

- Documenting details of individual items should be performed prior to any marking of evidence. This documentation may include close up digital photos or photos taken under magnification.

- **Firearms**

- The following methods of marking are acceptable with firearm evidence. The examiner is given discretion as to which method of marking is best suited for the evidence.
  - Attaching a tag or label directly to the firearm,
  - Scribing or stamping,
  - Using permanent ink markers.

- **Projectiles**
  - Projectiles should **never** be marked in areas that may exhibit marks / patterns that could be useful in a comparison.
  - When possible, projectiles or the inner packaging will be labeled at a minimum with the unique identifier and employee's initials. Other markings that can also be added are the laboratory case number, exhibit designation, or other uniquely identifying marks.
  - Scribing or permanent ink markers are the preferred methods of marking these items.

- **Cartridge Cases / Shotshells**
  - Cartridge cases or shotshells should **never** be marked in areas (primer, base, body, etc.,) that exhibit marks / patterns that are used for identification purposes.
  - When possible, cartridge cases or the inner packaging will be labeled at a minimum with the unique item number and employee's initials. Other markings that can also be added are the laboratory case number, exhibit designation, or other uniquely identifying marks.
  - Scribing or permanent ink markers are the preferred methods of marking these items.

5.2 Observation by Outside Experts

No Supplemental Requirements

5.3 Evidence Disposal

No Supplemental Requirements

5.4 Destruction of Hazardous Substances

No Supplemental Requirements

5.5 Outsourcing

No Supplemental Requirements

6. LABORATORY SAFETY

- General Laboratory Safety
  - Analysis within the laboratory may involve hazardous materials to include evidence that may be contaminated with a biohazard. This procedure does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this procedure to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.
  - Strict adherence to universal precautions must be exercised at all times.
  - The use of personal protective equipment must be considered to avoid exposure to any potential hazards.
  - When working with chemicals the examiner should consider the use of eye protection, and work within a fume hood or utilize a spot vent. The examiner may wish to consider wearing a respirator and gloves.
  - If the UV light source is being used, the examiner must protect against exposure to the eyes and minimize exposure to the skin.

- **Safe Firearm Handling**
  - Firearms evidence in the laboratory environment is not dangerous if handled correctly and treated with respect. Occasionally, loaded firearms are received in evidence for a particular examination. These, of course, need very special handling. <u>All firearms must be treated as though they are loaded</u>. This rule cannot be over stressed and must be followed at all times, whether it's in the evidence receiving area, firearms laboratory, test firing area or in court. Safe firearm handling within the laboratory environment corresponds with safe firearm handling in general. The only way to prevent accidents is to practice safety at all times.
  - The muzzle of the firearm must always be pointed in a safe direction.
  - Test firing or any examination of the firearm that utilizes live ammunition, or a live ammunition component, will only be performed in designated test firing areas.
  - A firearm will not be placed in evidence or returned to any agency in a loaded condition or prior to its loaded or unloaded condition being checked. The use of a plastic tie-strap is the preferred method to indicate that the firearm is now unloaded.

- **Pre-Firing Safety Examination**

- It is the responsibility of the firearm examiner to ensure that all appropriate safety function checks are performed on a firearm or item of ammunition prior to test firing. The following is a list of safety checks, which shall be considered. The examiner must be mindful that individual case situations may require a more extensive function test process than that which is listed here.
- Determine whether or not a firearm can be safely test fired from the normal hand held position
  - Is the chamber/bore clear?
  - Are major parts of the firearm, such as the frame, slide, and/or barrel, void of any signs of factures or modifications?
  - Does the action of the firearm function, as you would expect it to?
  - Is the <u>correct</u> ammunition being utilized?

- Appropriate use of evidence ammunition
  - Are there signs of reloading? If so, reconsider the need to test fire the evidence ammunition.
  - Are there splits in the cartridge case neck and/or other significant damage to the cartridge case?
  - Is the ammunition of the <u>correct</u> caliber? This assessment of caliber cannot be based on the head stamp!
  - Are there existing toolmarks on pertinent surfaces of the ammunition?
  - Is the ammunition needed for other tests; e.g., range determinations?
- Muzzle loaders
  - Does the chamber/barrel appear sound?
  - Do the percussion nipples have oversize flash holes?
  - If a black powder firearm is received in a loaded condition, it must have the bullet and charge removed. It may then be properly loaded prior to test firing.
  - Is this an "original" muzzleloader or a modern reproduction? "Originals" must always be remote fired.

- **Firing Range / Water Tank firing room**
  - Proper caution must be exercised and the use of personal protective equipment must be considered.
  - Appropriate hearing and eye protection must be used during shooting.
  - One should be aware of the maximum velocity of the projectile that can be fired utilizing the range, water tank or cotton box.
  - Down range obstructions must be accounted for when utilizing the range.

- **Remote Firing**

- Proper caution must be exercised and the use of personal protective equipment must be considered.
- Appropriate hearing and eye protection must be used.
- The examiner must consider the practicality and/or desirability to wear some form of bullet resistant clothing.
- The examiner should follow all safety recommendations set forth by the manufacturer of the shooting device used. The user manual is located in the laboratory.
- Due to the potential hazard of the firearm malfunctioning or undergoing a catastrophic failure, the examiner must be stationed behind a protective shield or at a safe distance from the firearm when discharging the firearm.

7. PERSONNEL

7.1 Documents

No Supplemental Requirements

7.2 Subpoenas

No Supplemental Requirements

7.3 Private Case Consultations

No Supplemental Requirements

7.4 Testimony for Previous Employers

No Supplemental Requirements

7.5 Attendance

No Supplemental Requirements

7.6 Certification of Analysts

No Supplemental Requirements

7.7 Employee Training Program

The Section utilizes the most current AFTE training manual for the training program of examiners.

7.8 Employee Approval for Casework

No Supplemental Requirements

7.9 Employee Career Development

No Supplemental Requirements

7.10 Continuing Education

No Supplemental Requirements

7.11 Internship Program

No Supplemental Requirements

7.12 Volunteer Program

No Supplemental Requirements

7.13 Rider Program

No Supplemental Requirements

8. Computer Resource Management

- All Firearms Lab technical records of a case are uploaded into LIMS such as:
  - Reduced file sized PDF files
  - Reduced/Small sized AVI files
  - Word documents
  - Various file types capable of uploading not specifically addressed

- All Firearms Lab technical records because of size or type <u>that cannot be uploaded</u> into the current LIMS system such as:
  - AVI files
  - Full sized / RAW images JPG
  - Full sized PDF files
  - Various file types capable of uploading not specifically addressed
    - Will be backed-up, secure and kept confidential by the following options:
      - JPG images will be uploaded to the DCSMS (Digital Crime Scene Management System) with the Lab Number added.
      - Other file types will be uploaded to the Austin Police Department secured network, currently labeled “G” group drive, in the Firearms Lab folder currently labeled “Ballistics Unit” with the Lab Number as the title of the folder.
  - Technical records are accessible in LIMS, DCSMS and “G” DRIVE, from various locations

- Images, movies, notes, drafts, graphs, PowerPoint presentations, etc. that are produced during the assignment in LIMS will be uploaded to the specific assignment of the examiner.
- Completed reports and notes are in LIMS, specifically in the image vault, accessed by F11 function key under the specific assignment.
- Any casework generated data not previously uploaded into LIMS are backed-up to an external hard drive and stored in the Evidence Control Unit.

9. Forms

No Supplemental Requirements

APPENDIX 4A – ABBREVIATIONS

Abbreviation list for Firearm/Toolmark Section:

Standard abbreviations for measurement units such as g = grams, lbs = pounds, etc. are not included in this list but are acceptable.

Abbreviations on final reports should be used with discretion.

Abbreviation	Definition
~	consistent with or approximately
<	less than
>	greater than
AP	Armor piercing
API	Armor piercing incendiary
BBL	barrel
BEB	brass enclosed base
BFM	Breech face marks or impressions
BP	Black powder
BT	boat tail
BU	bullet
BW	brass washed
C or CONV	Conventional rifling
CC or C/C	Fired cartridge case
CHEM	Chemical Examination or Test
CuNi	Cupro Nickel, bullet jacket

COC	chain of custody
Cu	Copper
CW	copper washed
CWS	Copper washed steel
DA	double-action
DAO	double-action only
DC	Dual Core
ELIM	elimination
EXAM	Examined or examination
EXT	extractor
FA	firearm
FMC	full metal case
FMJ	full metal jacket, also FULL PATCH
FMJ-FP	full metal jacket, flat-point
FPI	firing pin impression
FP	firing pin
GI	groove impression
GRC	General rifling characteristics
GSR	gunshot residue
GSW	Gunshot wound

HB	Heavy ball, round nose bullet
HE	High explosive
HP	hollow point
HPB	Heavy pointed ball, boattail bullet
HPT	High pressure test
IAW	In Accordance With
ID or IDENT	Identification
INC or INCON	inconclusive
IP	Inside primed
JHP	jacketed hollow point
JSP	Jacketed soft point
LI	Land impression
LEO	law enforcement only
LH	Left Hand
LHP	lead hollow point
LL	Lands Larger
LP	latent print
LPB	Light pointed ball – flat based bullet
LPP	latent print processing
LRN	Lead round nose
LWC	Lead wad cutter
LS	Lacquered steel, case finish
LSWC	lead semi-wad cutter
MA	Mouth annulus, color identification

MC	Metal cased
MFG	Manufacturer
MG	Modified Griess
MIC or MICRO	Microscopic
Na Rho SoRo	Sodium Rhodizonate test
NC	No conclusion
Ni	Nickel
P	Pointed
PA	Primer annulus, color identification
Pb	Lead
POLY	Polygonal rifling
R	Right
RF	Rimfire
RH	Right Hand
RN	Round nose
RNL	round nose lead
SA	single-action
SBS	Side by Side
SER# or SN or s/n	serial number
SJHP	semi-jacketed hollow point
SJSP	semi-jacketed soft point
SN	Soft nose
SNR	Serial Number Restoration

SP	Soft point
SWC	semi-wad cutter
SWCHP	semi-wad cutter hollow point
T	Tracer
TC	Truncated cone
TF	test-fire
TF = TF / Test = Test	Test fired components ID to each other
TF = Item X / Test = Item X	Test fired component ID to evidence item
TM	toolmark
TMC	Total metal case
TMJ	Total metal jacket
UIT	Used in Test
VS or vs	Versus
W/	With
WC	wad cutter
Wt	Weight