



CRIME LABORATORY EVIDENCE SUBMISSION MANUAL

**Florida Department of Law Enforcement
Gerald M. Bailey, Commissioner
2013**

CRIME LABORATORY EVIDENCE SUBMISSION MANUAL

The Florida Department of Law Enforcement Crime Laboratory System has developed this manual for the criminal justice community to provide useful information for submitting evidence to any of the state-operated laboratories.

This publication is intended to provide instructions for special handling and submission of exhibits to a crime laboratory.

You may encounter unusual types of evidence not covered in this manual. Please consult your FDLE regional laboratory for assistance.

In the event of a request that is outside of the case acceptance policy, it is essential to make contact and receive approval via phone or e-mail with the laboratory management prior to delivering the evidence to FDLE. The evidence intake section cannot accept requests that are outside of the case acceptance policy without documented approval.

It is recommended that the submitting agency contact their FDLE regional laboratory to triage evidence on complex cases.

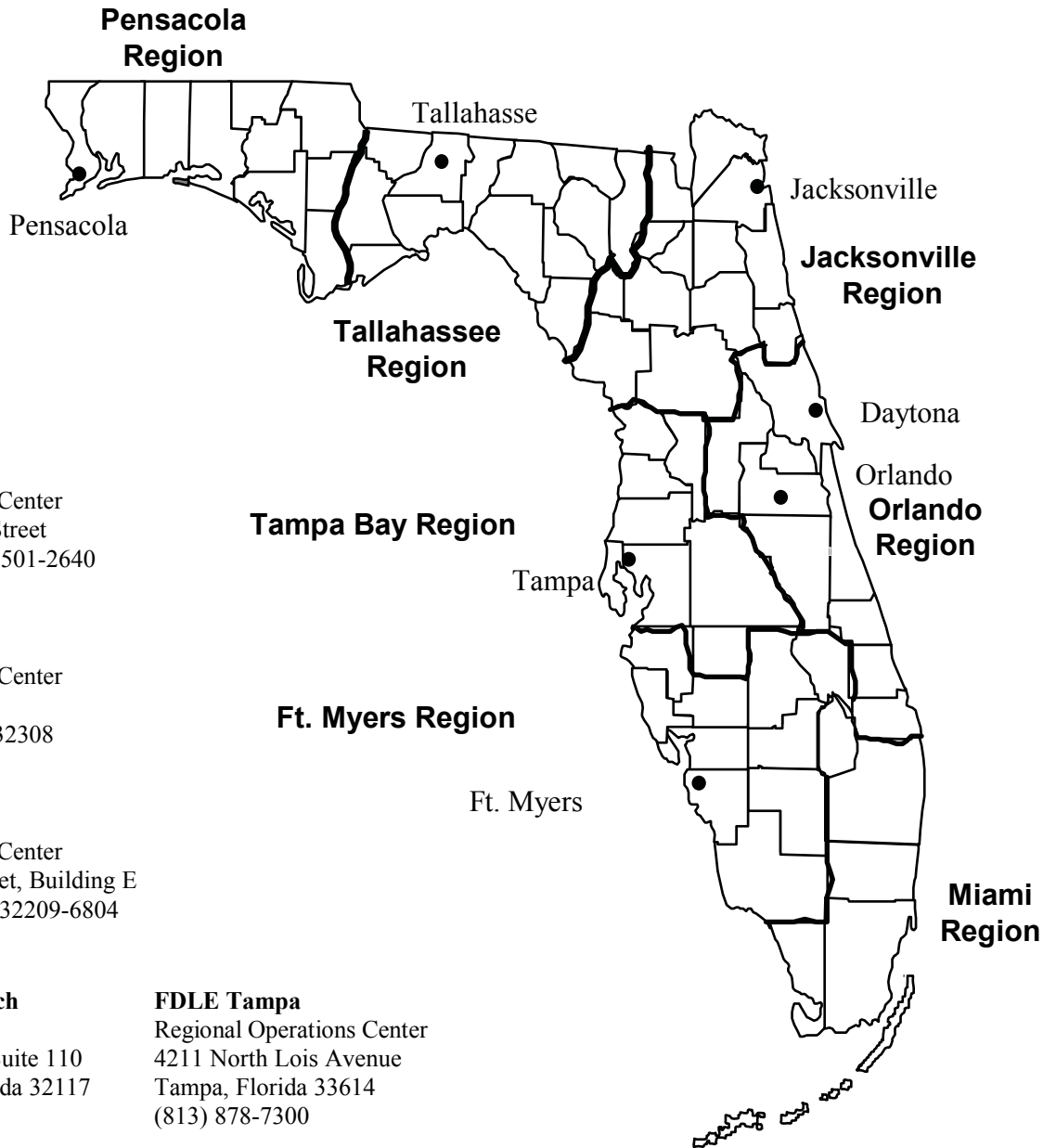
“Wherever he steps, whatever he touches, whatever he leaves, even unconsciously, will serve as silent evidence against him. Not only his fingerprints or his footprints, but also his hair, the fibers from his clothes, the glass he breaks, the tool marks he leaves, the paint he scratches, the blood or semen that he deposits or collect—all of these and more bear mute witness against him. This is evidence that does not forget. It is not confused by the excitement of the moment. It is not absent because human witnesses are. It is factual evidence. Physical evidence cannot be wrong; it cannot perjure itself; it cannot be wholly absent. Only its interpretation can err. Only human failure to find it, study and understand it, can diminish its value.”

From Kirk, Paul L.
Crime Investigation.
New York: Interscience
Publishers, 1953

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I. FDLE FORENSIC SCIENCE SERVICES LOCATIONS



FDLE Pensacola
 Regional Operations Center
 1301 North Palafox Street
 Pensacola, Florida 32501-2640
 (850) 595-2100

FDLE Tallahassee
 Regional Operations Center
 2331 Phillips Road
 Tallahassee, Florida 32308
 (850) 410-7645

FDLE Jacksonville
 Regional Operations Center
 921 North Davis Street, Building E
 Jacksonville, Florida 32209-6804
 (904) 360-7100

FDLE Daytona Beach
 Crime Laboratory
 810 Fentress Court, Suite 110
 Daytona Beach, Florida 32117
 (386) 274-3829

FDLE Orlando
 Regional Operations Center
 500 West Robinson Street
 Orlando, FL 32801-1771
 (407) 245-0888

FDLE Tampa
 Regional Operations Center
 4211 North Lois Avenue
 Tampa, Florida 33614
 (813) 878-7300

FDLE Fort Myers
 Regional Operations Center
 4700 Terminal Drive, Suite 1
 Fort Myers, Florida 33907
 (239) 278-7170

II. CRIME LABORATORY SERVICES

The Florida Department of Law Enforcement provides crime laboratory services to all local and state law enforcement agencies in Florida for the purpose of providing assistance in criminal investigations and judicial proceedings, including 24-hour crime scene assistance in specific regions. Assistance to Federal agencies will be provided with the approval of the Chief of Forensics or designee. Call the crime laboratory in your service area for assistance.

FDLE Crime Laboratories provide the following forensic services; call the crime laboratory in your service area to learn which services are provided:

Biology/DNA	Latent Print Analysis
Controlled Substances	Digital and Multimedia Analysis
Firearms	Questioned Documents
Clandestine Lab Evidence	Footwear and Tire Impression Analysis
Toolmarks	Toxicology
Crime Scene	Trace Analysis (Glass, Paint, Polymer, Fiber, Gunshot Residue)

NOTE: FDLE will discontinue acceptance of GSR kits for analysis on March 1, 2013.

A. Cases Handled

All submissions of exhibits should be in connection with criminal investigations. No examinations will be conducted for private individuals or corporations.

B. Cost of Services

Normally all laboratory examinations, court appearances, and travel expenses are available without charge. The only exception is a criminal case in which the court orders laboratory services upon the defendant showing cause, as described in F.S. § 943.33.

C. Functions of the Laboratories

1. To identify, compare, and interpret physical evidence.
2. To furnish expert testimony before the court concerning examinations conducted on evidence or related matters. Make an official request for testimony with a subpoena.
3. To furnish crime scene processing advice and/or assistance in major criminal cases. The head of an agency or the supervising employee responsible for the conduct of the investigation should make the request. The official requesting this service should inform the laboratory of the type of crime, the basic circumstances surrounding the case, and the specific type of assistance required.
4. To render aid to court officials in connection with the preparation of scientific and technical phases of certain cases for trial.
5. To furnish instruction concerning physical evidence at law enforcement training schools and to officers of any law enforcement agency.

III. CRIME SCENE: HOW TO COLLECT EVIDENCE

Crime scene analysts respond to requests by local law enforcement agencies for the examination of major crime scenes. The crime scene section was created to provide assistance to Law Enforcement Agencies who lack the resources necessary to process and examine major crime scenes. The FDLE Crime Scene Section enables local law enforcement the ability to utilize experts trained in the recognition, collection and preservation of evidence. This evidence is later analyzed at the crime laboratory. Analysts utilize a wide variety of equipment and instruments to process and document the scene. In addition to the primary goal of preservation and collection of evidence the analysts are able to provide other more advanced crime scene services. Analysts provide training to local law enforcement agencies covering the overall functions of the crime laboratory and the proper procedures for documenting, preserving, collecting, and submitting physical evidence to the laboratory.

The collection process includes the following recommendations:

1. Incorporate sufficient space within the boundaries of the crime scene to extend beyond where the last item of evidence was located. It is always easier to shrink your boundaries rather than enlarge them.
2. Clear all nonessential persons from the crime scene including officers not collecting evidence. The more people present, the greater chance there is for damage, loss, or movement of evidence.
3. Take care when entering and exiting a scene to ensure that the path utilized is one that was least likely to have been used by a subject (s). This is in order to protect evidence that may be easily destroyed or moved.
4. A list of all persons entering the crime scene must be maintained so that elimination standards such as DNA, fingerprints or footwear may be obtained if necessary.
5. All persons entering a scene where blood and body fluids are present should wear personal protection equipment such as gloves, shoe covers, disposable jumpsuits, etc. to prevent exposure to possible biohazards and contamination of the scene. Additionally, the scene should be marked as a biohazard area through the use of barrier tape and signs.
6. Designate one or two persons to collect all evidence or designate a primary evidence custodian to keep track of all evidence collected. This places the responsibility on specific individuals and avoids confusion if questions arise later as to where the items were found and who found them.
7. Document the scene as it appears upon arrival, prior to the addition or subtraction of any items or persons. This can be done through the use of photography, video tape

recording, measuring, and sketching the location of all the evidentiary items. Ensure that this documentation occurs prior to the movement of any items within the scene. Document in written notes what the items are that are depicted in the photographs and sketches, noting the condition, location, date and time of collection and who collected each item.

8. Use a systematic approach when searching for evidence. Study the whole scene first because the relationship of different items and their location may be important. Search the crime scene area so that hidden evidence is not overlooked. Consider what significance the items may have and what examinations the laboratory conducts with regards to the items collected. Remember that the items collected should be probative, relevant and material to the investigation.

9. Evidence of a fragile nature should be collected prior to evidence that is less likely to be destroyed or contaminated.

10. Keep the chain of custody short because each person having an item in his or her possession may be required to testify in court.

11. Place each item collected into a separate container. Items that are similar, but are collected from separate locations, should also be packaged separately. This prevents damage through contact and eliminates cross contamination. Refer to the appropriate physical examination section for details on packaging.

12. Store evidence in a safe, evidence vault, or locker where others do not have access.

CONTAINERS

- **Instructions regarding containers used for specific types of evidence are found in the various sections of this manual. Always use clean, new containers to prevent contamination. (Figure 1).**
- **Paper envelopes and paper bags are suitable for enclosing paper items and apothecary folds containing small, dry, or powdery material. (Figure 2).**
- **Vials, pill boxes, or match boxes are suitable for most small items.**
- **Bags or paper can be sealed around the end or over areas of large items, such as tools, safes, and vehicle bumpers to prevent loss of adhering evidence.**
- **Plastic zipper bags are suitable for small, dry objects not requiring serological, DNA, or microanalysis examination. Do not put damp or biological items in plastic bags as bacteria or fungus may grow.**
- **Seal containers with frangible evidence tape to prevent loss, contamination, or access by unauthorized persons.**
- **Avoid staples as they may tear gloves or puncture the skin.**



Figure 1—Selecting Proper Evidence Container

Use care in the selection of containers for items of physical evidence. Particular requirements of a specific type of evidence are found in the appropriate section of this manual.

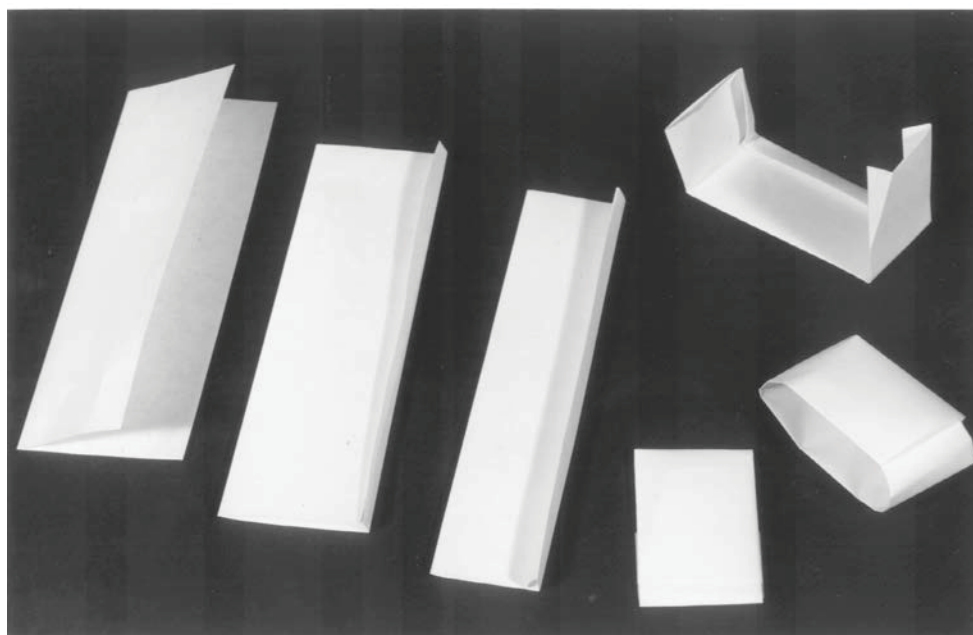


Figure 2—Pharmaceutical/Apothecary Packets for Trace Evidence Submission

Pharmaceutical/Apothecary packets are useful for collecting most types of trace evidence such as paint, glass, soil, hair, fibers, and other debris. Gently place or move the evidence to the center, then fold the paper so that no edges are left open. Tape the small packet securely and label appropriately.

IV. SAFETY CONSIDERATIONS

Much of the evidence collected by law enforcement agencies is potentially hazardous. The hazards relate to the types of exposure individuals have with the items of evidence. Four common methods of exposure are inhalation, absorption, ingestion, and injection. The risk of exposure can be reduced by the selection of appropriate packaging materials and the placement of hazard warnings on the exterior of the evidence containers.

1. Packaging of Liquid Body Fluid Samples

- A. Liquid blood and urine must be packaged in a crush-proof container that will contain all contents and prevent leakage during handling, storage, and transport. Absorbent material sufficient to control any leakage or spill should also be included in the packaging.
- B. Label with the international biohazard symbol and warning label so that it is readily visible to all who handle the package.
- C. For transport information, see Mailing/Commercial Carriers information on page 11.

2. Labeling of Biohazard Evidence

Mark all exterior packages with the international biohazard symbol and label if the package contains liquid or dried blood, body-packed contraband, body parts, or body fluids (semen, vaginal fluid, urine). Make sure that the labels are clearly visible to all who handle the packages.

3. Packaging of Sharps

- A. A sharp is any object or device capable of puncturing the skin. Injection of a bloodborne pathogen such as HIV (AIDS virus), HBV (hepatitis virus), and others can occur by the accidental exposure to blood or body-fluid-contaminated sharps. Sharps include glass tubes, razor blades, scalpel blades, knives, hypodermic syringes and needles, and other items capable of cutting or penetrating the skin.
- B. Blood or body-fluid-contaminated sharps
 1. Because of the possibility of an accidental needle puncture, hypodermic syringes continue to pose a health and safety threat both to contributors and to laboratory personnel. The laboratory will not accept hypodermic syringes as evidence.
 2. Package in rigid, puncture-resistant, leak-proof containers.
 3. Use the international biohazard symbol and label with the words, **WARNING: CONTAINS SHARPS.**
 4. For examples of packaging using the biohazard symbol, see page 15.
- C. Sharps not contaminated with blood or body fluids
 1. Package glass to prevent breakage; secure knives, razor blades, etc., within cardboard or similar support or in boxes.
 2. Label with the words, **WARNING: CONTAINS SHARPS.**

4. Packaging of Firearms

Unload all firearms prior to packaging, if possible. Use metal gun safes for the submission of loaded firearms. Loaded firearms must be hand delivered to the laboratory for submission and labeled with the words, **WARNING: LOADED FIREARM**.

5. Flammables and Hazardous Materials

Consult with the laboratory prior to the transport and submission of any of these items for examination.

6. Plant Material

Package dried plant material in paper bags or boxes. Storage and packaging of freshly cut or moist plant material in plastic facilitates the development of mold. Not only does the mold make analysis more difficult, it may also change the condition of the plant material and make it unsuitable for analysis. Additionally, the inhalation of mold spores may cause respiratory problems.

7. Mailing/Commercial Carriers

- A. Certain regulations of the U.S. Postal Service cover the mailing of certain types of evidence.
1. Liquid biological fluids such as urine or blood specimens must be packaged in a securely sealed primary container with sufficient shock-resistant material to withstand shock and pressure changes. An absorbent material should surround the primary container or otherwise be configured to take up the contents in case of a leakage. There should also be an outer shipping container with secondary leak-proof materials so that, if there is leakage of the primary container during shipment, the contents will not escape from the outer container. (*Figures 3 and 4*).

In summary:

- Primary container must seal securely and be leak proof.
 - Absorbent material must surround primary container in sufficient volume to absorb entire contents.
 - Secondary container must seal securely and be leak proof.
 - Shipping container must be constructed of fiber board or other crush-proof material.
2. Unloaded firearms may be sent via registered mail.
 3. The U.S. Postal Service will not transport human remains or body parts.
 4. Flammables and hazardous materials have specific regulations governing their mailing. Consult with the U.S. Postal Service and the laboratory before sending any of these items to the laboratory.
- B. Commercial carriers may have additional regulations and should be consulted regarding their individual requirements.

The packaging and marking requirements for evidence of blood and body fluids are based on the OSHA Bloodborne Pathogen Standards, CFR Title 29 1910.1030, and on U.S. Postal Regulations, Domestic Mail Manual, C010. Other courier services may have additional requirements.

V. HOW TO SUBMIT EVIDENCE

Several methods may be used to submit evidence to the laboratory. The method selected will depend upon the type and size of the item, the urgency, or the complexity of the case. Whatever method is used, take care to assure that the evidence will not be lost, damaged, or contaminated, and that the chain of custody is as short as possible.

When submitting evidence to an FDLE laboratory, the agency is agreeing to all the terms and conditions for analysis set forth in the FDLE Evidence Submission Manual. The laboratory will determine the test methods used.

A. Identifying Information Required

FDLE Evidence Prelog is a Web browser-based application solely for the law enforcement customers of the FDLE crime laboratory system. This program enables law enforcement agencies to pre-fill out evidence submission information prior to delivery to an FDLE crime laboratory. Once completed, all the agency has to do is provide the Prelog packing slip when either hand delivering or mailing in the evidence.

This program eliminates the past requirement for evidence information to be saved on a disc or travel drive, thus drastically reducing the amount of time spent during the actual delivery of the evidence to a FDLE laboratory.

Law enforcement agencies can obtain their account information by contacting the evidence section supervisor in the FDLE laboratory in their region.

Items may be brought to the laboratory in person or sent by common carrier. Certain information must accompany exhibits to ensure that the proper examinations are conducted and that accurate records are maintained. A completed Prelog packing slip must accompany the items submitted containing the following information:

1. name of subject, if applicable
2. name of victim, if applicable
3. offense and offense date
4. agency submitting evidence and agency case number
5. name and phone number of officer submitting evidence and to whom reports should be sent and/or evidence returned
6. list of item(s) and location of item(s) recovered (Describe what is questionable evidence and what is known evidence.)
7. type of examination desired
8. brief summary of the details of the case that are pertinent to the laboratory examination

9. notes concerning any accidental or intentional changes to the items made by the investigator
10. laboratory case number if items are additional evidence for a case already submitted to the crime laboratory

Use the laboratory case number for all inquiries to the laboratory concerning evidence. Reference this number to court officials involved in the case so it can be used on subpoenas.

B. Packaging and Marking for Delivery

1. Mark each item clearly when possible and put in separate containers to prevent cross-contamination.
2. Label each container with your agency case number and the item/exhibit number. Containers with items of known ownership (buccal swabs, liquid blood and urine evidence, fingerprint standards) must be labeled with the name of the individual.
3. Seal containers with frangible evidence tape to prevent loss, contamination, or access by unauthorized persons.
4. When mailing or shipping, pack securely in a box to prevent damage and seal the box. Place Prelog packing slip in an envelope and attach to the outside of the sealed evidence package, but inside the mailing container.
5. Use certified mail and return receipt when mailing most exhibits.
6. Use registered mail and return receipt when mailing controlled substances, firearms, or exhibits of large monetary value
7. The minimum size of the outer packaging should be 4 1/2" x 7". This is to accommodate the Laboratory Information Management System (LIMS) label, evidence tape, marks, etc.
8. If possible, for cases in which more than one section of the lab will be examining evidence, package the evidence separately for each section. This will expedite handling within the laboratory.
9. Note any special warnings on the package:

WARNING: Liquid blood inside. Refrigerate upon arrival.

WARNING: Hepatitis (HBV) or AIDS (HIV) Positive

WARNING: Biological Hazards

WARNING: Glass

WARNING: Sharps

WARNING: Loaded Weapon

10. Blood samples for toxicology testing which are not hand-delivered must be sent by priority mail, overnight delivery service, or other equivalent delivery service.
11. See page 10 for the packaging of liquid blood or urine samples.
12. Put the biohazard warning symbol on all packages containing evidence contaminated with blood or body fluids and label with warning information.
13. Sharps, such as knives or scalpels, must be packaged in puncture-proof containers.
14. See page 6 for the mailing addresses for all the crime laboratories.

C. Delivery in Person

1. Personal delivery of evidence is often the best method in complex or large cases.
2. Location of the FDLE crime laboratories are found on page 5. Make prior arrangements with the laboratory for evidence delivered before 8 a.m. or after 5 p.m.

D. Submission of Large Items

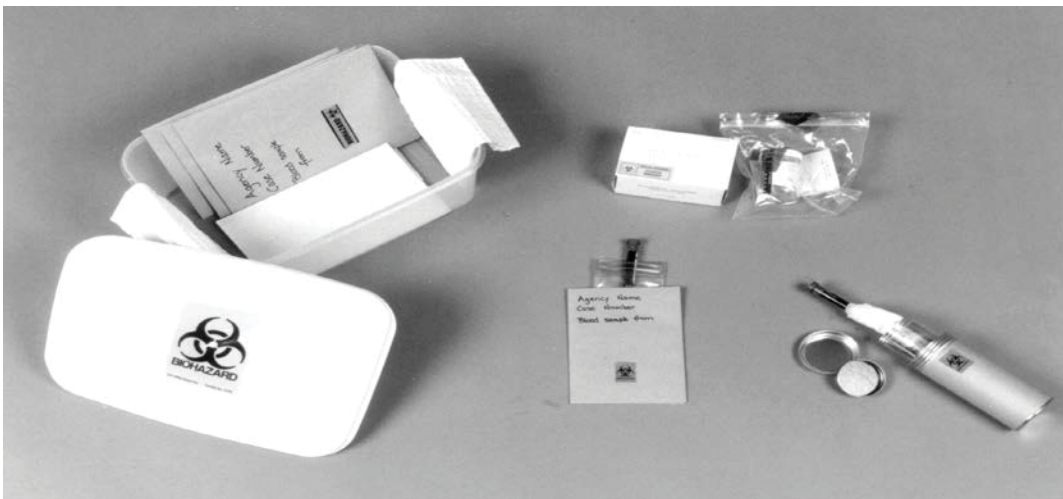
An automobile to be examined externally should be driven as little as possible. If it is necessary to transport it a long distance, deliver it in a covered truck or trailer. Contact the laboratory's Crime Scene Section regarding the submission of automobiles for examination prior to transport to the laboratory. An automobile to be examined internally for blood, hair, fibers, or fingerprints should not be driven. Access to the interior should be limited to reduce the possibility of contamination.

E. Return of Evidence by the Laboratory

1. Upon completion of examinations, the crime laboratory will normally return evidence to the submitting agency.
2. Evidence will be returned routinely only to a representative of the original submitting agency. With direct written authorization from the original submitting agency, the crime laboratory may return evidence to representatives of other agencies.
3. Large quantities of controlled substances will not be returned by mail. The submitting agency should make arrangements to pick up such evidence at the laboratory.



Figures 3 and 4—Packaging Evidence



This packaging is an example of possible ways in which evidence can be packaged. Liquid and body fluids should be packaged in leak-proof packaging with absorbent material. See the text for additional explanations.

VI. PHYSICAL EVIDENCE EXAMINATIONS

A. ARSON

FDLE does not perform Arson/Fire Debris analysis.

For arson cases please contact the State Fire Marshal's Office Fire and Arson Lab or the regional Fire Marshal's Office.

B. BIOLOGY

(Biological Screening and DNA)

The Biology section conducts the examination and testing of biological evidence through biological screening and Short Tandem Repeats (STR)–DNA testing. DNA can be obtained from biological specimens left at the scene of crimes such as murder, aggravated battery, sexual assault, hit-and-run, and burglary. The biological specimens most often encountered include blood evidence, semen, and saliva. Buccal (cheek) swabs should be submitted to be used as known reference standards for DNA testing.

For blood evidence, the laboratory determines through chemical testing if blood is possibly present. Dried blood samples may also be submitted as known reference standards for deceased individuals.

NOTE: FDLE crime laboratories no longer determine the non-human origin of blood with species testing, e.g., cat, dog, etc. Contact the crime lab to obtain a list of possible labs to contact if such testing is required.

In addition to blood evidence, the crime laboratory can conduct conventional serology examinations on other body fluids. The examination most frequently requested is the identification of semen in connection with sexual assault cases. Examination may reveal the presence or absence of the following: acid phosphatase (a characteristic component of seminal fluid), spermatozoa (male reproductive cells), and/or prostate specific antigen.

The third body fluid available for testing is saliva. Certain items of evidence may contain amylase, a component of saliva (and other bodily fluids). A presumptive test for amylase may be done on appropriate evidence. Exhibits containing saliva that may be used for DNA analysis include such items as cigarette butts, drinking straws, soda/beer cans, masks, bottles, etc. Sexual assault evidence and bite marks may also contain saliva.

For criminal paternity cases, samples from the mother, child (or fetal material), and the alleged father must be submitted prior to performing STR-DNA analysis.

The crime laboratory also provides testing on hair evidence. Following an examination for the suitability of the hairs, STR-DNA testing may be performed on hair evidence associated with violent crimes. However, the crime laboratory does not provide microscopic hair comparison. For reasons of potential contamination, DNA analysis will not be performed on vacuum sweepings.

Touch evidence is defined as evidence which may have no visible staining and would contain DNA resultant to touching an item with friction and/or for a prolonged period of time such that sweat and/or skin cells may transfer. Touch evidence does not include cigarette butts, swabbing from cans, bottles straws or other items in which the substance being tested is most likely saliva. Touch evidence also does not include items submitted for wearer such as shirts, shoes, hats, etc. where there is a probability of prolonged contact.

1. Case Acceptance Policy

Exhibits must be submitted in compliance with the case acceptance policy of the Florida Department of Law Enforcement. DNA testing will be complete when an association is established from probative evidence. (For example an association is established between the subject and the victim).

A scenario must be provided with the submitted evidence. The scenario will establish the value of each item as to its likelihood to provide probative results or an investigative lead.

The type and number of items accepted per submission is based on case type. An item is expected to be comprised of one piece of evidence (e.g. one piece of clothing, swabbing of blood from a single area, or one weapon). If items are received packaged together, the number of items in the package will be considered to be the number of items submitted (e.g. pants, shirt and shoes packaged together will be considered three items). For all case types, known standards from victim(s) or subject(s) will not count against the number of items that may be submitted.

a. Sexual Assaults:

- The first submission is limited to a sexual assault evidence kit plus one pair of underwear the victim was wearing at the time of the incident or immediately thereafter (if not already in the kit) and one condom, if applicable.
- If probative biology results are obtained, additional items will not be examined, unless case circumstances dictate the need for additional processing.
- If no probative results are obtained, the victim's clothing worn at the time of the incident may be submitted in the next submission – limited to 5 items
- If no probative results are obtained, additional clothing or bedding may be submitted in separate submissions – limited to 5 items per submission.

b. Homicides:

- Biology evidence is limited to 5 items per submission.
- If probative biology results are obtained, additional items will not be examined, unless case circumstances dictate the need for additional processing.
- If no probative results are obtained on the first submission, the next tier of probative items, (maximum of 5 items) may be submitted.

c. Burglary/property crimes:

- The first submission is limited to 2 items for biology – typically blood sample(s) from the scene, or items left by the perpetrator (cigarette butt, item of clothing).
- If a profile is developed, additional items will not be examined, unless case circumstances (such as multiple perpetrators) dictate the need for additional analysis.

d. Other case types (robbery, assault, etc.):

- Each submission is limited to 5 items for biology.

e. Criminal Parentage Cases:

- Submissions must include a buccal swab (preferred), liquid blood (purple topped tube), or dried blood standard from mother or alleged mother, father or alleged father, the child or if necessary, the product of conception (frozen with no preservatives).
- No partial submissions will be accepted, unless dictated by case circumstances (such as the mother is deceased or maternity is in question and the father is unknown).

f. Touch Evidence

- Touch evidence will be accepted for possible STR DNA analysis when there is a high degree of likelihood that the evidence submitted will provide probative results or investigative leads. A high degree of likelihood may be established by means of witness corroboration, visual monitoring systems, or sound deductive reasoning.
- Touch evidence will be processed on violent crime cases only.
- Touch evidence will be processed only when no other probative evidence exists.
- Touch evidence will be processed by the Biology/DNA section only if it has not been previously processed by another discipline. (e.g. latent prints or firearms)
- Items submitted for touch evidence processing will comply with existing policy relating to the number of items of evidence that may be submitted based upon case type.
- Elimination standards must be submitted with touch evidence where appropriate (e.g. owner of stolen vehicle in a violent crime such as carjacking).

g. Hair Evidence

- Hair evidence will be processed on violent crime cases only.

h. Drug Offenses

- Biology will not typically be performed on drug offenses.

i. Y-STR DNA

- Cases will be evaluated by the laboratory for Y-STR DNA suitability and subsequent testing. FDLE cases with reports dated prior to 2012 must have approval from the laboratory prior to submission for Y-STR DNA testing.

2. Limitations of Biological (Screening and DNA) Examinations and Testing

- a. The age of dried blood, seminal stains, or possible saliva stains cannot be determined.
- b. Whole blood transfusions may alter blood chemistry. In these cases collect an alternate standard for DNA testing such as a buccal (cheek) swab in addition to the blood.
- c. For sexual assault cases, a standard must be obtained from the victim prior to DNA analysis. If the suspect is known, submit a standard for the suspect also. Submit an elimination standard from the consensual partner, when applicable. Intimate contact such as kissing may lead to a mixture of body fluids. This should be taken into consideration before obtaining a buccal (cheek) swab to serve as a DNA standard.
- d. Very old or highly degraded DNA samples may yield results, may give an incomplete DNA profile, or may not yield results.
- e. Hairs must have a root suitable for nuclear DNA analysis. The laboratory will microscopically examine the hairs to determine if a suitable root is present. The laboratory does not perform mitochondrial DNA testing on hair shafts. Relative to hair examinations, vacuum samples are not suitable for DNA testing.
- f. Hypodermic syringes with needles, because of the possibility of an accidental needle puncture, continue to pose a health and safety threat both to contributors and to laboratory personnel. Due to these health concerns, syringe evidence will only be accepted by the laboratory for biological testing when it is the only evidence in the case and with prior approval of the Biology Supervisor or designee.

- g. Caution should be taken when interpreting the STR DNA results from touch evidence. The STR DNA results cannot answer when or under what circumstances an individual may have used or touched an item of evidence.
- h. Processing of an item of evidence prior to submission should be avoided. Processing chemicals may interfere with DNA testing and could lead to contamination which will negatively impact the evidence.

3. Collection and Submission of Buccal Swabs and Liquid Blood Samples for DNA Standards

The laboratory should have standards from both the victim(s) and the subject(s). Buccal swabs are the preferred standard, but samples of liquid blood collected in a purple-topped tube or dried blood stain/spot cards may also be used. Submit these with other evidence for comparison purposes. Samples may be obtained without consent from suspects by obtaining a court order, by use of a valid search warrant, or by a search incident to a lawful arrest (*Schmerber v. California*, 384 U.S. 757). Submit buccal swabs or blood samples in all cases, even if another agency has performed examinations. If there are any circumstances where a standard cannot be obtained, please contact the laboratory.

For buccal swabs:

- a. Rub two to four sterile cotton swabs on the inside cheek and gum. Air dry the swabs and then package in a sealed envelope.
- b. Label the envelope with the first and last name of the person from whom it was obtained, the initials of the person who collected the sample, and the date. Forward the sealed envelope to the laboratory as soon as possible.
- c. The buccal samples do not need to be refrigerated during mailing. Mail via Express mail according to U.S. postal regulations at the beginning of the week, if possible, to assure receipt by the laboratory the next day.

For liquid blood standards:

- a. A qualified clinical technician should collect approximately five milliliters of liquid blood and place the sample in a collection tube with a lavender or purple stopper. For a blood alcohol or drug test, refer to Section K: Toxicology for information on proper sample collection.
- b. Label the vial with the first and last name of the person from whom it was drawn, the initials of the person who drew the blood, and the date. Package in a crush-proof container that will contain all contents and prevent leakage during handling, storage, and transport. Absorbent material sufficient to control any leakage or spill should also be included in the packaging. Forward to the laboratory as soon as possible.
- c. Refrigerate, do not freeze, liquid blood samples. Mail via Express mail according to U.S. postal regulations and mark container with the words, **WARNING: Liquid blood inside, refrigerate upon arrival**. Mail at the beginning of the week, if possible, to assure receipt by the laboratory the next day. Blood samples need not be refrigerated during mailing. Refer to page 10 for instructions on packaging liquid blood samples.

For dried blood standards:

- a. Blood stain cards or spot cards prepared by a qualified entity (e.g. medical examiner's office) should be labeled with the name of the person, initials of the preparer, and date.
- b. Label the envelope with the first and last name of the individual, the initials of the preparer, and the date.
- c. Dried blood standards do not require refrigeration. Mail via priority mail according to U.S. postal regulations at the beginning of the week, if possible, to assure receipt by the laboratory the next day.

4. Collection and Submission of Bloodstain Evidence

- a. If there is liquid blood at a scene, e.g., a pool of blood on the floor, swab some of it on a sterile cotton swab, dry at room temperature, package in a paper bag, label, seal, and initial. (*Figure 5*).
- b. If there is suspected dried blood at the scene on an object that cannot be moved, photograph the object. It is possible that the location, size, and appearance of the stain may be significant. The stain may then either be cut from the item, i.e., sofa cushion, or swabbed onto a sterile cotton swab slightly moistened with sterile water. Air dry the swab and package in a paper bag or envelope.
- c. On items with smooth surfaces such as glass or metal that cannot be submitted to the laboratory, swab the suspected blood using a sterile cotton swab slightly moistened with sterile water. Air dry the swab and package in a paper bag or envelope.
- d. Avoid processing items of evidence for latent prints before submitting them to the laboratory for biological testing. Latent print processing may interfere with subsequent biological examinations or introduce contamination.

5. Collection and Submission of Sexual Assault Evidence

- a. The victim of a sexual assault should be examined by appropriate personnel as soon as possible following the assault. Directions and paperwork can be obtained at: <http://www.fcasv.org/forensic-exam-paperwork>
- b. Submit vaginal specimens if indicated by circumstances. Samples should be collected with sterile cotton swabs. These must be air dried and properly marked. Please have sexual assault examiner personnel collect four vaginal swabs.
- c. Submit oral and/or anal swabs if indicated by circumstances of the case, or if the circumstances are uncertain.
- d. Submit a buccal swab from the victim. Refer to Collection and Submission of Buccal Swabs and Liquid Blood Samples section on page 20 for proper collection and submission procedures. These standards are for comparison purposes and should be submitted from victim(s), consensual partner(s), if applicable, and subject(s), if known. Victim standards are required for DNA analysis.
- e. If contact such as kissing or biting has occurred, collect samples from the victim's body. Moisten sterile swabs slightly with sterile water and rub the suspected area(s). Then rub the area with a dry swab. Package the swabs in envelopes after completely drying and label the swabs accordingly.

- f. If suspected semen is found at the scene, collect it on sterile swabs, air dry, and package. If the stain is on clothing or linens, air dry the items and package. If suspected semen is found at the scene on an object that cannot be moved, photograph the object. Either cut the stain from the item, e.g., sofa cushion, or swab onto a sterile cotton swab slightly moistened with sterile water. Air dry the swab and package in a paper bag or envelope.
- g. If there is apparent liquid inside a condom, collect a swab(s) from the inside and allow the swab to air dry. Then lay the condom on absorbent paper and allow it to air dry. Package the paper/condom and the swab(s) in an envelope or paper bag for submission.

DO'S and DON'TS

- **DO air dry items, but keep from fans or extreme heat. Fans may dislodge trace evidence.**
- **DO mark outermost package with biohazard warning symbol and label.**
- **DO submit buccal swabs, liquid blood samples in purple topped tubes, or dried blood samples from all persons involved.**
- **DO package liquid blood samples separately; not with other items.**
- **DO refrigerate liquid specimen(s). Mail at the beginning of the week.**
- **DO package items separately in paper bags or envelopes.**
- **DO package clothes of subject and victim separately.**
- **DO handle exhibits as little as possible.**
- **DON'T freeze liquid blood standards.**
- **DON'T mix separate dried stains. Package each individual item in a paper bag or box, then seal and label.**
- **DON'T send partially dried objects as decomposition will occur. (See Figure 6).**
- **DON'T submit exhibits packaged in plastic bags.**
- **DON'T place evidence in trunk of car. Extreme heat may make DNA evidence unsuitable for testing.**
- **DON'T collect buccal swabs as standards if the mixing of body fluids through such contact as intimate kissing has recently occurred.**
- **DON'T process an item for latent prints before requesting biological tests.**

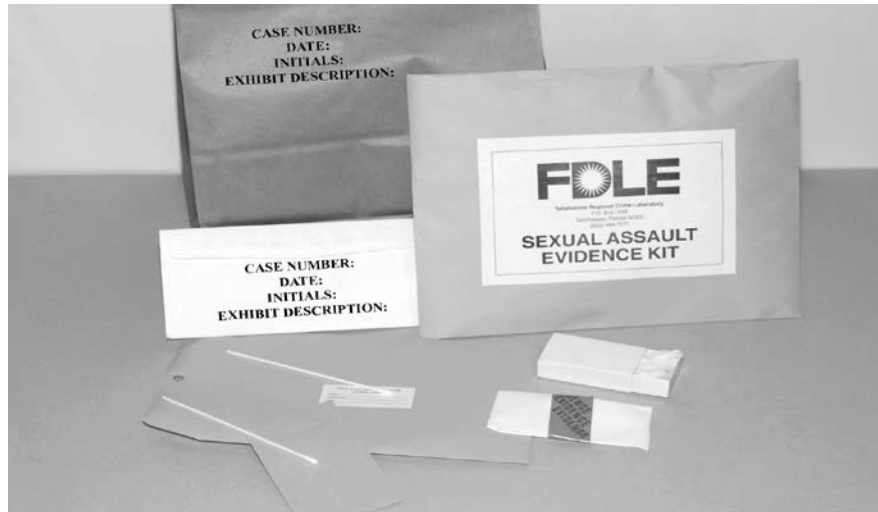


Figure 5—Correct Packaging of Biology (Screening and DNA) Evidence

CORRECT: Biology (Biological Screening and DNA) evidence submitted in paper packages will dry properly and be well preserved.



Figure 6—Incorrect Packaging of Biology (Biological Screening and DNA) Evidence

INCORRECT: Biology (Biological Screening and DNA) evidence submitted in plastic or other airtight containers will not dry properly, resulting in rapid deterioration of the stains.

6. Collection and Submission of Possible Saliva Stains

- a. Possible saliva stains may be collected by rubbing the suspected area(s) with a sterile swab(s) moistened slightly with sterile water. Package the swab(s) in an envelope after completely drying and label accordingly. Alternatively, the item of evidence may be

submitted directly to the laboratory for processing. Air dry items of evidence as needed, then package in individual paper bags or envelopes, and submit.

- b. Cigarette butts from the same container (e.g. ashtray) may be packaged together. Do not package the ashes.
- c. Based on the circumstances of the case, it is important to describe to the crime laboratory possible areas on an exhibit, e.g., right sleeve of shirt, where possible saliva stains may be present.

7. Collection and Submission of Hair Evidence

- a. Remove visible hairs from the body or item with forceps and place in a paper fold, seal, and label.
- b. Hair evidence will be processed on violent crime cases only.
- c. Known buccal swabs or blood can be used for comparison with unknown hairs.

8. Collection of Tissue (including fetal tissue) and Bone for DNA Testing

In certain cases, it may be necessary to submit tissue or bone for DNA analysis. In these instances, contact the Biology section supervisor in advance to insure proper collection, storage, and packaging of the evidence.

- a. Submit bone and tissue samples for DNA analysis frozen in airtight plastic containers.
- b. The samples must be free of formaldehyde or formalin. Presence of either of these chemicals may negate any further DNA analysis. This includes fetal tissue samples.
- c. Ship samples on dry ice overnight.

9. Collection of Touch Evidence

- a. Touch evidence may be collected by rubbing the suspected area(s) on an item of evidence with a sterile swab(s) moistened slightly with sterile water. Package the swab(s) in an envelope after completely drying and label accordingly. Alternatively, the item of evidence (e.g. gun, knife, steering wheel) may be submitted directly to the laboratory for touch evidence processing.
- b. When collecting touch DNA evidence, facial masks, gloves, hair covers, and disposable lab coats should be worn to prevent contamination.

C. CONTROLLED SUBSTANCES

Laboratory examination of evidence will determine

- the presence or absence of controlled substances
- the amount of controlled substance present as required by law or by special request

1. Case Acceptance Policy

- a. Each exhibit must be marked with a unique exhibit number and initialed in an easily identifiable manner.
- b. Each exhibit must be packaged in an appropriately sized container. The minimum size of the outer container is 4 ½" X 7".
- c. All packaging that contains a suspected controlled substance must be separated for latent print requests prior to submission to the laboratory.
- d. The name or names of all subjects must appear on the case tracking form. If there is more than one subject, evidence must be clearly associated with a particular subject.
- e. Clearly mark probable cause exhibits on the case tracking form.
- f. Only drugs and/or drug packaging will be accepted by the laboratory. Items with no probative value such as driver's licenses, rolling papers and lighters must be retained by the submitting agency.
- g. Drug paraphernalia/Hypodermic syringes will not be accepted without prior approval of the chemistry section supervisor.
- h. Suspected cannabis exhibits with a total weight of less than 20 grams of plant material per subject will not be accepted without prior approval of the chemistry section supervisor.
- i. Only those items substantiating the highest penalty scheduled per F.S. 893 will be analyzed.
- j. Clandestine laboratory evidence must have prior approval of the chemistry section supervisor to be accepted by the laboratory.

2. Collection and Submission of Evidence

- a. If plastic packaging is used, it must be a commercial plastic bag with a minimum of 2.5 mil thickness or a sealed commercial evidence bag. Paper bags and manila envelopes must have all seams properly sealed.
- b. Ensure that all plant material submissions are dry prior to being packaged. Use paper bags or envelopes to prevent mold. Packaging wet or damp plant material can lead to evidence deterioration that may prevent testing. Allow wet plant material to air dry prior to packaging. Dirt, growing media and plant containers should not be submitted. Plant counts must be performed and documented in the field when plant numbers are necessary for statutory considerations.
- c. Package sharps in a puncture proof container.
- d. Appropriately package fragile items to prevent breakage.
- e. Do not submit field test kits. The kits can leak and compromise the integrity of the evidence. Do not place test kit chemicals directly on items to be submitted to the laboratory as they can destroy the evidence and prevent analysis.

- f. Please advise the laboratory if any submitted items have been recovered from a body cavity and mark the contaminated evidence with the biohazard warning label and symbol.
- g. When submitting suspected FS 893 Listed Chemicals (such as pseudoephedrine tablets), please notify the laboratory whether or not the evidence is associated with a clandestine laboratory investigation.

DO'S and DON'TS

- **DO completely dry all wet or freshly cut plant materials before packing.**
- **DO separate latent fingerprint evidence (wrappings) from drug evidence before submission.**
- **DO package items for examination separately in appropriately sized containers and seal the outer container for the group of items to protect chain of custody.**
- **DO package sharp objects in clearly labeled, puncture-proof packages.**
- **DO advise the laboratory if any items being submitted have been recovered from a body cavity or may be contaminated with biological hazards.**
- **DON'T submit hypodermic syringes.**
- **DON'T use plastic bags for packaging wet or freshly cut plant materials. They will mold. (Figure 7)**
- **DON'T submit extraneous items unnecessary for examination.**

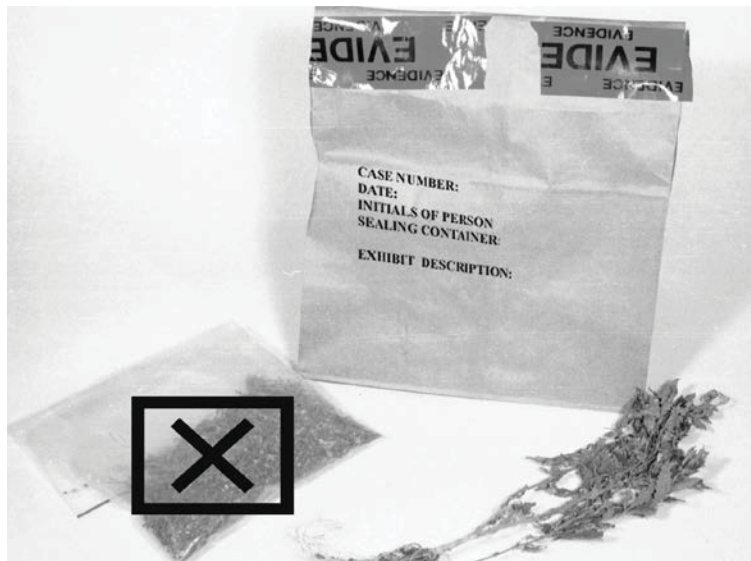


Figure 7—Incorrect and Correct Method of Packaging Fresh Plant Material

Place fresh plant material in a paper container after drying to prevent spoilage of the evidence.

D. CLANDESTINE LABORATORY EVIDENCE

Laboratory examination of evidence will determine:

- the presence of controlled substances according to Florida Statute
- the weight of controlled substances according to Florida Statute

1. Submission Policy

- a. Approval by the Chemistry Section Supervisor or designee is required prior to transporting clandestine laboratory evidence for submission to the laboratory.
- b. Properly select, package, seal, and label evidence for submission to the laboratory. (see Sampling Policy)
- c. Our laboratory performs analyses according to state law requirements. If your case is to be prosecuted at the Federal level, submit your evidence to the DEA.

2. Sampling Policy

- a. Final end product (i.e., powders and tablets) should be submitted to the laboratory.
- b. Precursor chemicals such as pseudoephedrine and ephedrine should be submitted to the laboratory.
- c. Liquids suspected to contain final product should be submitted to the laboratory in amounts necessary to meet the highest level of trafficking. Note: Smaller representative samples may be submitted if an official weight was obtained at the collection site.
- d. Liquids must be submitted in approved containers. An example of an approved container is a threaded glass bottle with a Teflon-lined screw cap which is placed inside of a plastic bottle with a screw cap. [See Figure 8] These must then be placed in a sealed paint can with inert absorbent packing material (such as kitty litter or vermiculite) to prevent tipping.
 - A one ounce glass bottle will hold approximately 30 grams of liquid containing methamphetamine. (depending on density of sample)
 - A four ounce (120 ml) glass bottle will hold approximately 100 grams of liquid containing methamphetamine.
 - An eight ounce (240 ml) glass bottle will hold approximately 200 grams of liquid containing methamphetamine.
 - Use one glass bottle, not multiple, to sample liquid from the same source up to the highest level of trafficking.
 - Keep collected liquid samples upright and include inert absorbent packing material (such as kitty litter or vermiculite) when the inner glass bottle is significantly smaller than the outer container.
 - The paint cans should be no smaller than quart size. It is important that the can is wide enough that its inner bottle(s) can be pulled out for testing without having to tip the can over. Use a gallon size can for the larger bottles.
 - Weighing samples at the time of collection is encouraged to get a weight before submission to the laboratory.

- e. For bi-layer liquids, sample enough from each layer to meet the highest level of trafficking. Note: some evaporation can occur during storage.
- f. Do not submit solvents that are not suspected to contain final product as the laboratory does not perform solvent identification
- g. Do not submit clandestine laboratory equipment.
- h. Do not submit phosphorus (solid or striker plates from matches), iodine, strong acids (found in HCl generators), strong bases (such as Red Devil Lye), lithium, anhydrous ammonia, and many solvents that may be found at the collection site. The laboratory does not perform analysis on these materials. Be sure to contact the proper authorities for storage and disposal of these chemicals.



Figure 8: Sample containers for collection of liquid samples at clandestine laboratory sites. Approved containers include glass jars with Teflon-lined screw caps, plastic jars with screw caps, and metal paint cans.

E. DIGITAL and MULTIMEDIA EVIDENCE

Digital Evidence Section

Computers are commonly found at crime scenes and can often store vital evidence. Use caution in the collection of computer evidence due to the volatile nature of this technology. Types of computer equipment and digital media examined by the FDLE laboratory include personal computers, various network systems, personal digital assistants (PDAs), cellular telephones, various floppy and removable disks, tapes, digital cameras, and other data storage media. Evidence contributors should contact the laboratory prior to submitting such items to verify acceptability.

Do NOT examine the contents or files on the computer. Doing so can and will jeopardize your case due to the changes made by the computer to the date and time stamps placed on computer files.

The Digital Evidence (DE) laboratory sections can perform the following:

- Gain access to information stored on computers systems, media, and related items. This may include recovering passwords or circumventing schemes designed to prevent access.
- Retrieve and preserve information from computers, media, or related items. Information may be in the form of documents, graphic illustrations, photographs, or video projections.
- Attempt to recover information that has been deleted, hidden, or encrypted.
- Provide consultation to agencies regarding computer crimes and seizure techniques.
- Provide training to agencies on crime scene processing of computers and other related topics.

1. Collection of Computer Evidence

- a. Additional items are needed for the collection of computer evidence. The following items should be available at the crime scene.
 - long, narrow, stick-on labels
 - blank disks (all sizes)
 - envelopes and/or paper bags
 - digital or still camera
 - large plastic bags and/or boxes
 - computer tool kit
 - clean metal paint cans and/or heavy duty aluminum foil
- b. If the computer is on and you want to save information in memory but are not sure how to proceed, contact the DE Section for further assistance. If the computer has a modem or network connection (either internal or external), a communications line may be attached to the back of the computer. Disconnect this line to prevent the deletion of data from a remote location. After the computer is turned off, disconnect the power cords.
- c. If the computer is off, do not turn it on at the scene.

- d. If possible, photograph the front and back of the Central Processing Unit (CPU), monitor, and keyboard. Many times passwords are written on or around the computer work area. Pay close attention and document any potential password information that is found.
- e. Using adhesive labels, attach numbered labels to all cables and their associated connecting points, i.e., 1-1, 2-2, 3-3, etc. (See Figure 9.) This includes monitor, keyboard, printer, mouse, and any other item that will be disconnected. Label to simplify reconnecting the system in the laboratory.
- f. Disconnect all the cables from the computer and carefully place inside a large sealable plastic bag or cardboard box. Seal item and label as fragile.
- g. Floppy diskettes and other removable media require special attention during the collection phase. This media could be found in a variety of locations at a crime scene. Browse through manuals or other papers looking for diskettes. If practical, remove diskettes from manuals and note where found. Diskettes should be separated from other items and treated as fragile.
- h. There are a number of different types of external drives. If such drives use removable media, the media should be removed prior to packaging the drive for transporting. Removed media should be marked to indicate that it was removed from the drive.
- i. Check with your local FDLE laboratory evidence section for an Electronic Evidence Submission Checklist. Having this checklist filled out by the investigator can assist the DE analyst in recovering pertinent data from the evidence.

2. Packaging and Transporting Evidence

- a. Computers are delicate electronic equipment and must be protected from sudden shocks, dirt, magnetic fields, and other environmental factors. Computers should be secured in a way that prevents shifting during transport.
- b. If the original containers are available, use them for the packaging. If possible, package the computer in a box with Styrofoam or foam rubber padding to prevent shifting and damage. Thicker plastic bags that are not easily ripped or torn are acceptable for package the computers and media.
NOTE: All evidence to be submitted to the FDLE laboratory system for examination must be properly sealed before it will be accepted.
- c. Normally, computer manuals require no special handling. However, if the manuals contain computer media, precautions used for computers also apply. Manuals should be sealed either in boxes, plastic bags, or paper bags.
- d. CD and DVD discs should be placed in protective sleeves to prevent damage to the reflective film upon which the data resides
- e. Evidence having the possibility of receiving or transmitting data must be placed in protective packaging such as a clean metal paint can or wrapped in multiple layers of aluminum foil.
- f. All cables for PDA's, cell phones, cameras, laptops and other devices should be submitted with the evidence.

DO'S and DON'TS

- **DO call the Digital Evidence Section with any questions prior to or during the collection of computer evidence.**
- **DO label and photograph all computer connections.**
- **DO submit all operation manuals with the computer items whenever possible.**
- **DON'T expose computers or magnetic media to large magnetic fields or rough handling.**
- **DON'T examine the contents or files on the computer.**



Figure 9—Computer Evidence Recovery

Using labels to number cables and corresponding ports at the crime scene makes reconnecting the computer at the crime lab simple. (1-1, 2-2, 3-3, etc.)

VIDEOTAPE ANALYSIS

Video surveillance systems are commonplace. The videotape recording may be a valuable piece of evidence that can provide an eyewitness account during the commission of a crime. Not only may the actual crime scene be under surveillance but also adjacent areas may have had systems that provide overlapping fields of coverage. Adjacent areas may provide video information that includes the suspect's or victim's routes of travel into the actual crime scene. The following steps are recommended for the preservation and collection of images from video surveillance systems.

1. Collection and Submission of Evidence

- a. Determine all the locations of video surveillance systems in the crime scene and in adjacent areas. A neighborhood canvass may develop additional systems that are recording during the commission of the crime. These additional systems may have recorded the victim's or subject's travel either to or from the actual crime scene.
- b. Treat the videotapes, CDs, and surveillance systems as evidence and maintain the chain of custody on the videotapes.
- c. Determine if search warrants are needed for the seizure of the video tapes, CDs, and/or surveillance systems.
- d. Include camera locations and the fields of view in the crime scene sketch.
- e. Take height measurements of reference objects within the camera's field of view.
- f. If the surveillance system uses analog tape, do the following:
 1. Stop the tape recorder but do not eject the cassette.
 2. Note the settings of the recorder's time display.
 3. Note the time on your watch or get an exact time from dispatch.
 4. Note time discrepancies to other time keeping objects within the crime scene, i.e., cash registers, alarm systems, etc.
 5. Note the value of the counter display on the recorder.
 6. Rewind the tape and note the new counter display value.
 7. Eject the tape and break the write protect tab.
 8. Note the make and model of the recording device and the time-lapse mode setting.
 9. Take the tape to another setting and make a copy of it. Do not use a home recorder for playing the tape as many video store rental tapes have excessive dirt and this will contaminate the video-recording head resulting in poor quality copies. Use the copy for viewing. Pausing or slow motion playing will degrade the tape.
 10. Time-lapse tapes are not viewable on standard videotape machines. It may be necessary to make a copy by connecting to the original recording equipment.
 11. Maintain the copy and submit the original tape and include a narrative report including analysis request to any FDLE laboratory for analysis. The videotape will be forwarded to the appropriate laboratory for examination.
- g. If the surveillance system uses a digital media such as a Digital Video Recorder (DVR), contact the Tallahassee Crime Laboratory to determine what media or devices are needed in order to capture and process the video data segment. Certain DVR are proprietary in nature and require special handling.

F. DNA DATABASE OVERVIEW

The FDLE DNA Investigative Support Database was created by F.S. 943.325. The law requires the establishment of a statewide DNA database containing DNA samples submitted by persons convicted of or arrested for felony offenses and convicted of certain misdemeanor offenses. Additionally, the statewide DNA database shall include DNA records and samples necessary for the identification of missing persons and unidentified human remains, including DNA samples voluntarily contributed by relatives of missing persons.

Sample collection is a responsibility shared by multiple agencies. The Florida Department of Corrections is responsible for sample collection whenever the convicted person is committed to a Florida State Prison. The sheriff or officer in charge of the county correctional facility is responsible for collections whenever the convicted person is placed on probation, community control, or any other court-ordered supervision or form of supervised release or is committed to a county correctional facility.

Upon receipt of the collection kits, the DNA samples are processed and analyzed. The results of these analyses are entered into the state Combined DNA Index System (CODIS) database. Crime laboratories throughout the state may forward the results of DNA analyses performed on questioned samples from unresolved cases into the state CODIS database for comparison to convicted offender profiles.

¹ 943.325(3)(b) DNA samples collected under paragraph (a) from persons arrested for any felony offense or attempted felony offense in this state are subject to sufficient funding appropriations passed by the Legislature and approved by the Governor according to the following schedule:

1. *Collection began July 1, 2011, all felonies defined by chapters 782, 784, 794, and 800.*
2. *Beginning January 1, 2013, all felonies defined by chapters 810 and 812.*
3. *Beginning January 1, 2015, all felonies defined by chapters 787 and 790.*
4. *Beginning January 1, 2017, all felonies defined by chapter 893.*
5. *Beginning January 1, 2019, all remaining felony offenses.*

In the event of a hit, or match between a questioned sample and a qualifying offender sample, the results will be reported to the crime laboratory submitting the questioned sample. This provides an aid to the investigation and probable cause to collect a sample (suspect standard) from the suspect. This standard is then examined by the crime laboratory which submitted the questioned sample in order to compare the suspect standard to the questioned sample.

Samples from qualifying offenders are not considered evidence and are not treated as evidence. FDLE will retain qualifying offender samples indefinitely to aid both future and past investigations. This also provides the ability to reanalyze samples as new DNA technologies are developed.

FDLE supplies DNA Database Swab Collection Kits to all law enforcement or criminal justice agencies free of charge. The kits are for collection of qualifying offender specimens only. Do not use the kit to collect evidence such as a suspect, victim, or elimination standards in on-going investigations. Agencies may order the kits by telephone, fax, or email.

When collecting a qualifying offender specimen, all available information must be included on the submission form before shipping to the FDLE DNA Investigative Support Database. (See

Figure 10.) Failure to include crucial information or fingerprints, or poor sample collection could prevent the sample from being entered into the DNA Database.

The preferred method of collection and submission of qualifying offender samples is through the use of the Falcon Rapid-ID Edge device. These devices offer improved offender data collection by fingerprint identification. In addition they offer improved efficiency in collections and allow for streamlined processing of the submission in the laboratory.

Prior to taking the DNA sample the qualifying offender must be positively identified either through use of the Falcon Rapid-ID Edge device or in the manner specified by the Oral Swab Collection Kit Instructions and Form (FDLE/FOR-005).

DNA Samples submitted from qualifying offenders whose identification is verified using the FALCON Rapid-ID Edge device must be accompanied by the printout and 2-D barcode generated by the application.

DNA samples submitted from qualifying offenders without the use of the Falcon Rapid-ID Edge device must be accompanied by a completed Oral Swab Collection Kit form. Inked impressions of the offender's left and right thumbs must be included in the spaces provided and must be legible for fingerprint classification and comparison purposes. DNA samples submitted with illegible fingerprint impressions may be rejected and another submission requested by FDLE. The collecting agency must then submit a new DNA sample and completed form.

When positive identification of the qualifying offender is accomplished, DNA samples shall be taken in the manner described in Section 943.325, F.S.

Collection and Submission of Convicted Qualifying Specimens

- a. Each Swab Collection Kit contains: 1 FTA Collection Card, 1 Sterile Cotton Tip Swab, and 1 Sterile Foam Tip Swab. Collect all qualifying offender specimens using this FDLE approved kit.
- b. To ensure proper specimen collection, follow the instructions printed on the Swab Collection Kit. This includes providing all crucial offender information, clear and legible fingerprints, and swabbed material. The FTA card and both swabs should be returned back into the affixed envelope and sealed.
- c. The entire kit should be mailed using the self-addressed envelope supplied in the Swab Collection Kit.
- d. Ship or deliver the collection kits to the FDLE DNA Investigative Support Database as soon as possible. Prior to shipping, maintain completed collection kits in a cool, dry environment. Do not expose to extreme temperatures until the collection kits are shipped.
- e. To determine if a biological specimen from an offender is already in the DNA Database, you may access the FDLE DNA Investigative Support Database

Offender Search site located on the CJNet or contact the DNA Database at 850-617-1300, or by fax: 850-921-6086.

DO'S and DON'TS

- **DO use the FDLE DNA Database-approved Swab Collection Kit.**
- **DO send all qualifying offender DNA specimens to the DNA Investigative Support Database.**
- **DO include legible fingerprints on the submission form – this is required.**
- **DO call FDLE if you have any questions about proper specimen collection or to check if an offender DNA profile is already on file.**
- **DO provide all crucial offender information on the collection kit before shipping.**
- **DON'T use the qualifying offender Swab Collection Kit for the submission of evidence or– doing so could jeopardize the integrity of your evidence submission.**

G. FIREARMS AND TOOLMARKS

FIREARMS

Many crimes of violence involve the use of firearms. The value of firearms and ammunition component evidence will depend to a significant degree on the recovery and submission techniques of the law enforcement investigator. The laboratory can perform the following:

- examination of firearms for function and safety, including test firing in order to obtain test bullets, cartridge cases or shotshells
- comparison of evidence bullets, cartridge cases and shotshells to determine if they were or were not fired from/in the same unknown firearm
- comparison of fired bullets, cartridge cases, and shotshells with tests to determine if they were or were not fired from the suspect firearm
- examination of fired bullets and/or cartridge cases to determine the possible make and type of firearm involved
- imaging and comparing fired cartridge cases, shotshells, and tests from firearms to similar items recovered in unsolved crimes using the NIBIN system (see NIBIN section)
- examination of exhibits for the presence of gunpowder patterns and shot (pellet) spread to determine muzzle to entry distance
- restoration of obliterated serial numbers and other markings

CASE ACCEPTANCE POLICY

1. All firearms associated with death investigations should be submitted for analysis.
2. Fired and unfired components are acceptable without a weapon for investigative and/or potential NIBIN entry.
3. Only firearms that meet the NIBIN criteria and/or can be associated with fired ammunition components should be submitted.
4. Submit those firearms that require testing.
5. Subject's clothing will not routinely be accepted to determine the presence of gunshot residues.
6. Only five firearms will be accepted per submission.
7. Found property firearms are not accepted unless they meet the NIBIN criteria.
8. Firearms from domestic violence injunctions, Baker Act, or safekeeping-related offenses will not be accepted unless the weapon was discharged.
9. Firearms from Federal agencies will not be accepted unless approved by the lab director or designee.

1. Collection and Submission of Evidence

- a. Fired Bullets, Fragments, Pellets, and Wadding:
The pathologist should not use forceps or other sharp instruments to remove bullets as they may further damage the evidence. Bullets from bodies should not be packaged

before rinsing off blood and tissue since body fluids will be corrosive to the bullet. Gently rinse the bullets/fragments/pellets/wadding under running water and air dry them prior to packaging. Use a separate rigid container for each bullet. Pellets from the same area may be packaged in the same container. If a projectile is embedded in wood or some other material, remove it exercising extreme care. If it cannot be removed without damaging it, then carefully cut out the whole area around it and submit to the laboratory with the projectile in place. Recover and submit as many bullets, fragments, pellets, and pieces of wadding as possible. Do not clean or change the condition of items recovered from the scene. Investigators should not mark fired bullets, fragments, pellets, and wadding for identification because there is a danger of damaging individual characteristics. Package each item separately in an appropriate-sized, rigid container and label the container. Pellets may be packaged together if they were found in the same place. Do not seal wet exhibits in plastic before they are thoroughly air dried. Do not use glass containers for the packaging of exhibits due to potential injury to personnel from breakage. (See Figure 11)

b. Fired Cartridge Cases and Shotshells:

Submit all fired cartridge cases and shotshells found. Place each exhibit in a suitable container and mark the container. All exhibits may be placed inside a single outer package for ease of submission. Do not mark the shotshells. Seal them in appropriate containers and mark the containers.

c. Cartridges or Shotshells:

Collect from the crime scene any cartridges/shotshells of the same brand and type so that the laboratory can use them for testing and distance determinations. Cartridges/shotshells left at the scene by the suspect may display individual characteristics that could be matched to a suspect firearm. Do not mark the cartridges or shotshells. Seal them in appropriate containers and mark the containers.

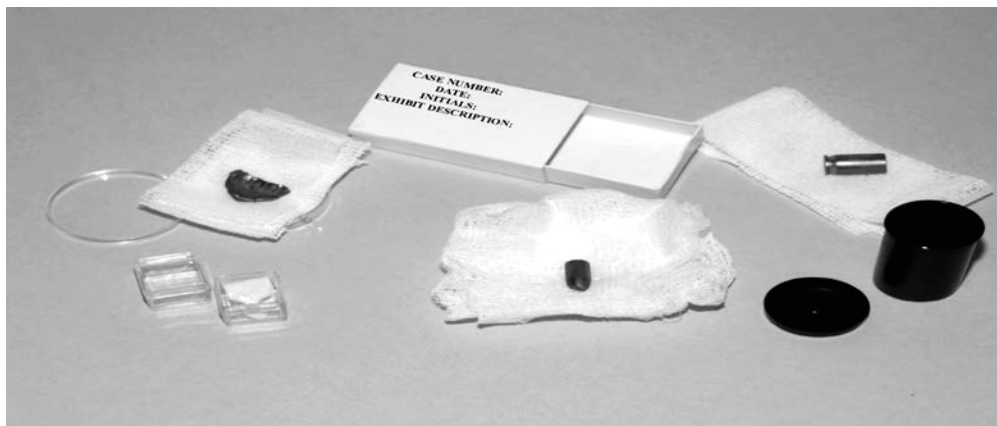


Figure 11—Fired Ammunition Components

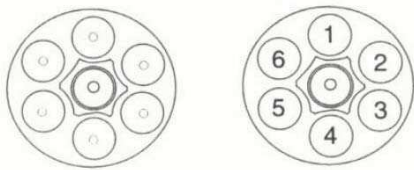
d. Firearms:

Record the condition of the firearm before you handle it, i.e., position of hammer, safety, slide, cylinder, jammed, etc. The primary concerns when packaging firearms are safety and the preservation of the evidence including blood, trace evidence, and latent prints

that may be present. Handle the firearm carefully to avoid loss of trace evidence or latent prints. Additionally, if DNA analysis is being requested, a facial mask and gloves should be worn while handling to prevent contamination. Do not clean, dry fire, test fire, take apart, or work the action, except to unload. Never place any object in the barrel (plastic tie straps used to show that the firearm is unloaded are the exception). Unload carefully and record the position of the cartridges/shotshells as you remove them. Submit an unloading diagram of the gun. Any evidence with possible blood or body fluids should be air-dried, then packaged in cardboard boxes labeled with a "BIOHAZARD" label.

Revolver:

Before opening the cylinder, mark each side of the cylinder at the top strap with a Sharpie pen, being careful not to destroy latent prints or trace evidence. Open the cylinder and draw a diagram of the back view indicating which chamber was under the hammer. On the diagram, number each chamber and identify the cartridge/cartridge case in it by the headstamp and whether or not there is a firing pin impression. Remove each cartridge/cartridge case and place it in a manila envelope numbered to correspond with the chamber from which the cartridge/cartridge case was removed.



Pistols or Rifles with Detachable Magazines:

Remove the magazine and leave the cartridges in it. Place in envelope or other container. Remove the cartridge/cartridge case from the chamber and put it in an envelope or other container and mark the container. ALWAYS submit the magazine and the cartridges/cartridge cases that have been removed from the firearm's chamber and/or magazine.

Derringer:

Note which barrel each cartridge/cartridge case came from. Remove each cartridge/cartridge case and place in an appropriately marked container.

Rifles and Shotguns with Fixed Magazines:

Do not run the cartridges/shotshells through the action if you can avoid it. Unload the same way it is loaded. Individually package the first two cartridges/shotshells (the ones that would chamber next) from the fixed magazine. Remove the remaining cartridges/shotshells. They may be packaged together. Remove the cartridge/shotshell from the chamber and package separately and mark the package.

If a firearm cannot be unloaded or there are special circumstances, call the laboratory and have a firearm examiner tell you how to proceed. Call the evidence section prior to your arrival if you must bring a loaded gun into the laboratory. Boldly mark the package with the words: **WARNING: LOADED GUN.**

If the firearm is found in freshwater, immediately immerse it in the same water in a suitable container. Caution: Corrosion may occur if a wet firearm remains exposed to air for even a short period of time. If the firearm is found in saltwater, immediately immerse it in freshwater (preferred), the same water, oil or other water displacing lubricant. Submit the firearm to the laboratory as soon as possible.

DO NOT mark the firearm. Record the caliber, make, and the serial number. Place any unfired cartridges/shotshells that have been removed from the firearm in a separate sealed container. This container may be packaged in with the firearm.

Boxes must be used for packaging firearms. Paper bags tend to rip and firearms should never be tightly wrapped in paper.

When submitting a firearm to the laboratory, provide the following information:

- a summary of the case
- where or from whom the exhibits were recovered
- a detailed statement, if an accidental discharge is suspected, as to what the subject was doing with the gun when it discharged.
- types of examinations, meeting our criteria that you would like the laboratory to perform.

NOTE:

1. Cases involving crimes against animals will not be accepted unless a gun is submitted and the submission is approved by the firearm section supervisor.
2. Replica guns, BB guns, and pellet guns will not be accepted without the approval of the firearm section supervisor.

DO'S and DON'TS

Firearms

- **DO record the serial number, make, and caliber of the firearm for identification before sending.**
- **DO place the firearm in a sturdy box and secure or package it to prevent shifting.**
- **DO notify the laboratory whether the firearm is loaded or unloaded.**
- **DO call the laboratory ahead of time if a loaded firearm must be submitted. Mark the packaging with: WARNING: LOADED GUN**
- **DO submit the cartridge magazines with the pistols and rifles.**
- **DON'T place any object in the barrel (plastic tie straps used to show that the firearm is unloaded are the exception).**
- **DON'T clean the bore, chamber, or cylinder before submitting the firearm.**
- **DON'T take the firearm apart or test-fire before submitting to the laboratory.**
- **DON'T submit cases involving crimes against animals unless a gun is submitted and approved by the Firearm section supervisor.**

- **DON'T submit replica guns, BB guns and pellet guns unless the submission is approved by the Firearm section supervisor.**

- **DON'T attempt to restore the serial number of a firearm prior to submitting it to the laboratory.**

Bullets

- **DO place bullets in rigid containers after wrapping in gauze or cloth to prevent them from rattling around. Place only one bullet in each container. Pellets from the same area may be placed in the same box.**
- **DO submit all bullets and fragments recovered.**
- **DO gently rinse and air dry projectiles removed from victims.**
- **DON'T clean bullets from crime scenes.**
- **DON'T wrap bullets, fragments, etc., in cotton or tissue paper.**
- **DON'T place identification marks on bullets as this could destroy marks made by the firearm.**
- **DON'T put bullets in an envelope.**

Fired Cartridge Cases/Shotshells

- **DO submit all fired evidence cartridge cases/shotshells recovered.**
- **DO mark the containers for identification.**
- **DO place each fired cartridge case/shotshell in a separate container.**
- **DON'T mark fired shotshells**
- **DON'T place marks of identification on the primer end of fired cartridge cases/shotshells.**

Ammunition

- **DO try to recover any ammunition of the same brand and type for test firing and comparison purposes.**
- **DO mark the container for identification**
- **DON'T mark ammunition.**

- e. Clothing of the Victim for the presence of Gunshot residues:

When fired, a mixture of burned and unburned gunpowder and vaporized primer material is blown out the firearm's muzzle along with the bullet or shot pellets and wad(s). This gunshot residue may indicate how far away the muzzle of a firearm was from the entry site at the moment of discharge.

Note the sequence and condition of the clothing, i.e., T-shirt under flannel shirt, shirt unbuttoned, etc. Collect all clothing containing suspected bullet holes. Handle carefully so as not to lose any gunshot residue. Air dry clothing on a clean piece of paper. When dry, place another piece of paper on top and roll or fold and place in a paper bag and seal. Mark the paper bag for identification. Package each item of clothing separately to avoid cross-contamination. Provide information as to the number and location of bullet holes in the body. If possible, collect and

submit ammunition of the same type used in the crime (e.g. ammunition from the firearm's magazine, unused ammunition from a box at the scene, etc.).

NOTE: The suspect's clothing will not be routinely accepted for gunshot residue analysis. Approval of the Firearm and/or Trace section supervisor is necessary. Call the laboratory for information when submitting other types of items with a suspected bullet hole.

DO'S and DON'TS

- **DO note the sequence of the clothing, i.e. T-shirt under open flannel shirt**
- **DO handle carefully to preserve any gunshot residue around suspected bullet holes**
- **DO completely air dry clothing prior to submission**
- **DO package in a paper bag**
- **DO mark the paper bag for identification**
- **DON'T package clothing in plastic even after air drying**
- **DON'T submit suspect's clothing for GSR analysis without prior approval from the Firearm Section Supervisor**

SERIAL NUMBER RESTORATION

The obliteration of serial numbers and manufacturer's marks is often done to prevent tracing ownership of articles. The laboratory uses mechanical and chemical processes that may restore the original marking in whole or in part. Firearms, bicycles, motorcycles, chainsaws, boats, and cameras are all evidence items in which serial numbers have been restored.

Package the evidence in a manner that will protect the area where the serial number has been obliterated. Contact the laboratory prior to delivering large items.

NO attempt should be made to restore the serial number prior to submitting it to the laboratory for serial number restoration.

DO'S and DON'TS

- **DO protect the area where the serial number has been obliterated.**
- **DO contact the laboratory prior to submitting any large items.**
- **DON'T attempt to restore any serial number prior to submitting to the laboratory.**

NIBIN

National Integrated Ballistics Information Network

In the past, firearm examiners were greatly limited in their ability to associate fired components from separate incidents unless an investigative lead was developed to warrant a comparison of the evidence. NIBIN is a database-driven multimedia imaging system designed for imaging the markings made by the firearm on fired components to increase the effectiveness of the forensic firearm examiner. Using NIBIN, examiners are able to search unsolved case files, store classification data and images, and simulate a comparison microscope for comparing, fired

cartridge cases and shotshells. This technology enables the firearm examiner to connect otherwise unrelated shooting events in the same city and/or between two different cities. In addition, by comparing test-fired cartridge cases and shotshells from confiscated firearms, an examiner can establish a connection to a specific firearm that may also tie it to a specific suspect resulting in the complete resolution of an unsolved shooting event.

Capabilities include:

- digital image capturing of fired cartridge cases and shotshells that meet imaging criteria through a software program known as “Brasscatcher”
- interactive side-by-side comparison emulating a comparison microscope
- sharing database information with other crime laboratories, both statewide and nationwide, if requested
- automated search and retrieval of unsolved case images and fired standards

NOTE: The more firearm test fires and fired cartridge cases/shotshells that are entered into the NIBIN database, the greater the chances of linking unrelated shooting events.

WHAT IS NOT IMAGED IN NIBIN

The following guns are not suitable for entry into the NIBIN database and are not accepted:

1. revolvers
2. single shot/break open shotguns
3. derringers
4. antique firearms
5. black powder firearms
6. “BB” guns
7. weapons purchased in a “Buy-Back” or “Guns for Cash” program

TOOLMARKS

Toolmarks are impressions or marks produced when a tool comes into contact with an object; the tool is generally the harder of the two objects. Physical contact between a tool and the surface of an object produces marks not only characteristic of the type of tool used, but marks that may be unique to a single tool. These can be typified by a screwdriver used to pry open a cash box, a crowbar used on a steel door frame, a pair of bolt cutters used on a chain link fence, or a pair of wire cutters or pruning shears used on copper power lines. In each instance, the working edges of the tools can leave their individual characteristics upon the damaged surface of an object.

The laboratory can perform the following tests:

- comparison of the questioned toolmark to a suspect tool to determine if the tool did, could have, or did not make the questioned toolmark
- determination, when possible, of the type of tool that may have made the toolmark

- comparison of toolmarks from different crime scenes to determine if the same tool was used

1. Collection and Submission of Evidence

a. Toolmarks from the Crime Scene

Do not try to “fit” anything into the toolmark as this will damage the individual characteristics that may be present. Take an overall photograph of the item containing the toolmark and the item’s surroundings. Whenever possible, submit the item containing the toolmark. Place your identifying mark in an area away from the toolmark. If the object is too small to mark, i.e., a broken screwdriver tip, or if you have casts, put them in an appropriate-sized container and label the container. Package the toolmark in such a way that they will not be damaged or contaminated. Package and seal the whole item, when possible, and package each item separately. If the item is too large, cover the toolmark area with cardboard to protect it. Never tape directly over the toolmarks. For items that are too large or otherwise impractical to submit, casts of tool marks may be submitted. Call the laboratory for assistance on casting toolmarks.

b. Suspect Tool

Handle carefully to avoid damage and loss or contamination of trace evidence. *Do not attempt to determine if a found tool “fits” in the toolmark.* This may alter or obliterate the toolmark and trace evidence may be lost or added. Do not clean the suspect tool. Put your identifying marks in an area away from the acting edges of the tool or on the packaging. Package the tool to prevent the loss of trace evidence and to protect the acting edges from damage. The acting edges may be wrapped with paper and the paper secured to the shaft of the tool with tape. Do not put tape directly on the acting edges. Package each tool separately. Do not put the tool in the same container as the objects displaying the toolmark. When possible, submit only the tool that exhibits class characteristics similar to those of the questioned toolmark. If in doubt, call the lab for advice.

NOTE: Property crime cases involving toolmark requests will not be accepted without the approval of the Firearm Section Supervisor.

DO’S and DON’TS

- **DO protect all areas of tools that may contain trace evidence with plastic bags or other wrappings.**
- **DO submit the entire object with the toolmark to the laboratory if possible. If not, photograph the mark in its location, and then remove the damaged area for submission to the laboratory.**
- **DON’T attempt to “fit” a tool into the evidence damage toolmark.**
- **DON’T use the suspect tool for any reason.**
- **DON’T submit toolmarks involving property crimes without prior approval from the Firearm section supervisor**

H. LATENT PRINTS

Latent prints are among the most valuable and fragile types of physical evidence. Consider all objects at the scene of the crime as possible sources of latent prints that may lead to identification of the subject(s). By processing and/or examining the evidence submitted, the laboratory may be able to:

- evaluate for the presence of latent prints
- determine if the latent prints are of value for comparison
- compare and identify latent prints with the known standards of individuals
- establish the identity of unknown, deceased persons
- identify finger and/or palm prints via BIS and IAFIS (See page 48.)

1. Collection and Submission of Evidence

- a. Submit evidence for examination as soon as possible after its discovery. Exposure to water or dampness does not necessarily destroy all latent prints. Air dry any wet or damp object before it is packed in paper for shipment. If an item is submerged in water, place it in a container with the same water for transport to the laboratory.
- b. Mark the packaging with the biohazard symbol and label if it contains hands, skin, blood stained evidence or other biohazard material.
- c. Evidence should not be processed prior to submission to the Florida Department of Law Enforcement (FDLE) Crime Laboratory unless absolutely necessary to preserve the integrity of the evidence and processing. If items have been processed prior to submission to the laboratory, package those items to prevent smudging of the latent prints or possible breakage and indicate that the item has been processed in the case summary and on the evidence packaging.
- d. Evidence submitted for latent print processing may not be accepted if collected latent lift cards are not submitted along with the other evidence in the case. Contributing agencies with internal latent print capabilities should not retain, evaluate and compare latent lift cards on those cases submitted to the laboratory for processing.
- e. Identify all evidence, whether original articles, latent lifts, photographs, negatives or digital media with a tag or a mark and place the tag or mark so it does not interfere with the latent examination. Any number of paper specimens may be placed in a single container for submission.
- f. All evidence packaging that contain a suspected controlled substance must be separated for latent print request prior to submission to the laboratory.
- g. Digital images of latent prints submitted on digital media (i.e. compact disc) will be accepted if they are photographed with a scale. Digital images of latent lift cards should have information pertaining to the area where the print was lifted and initials of the individual who made the lift. If the digital image resolution does not conform to the standards required for digital image processing within the FDLE laboratory system, the digital media will be returned to the contributing agency as an evaluated case.

- h. Requests for latent print analysis on the following crimes will not be accepted unless the submission is approved by the latent print section supervisor:
 - Felon in Possession (on person)
 - Found Property
 - Criminal Mischief
 - Suspected cannabis exhibits containing less than 20 grams of plant material
 - Drug paraphernalia, unless it is the only item in the case.
- i. Misdemeanor & miscellaneous latent print submissions with no probative value or subject listed through Examination of Physical Evidence analysis of the FDLE Laboratory Information Management System (LIMS) will not be accepted without the approval of the latent print section supervisor.

2. Submission of Standards for Comparison Purposes

- a. All subject standards should be submitted with the original evidence:
 - Faxed copies and emailed copies of subject standards are not acceptable standards for latent print comparisons.
- b. One-to-one copies may be substituted if original subject standards cannot be submitted. Submit photocopies of subject standards only as a last resort.
- c. If original subject standards cannot be obtained, the FDLE laboratory may obtain standards from the BIS if the full name, SID number and/or OBTS number of the subject are provided.
- d. Latent print evaluations and comparisons will be complete when an identification is made on all subject standards submitted for latent print comparison:
 - Ceased latent print processing, evaluation and comparison cases will be photographically documented to prevent the loss of potentially valuable evidence. A statement will be placed in the formal report and the analyst's case notes that other latent prints exist but that the evaluations and comparisons were ceased.
 - Evaluation and comparison of latent prints will be re-initiated upon request of the agency or when additional subject standards are submitted and will cease once an identification is made, if not, the case will be compared out in its entirety.
- d. FDLE crime laboratory analysts are not permitted to record subject standards or conduct latent print comparisons at the courthouse. FDLE Policy and Latent Print Standard Operating Procedures dictate that all identifications are to be verified by a second proficient FDLE crime laboratory analyst and under proper conditions.

3. Identifying the Deceased

- a. In order to identify a deceased individual, take inked fingerprint and palm print standards for comparison purposes. For potential investigative purposes, take major case print standards and if necessary the footprint standards of deceased subjects.

DO'S and DON'TS

- **DO use gloves to pick up items of evidence being careful not to wipe possible latent prints off the surface.**
- **DO fasten down large articles containing latent prints with string, wire or tie straps to prevent shifting and contact with other items. Label containers with the words “latent print evidence.”**
- **DO put developed latent lifts in envelopes, mark and seal.**
- **DO place papers and documents containing latent prints in manila envelopes or cardboard boxes, seal, and mail.**
- **DO take complete and legible, inked print standards of all the ridges on the fingers and palms of subject.**
- **DO treat all inked print standards as evidence, seal, and package.**
- **DO list all descriptive information of individuals being named for latent print comparison (including SID and/or OBTS numbers if known).**
- **DO mark the packaging with the biohazard symbol and label if it contains hands, skin, or bloodstained evidence.**
- **DON'T process items of evidence which are to be examined for latent prints, unless absolutely necessary.**
- **DON'T wrap nonporous items in cotton or cloth as they damage or destroy the latent prints.**
- **DON'T preserve fingers of the deceased in a strong formaldehyde solution.**
- **DON'T cover exhibits to be examined for latent prints with evidence tape.**

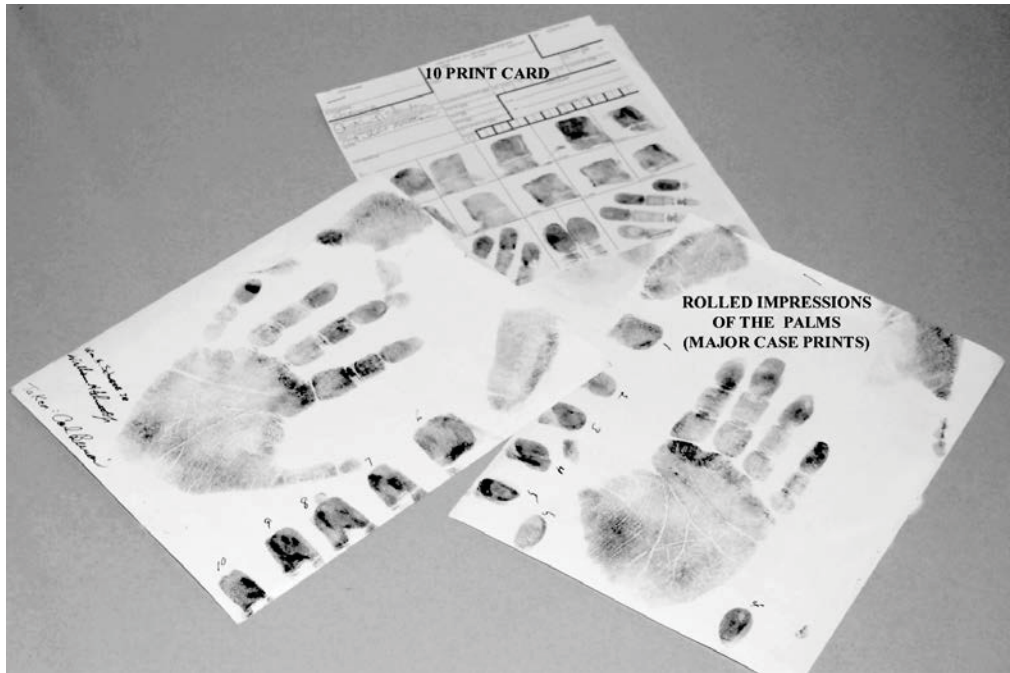


Figure 12—Examples of Rolled Inked Print Standards—Fingerprints, Finger Joints and Palm Prints

Major case print standards taken for latent print comparisons, in addition to a regular set of rolled fingerprint and both palm print standards, include the fingertips, sides of the fingers, the lower joints of the fingers and blade side of both palms.

BIS—BIOMETRIC IDENTIFICATION SYSTEM

The Biometric Identification System (BIS) and the Federal Bureau of Investigation's (FBI) Integrated Automated Fingerprint Identification System (IAFIS) are computerized systems capable of reading, classifying, matching, and storing fingerprints for every criminal justice agency in the state of Florida (BIS) and the United States (IAFIS). The BIS is also capable of reading, matching and storing plan prints for every criminal justice agency in the state of Florida. BIS-quality latent fingerprints are entered into the BIS and IAFIS for a search for possible matches against the state and the FBI maintained databases for fingerprint records. BIS-quality latent palm prints are entered into the BIS for a search for possible matches against the state-maintained database for palm print records. By examining the evidence submitted, the laboratory may be able to:

- determine the presence of BIS-quality fingerprints on evidence (photographs, latent lifts, negatives and/or digital image media) for possible BIS and IAFIS entry or quality palm prints for possible BIS entry
- establish the identity of unknown deceased persons

1. Collection and Submission of Evidence

All BIS cases must be submitted through the BIS analysis of the FDLE Laboratory Information Management System (LIMS). The LIMS receipt serves as case information, documentation of evidence received and disposition of evidence.

- a. Case information should include the number of latent lifts, photographs, negatives, digital image media, fingerprint and/or palm print standards submitted, the case summary, and information regarding the location of the latent prints lifted and/or photographed. Use the BIS analysis when submitting fingerprint and/or palm print standards of unknown deceased persons and when there is a question of the true identity of a subject.
- b. A copy of the LIMS receipt will serve as documentation of evidence received and will be given or mailed to the contributor for chain-of-custody documentation.
- c. The FDLE crime laboratory will notify the contributing agency in an official report on the status of the submitted BIS case, whether of value, no value, an identification or non-identification.

2. Evidence Not Acceptable for BIS Submission

Evidence requiring physical processing must be submitted through the Latent Print Identification & Comparison analysis of the FDLE LIMS, including:

- a. any item(s) requiring physical processing for latent prints
- b. fingerprint and/or palm print standards of known subject(s), including elimination or deceased prints
- c. photographed latent prints without a scale present

3. Unidentified Latent Prints

- a. Unidentified latent fingerprints of sufficient quality will be evaluated for entry and storage into the BIS and IAFIS Unsolved Latent File (ULF).
- b. Unidentified latent palm prints of sufficient quality will be evaluated for entry and storage into the BIS Unsolved Latent Palm (ULP).
- c. Unidentified latent fingerprints entered into the BIS and IAFIS ULF will be searched against new fingerprint records being added to the FDLE and FBI fingerprint databases.
- d. Unidentified latent palm prints entered into the BIS ULP will be searched against new palm print records being added to the FDLE fingerprint and palm print databases.
- e. If an identification is effected as a result of one of these searches, the crime laboratory will notify the contributing agency in an official laboratory notification. In the event the contributing agency should identify any latent fingerprints or palm prints that have been submitted to the laboratory for an BIS and/or IAFIS search, or if the case that was submitted is cleared, the agency should notify the laboratory so these latent fingerprints or palm prints can be purged from the unidentified latent fingerprint and/or palm print databases.

FOOTWEAR, TIRE AND MISCELLANEOUS IMPRESSIONS

Footwear and tire impressions are one of the most commonly overlooked types of evidence. Yet, impression evidence can be found at most crime scenes. Almost all footwear and tire impressions, including partial impressions, have value for forensic examinations and the potential to link suspect shoes or tires to a crime scene.

Impression evidence, when analyzed, may show:

- A design, which may be researched to determine brand names and manufacturers of footwear or tires that, could have made the impression.
- Sufficient detail to identify or eliminate the footwear or tire that did or did not make the impression.
- Limited detail, but enough to determine that the footwear or tire could have made the impression.

1. Types of Impressions

- a. Two-Dimensional Impressions: Impressions that have length and width and may be found on surfaces such as wood, tile, skin, clothing, doors, glass, paper, counter tops, window sills, walls etc. They may be left by a variety of contaminants such as water, blood, dust, paint, grease, etc.
- b. Three-Dimensional Impressions: Impressions that have length, width and depth and may be found in surfaces such as sand, soil, mud etc. They are left when the footwear or tire has been impressed into a surface.

2. Photography of Footwear and Tire Impressions

All footwear/tire impression evidence should be properly photographed and labeled. Submit **all** photographs of the impressions for examination, with negatives and/or digital image media.

The following equipment is essential for the proper documentation of footwear and tire impression evidence.

- Camera with interchangeable lens capability (35 mm or digital with minimum 5 MP)
- 50mm or normal perspective lens
- Detachable electronic flash and flash extension cord
- Cable release or self timer
- Tripod
- 35mm film or memory card
- Scale (Measurement device)
- Bubble level
- Flashlight
- Cloth or drape to cast shadows

“Examination-Quality” photographs, as opposed to general crime scene photographs, are needed for forensic comparisons of impression evidence because they provide a detailed negative or digital image that can be enlarged to natural size for comparison with submitted known footwear and tires.

To achieve examination quality photographs that can be used for laboratory analysis:

1. Place a proper scale next to and at the same depth as the impression, being careful not to cover or damage any part of the impression.
A proper scale is: Thin, flat and rigid; at least 6” to 12” long with a non-reflective surface; black with white numerals or white with black numerals.
2. Identify the impression being photographed with a designator placed on or near the scale.
Example: (marker #, Imp, #1, #2 or A, B etc.)
3. Place the camera with a 50 mm or normal perspective lens on a tripod.
4. Position the camera on the tripod directly over the impression and make sure the “film” plane (back of camera) is parallel to the impression.
5. Adjust the height of the tripod so that the impression fills the frame of the camera.
6. Manually focus on the impression (not the scale) and set the camera for a greater depth of field; i.e. f/stop of f/16 or f/22.
7. Attach the flash extension cord to the electronic flash and camera.
8. Use the flash test button or flashlight to determine the proper height and angle of the flash position; generally 4’- 5’ to the side of the impression.
The oblique lighting should skim over the impression, creating shadows and contrast. This type of lighting enhances the minute detail in the impression.
9. Use a shutter release cable or self timer to eliminate any camera movement.
10. Take several photographs of the impression with the flash at different positions around the impression.

In bright daylight situations, it may be necessary to block out as much sunlight as possible. Using a dark cloth to create a shadow over the impression works well. Sunlight or direct overhead light can often wash out detail created by using side lighting. After casting a shadow over the impression, follow the above photography procedures.

3. Collection and Submission of Evidence

After the impressions have been photographed, visible impressions on items that cannot be removed from the scene should be recovered using a secondary recovery method as follows:

- A. Two-Dimensional Impressions:
 1. Adhesive and tape lifters: For lifting impressions on non-porous surfaces that have been enhanced with fingerprint powder.
 2. Black/white gelatin lifters: For lifting impressions on porous and non-porous wet or dry surfaces.
 3. Mikrosil/Forensic-sil: For lifting powdered impressions, particularly on textured or uneven surfaces.

4. Electrostatic lift (DELK)*: For lifting dry dust or dry residue footwear impressions from clean porous or non-porous surfaces.

*The proper storage of electrostatic lift film is crucial to the preservation of any impressions present. A small lift should be placed in a clean manila folder or a clean shallow box with the edges taped down to prevent movement. A long/large lift may be gently rolled to protect the impression. Do not fold the film and do not use pizza boxes or other previously used boxes.

5. Dental Stone: For lifting powdered or chemically enhanced impressions on immovable objects (i.e. enhanced bloody impression on concrete). **SEE NOTE**

B. Three-Dimensional Impressions:

All three-dimensional impressions should be cast, even partial impressions. A properly made cast will preserve minute detail that cannot be captured with photographs alone and is essential for a detailed examination.

1. Dental stone: For casting impressions in soil, sand, mud and snow, or soil impressions tracked across a driveway or sidewalk. (**NOTE**: place tape around the impression before pouring to help the dental stone release from the concrete).

Directions for making one footwear cast with dental stone, double for an 18" tire impression:

- a. Take one 8x12 inch plastic zip-lock bag
- b. Add 2 lbs. of dental stone and 9-12oz. water.
- c. Close bag and massage vigorously for 3-5 min. including any mixture caught in the corner of the bag.
- d. Mixture should resemble pancake batter when ready.
- e. Open bag or snip one corner and pour mixture beside the impression, allowing it to flow into the impression.
DO NOT POUR DIRECTLY ON THE IMPRESSION.
- f. You may skim the surface of the mixture with your finger, to gently smooth or direct the flow into all areas for complete coverage of the impression, being careful not to let your finger sink below the surface.
- g. Leave undisturbed for at least 20 to 30 minutes, or longer if the outside air is cold. When set, the cast loses gloss and feels cold to the touch.
- h. Allow casts to air dry 48 hrs, if possible, before packaging. Do not attempt to clean or remove any soil, leaves, rocks or other debris adhering to the cast.
- i. Package the cast to prevent breakage, (Styrofoam peanuts, bubble wrap, crumpled newspaper etc). Do not package casts in plastic.
- j. Identify the lift or cast impression with the same designator used for the photograph of that impression. Example: (marker #, imp. #1, #2 or A, B etc.).

4. Collection of Standards

- a. For a thorough examination, it is recommended that the actual footwear and tires be submitted for comparison. When possible, the vehicle should be transported to the laboratory on a flatbed tow truck. If towing the vehicle is not possible, mark each tire with the position they occupied on the vehicle (LF, LR, RF, RR) and submit the tires on their rims. **Do not package footwear in plastic and do not drive the vehicle or allow the tires to acquire additional wear.**
- b. In the event that the collection of the footwear or tires is not possible, photograph properly and document all information available (brand, color, make, model, size, DOT numbers, etc.) This information can be located on the tag inside the footwear or the sidewall of the tire. Then make test standards.

DO'S and DON'TS

- **DO use a tripod to make the “film” plane parallel to the impression when taking a photograph.**
- **DO use labels/designators for each footwear/tire impression.**
- **DO place a proper scale next to and at the same depth as the impression when taking a photograph.**
- **DO fill the camera frame with the footwear/tire impression.**
- **DO use oblique lighting so that maximum detail may be captured.**
- **DO take several photographs of each impression with different light angles.**
- **DO submit all photographs, negatives and digital image media of the impressions.**
- **DO make a secondary recovery of the impression.**
- **DO allow casts to air dry prior to packaging.**
- **DO collect the actual footwear and tires for comparison.**
- **DON'T attempt to clean or remove soil, rocks, leaves or debris from the casts.**
- **DON'T use a digital camera with less than 5MP.**
- **DON'T set the camera to auto-focus.**
- **DON'T use cloth measuring tapes, metal retractable tapes, coins, and pens etc., for scale.**
- **DON'T package casts or footwear in plastic bags.**
- **DON'T package the casts with other evidence as the moisture may damage the other evidence.**

I. QUESTIONED DOCUMENTS EXAMINATIONS

1. Handwriting and Hand Printing

Although not all handwriting is identifiable to a specific writer, the examination of handwriting characteristics can sometimes determine the origin or authenticity of questioned writing. Traits such as age, sex, personality, or intent cannot be determined from handwriting examinations. Some reasons for inconclusive results include the following:

- Limited questioned and/or known writing.
- Lack of contemporaneous writing or lapse of time between execution of questioned and known writing.
- Distortion or disguise in the questioned and/or known writing.
- Lack of sufficient identifying characteristics.
- Submission of photocopied evidence instead of original evidence.

Procedures for Obtaining Known Writing Exemplars

- The text, size of paper, space available for writing, writing instrument, and writing style (handwriting or hand printing) must be as close to the original writing as possible.
- Give verbal or typewritten instructions concerning the text to be written. Do not give instructions in spelling, punctuation, or arrangement of writing.
- All exemplars must be on separate pieces of paper.
- The writer and witness must initial and date each page of writing.
- Do not allow the writer to see the previous exemplars or the questioned writing. Remove exemplars from the writer's sight as soon as completed.
- Obtain exemplars from dictation until normal writing has been produced. Normal handwriting is assessed by determining whether the writing is too quickly or slowly executed and whether the handwriting is consistent.
- Obtain exemplars from the right and left hands.
- Obtain hand printing exemplars in upper- and lowercase letters.
- Obtain exemplars written rapidly, slowly, and at varied slants.
- Obtain a sufficient quantity of exemplars to account for natural variation in the writing.
- Obtain undictated writing such as business records, personal correspondence, and canceled checks.

2. Non-Genuine Signatures

Common types of non-genuine signatures are: **traced signatures** which are prepared by using a genuine signature as a template or pattern; **simulated signatures** which are prepared by copying or drawing a genuine signature; and **freehand signatures** which are written in the forger's normal handwriting with no attempt to copy another's writing style.

3. Altered or Obliterated Writing

The presence of altered or obliterated writing can sometimes be determined and the writing may be deciphered.

4. Typewriting

Questioned typewriting can occasionally be identified with the typewriter that produced it. This is most common when the typewriter is a typebar machine. The identification can sometimes be based on individual characteristics that develop during the manufacturing process and through use and abuse of the typewriter.

Typewriters with interchangeable elements (e.g., ball, printwheel, or thimble) are less likely to be associated with questioned typewriting. However, these elements and carbon film or correction ribbons can sometimes be associated with specific texts by examining individual characteristics of the elements and by correlating the text and ribbons.

Comparison of questioned typewriting with reference standards can sometimes determine a possible make and model of the typewriter and/or the typewriter elements.

Carbon film typewriter ribbons can sometimes be read for content or specific wording of questioned material. Carbon film ribbons can sometimes be identified with questioned typewritten impressions. Fabric ribbons cannot be read.

Procedures for Obtaining Known Typewriting Exemplars

- If the typewriter has a carbon film ribbon, remove it from the typewriter and submit it to the laboratory. Also submit the correction tape. Insert a new ribbon in the typewriter prior to obtaining exemplars.
- If the typewriter has a fabric ribbon, remove it from the typewriter and put the typewriter in the stencil position. Place a sheet of carbon paper over a sheet of blank paper and insert both into the typewriter. Allow the typeface to strike the carbon paper. Submit the fabric ribbon strike and the carbon paper strike exemplars to the laboratory.
- Obtain two full word-for-word texts of the questioned text and type the entire keyboard (all symbols, numbers, and upper- and lowercase letters) two times.
- Record the make, model, and serial number of the typewriter on the exemplars. Also record the date the exemplars were obtained and the name of the person who directed the exemplars.
- Obtain the typewriter service and/or repair history.

- It is not always necessary to send the typewriter to the laboratory; however, in some cases, the examiner will request the typewriter. It must be packed securely to prevent damage during shipment. Typewriter elements (e.g., ball, printwheel, or thimble) must also be submitted to the laboratory.

5. Photocopies

Photocopies can sometimes be identified with the machine producing them if the exemplars and questioned copies are relatively contemporaneous. The possible make and model of the photocopy machine can sometimes be determined by comparison with the Office Equipment File.

Procedures for Obtaining Known Photocopy Exemplars

- Obtain at least ten exemplars with no document on the glass plate, with the cover down.
- Obtain at least ten exemplars with no document on the glass plate, with the cover up.
- Obtain at least ten exemplars with a document on the glass plate, with the cover down.
- Record on each exemplar the date the exemplars were obtained, the name of the person who directed the exemplars, and the conditions under which the exemplars were made.
- Record the make, model, and serial number of the photocopy machine, information about the toner supplies and components, whether the paper supply is sheet or roll fed, and options such as color, reduction, enlargement, zoom, mask, trim, or editor board.
- Do not store or ship photocopies in plastic envelopes.

6. Faxed Documents

The type of machine used to fax a document can sometimes be determined by examination of the TTI (Transmit Terminal Identifier) on the top of the faxed page. A faxed document can sometimes be identified to the machine that it was faxed from, or the machine that received it.

7. Counterfeit Documents

A comparison between a suspected counterfeit document and a genuine document can determine authenticity.

8. Graphic Arts (Printing)

Printed documents can sometimes be associated as originating from a common source or identified with known printing paraphernalia such as artwork, negatives, and plates.

9. Paper

Torn edges can sometimes be positively matched. The manufacturer can sometimes be determined if a watermark is present. Paper can be examined for indented writing. Do not rub the indentations with a pencil. Do not add indentations by writing on top of the evidence.

10. Burned or Charred Paper

Information on burned or charred documents can sometimes be deciphered. The document must be minimally handled. The document must be shipped in the container in which it was burned, in polyester film encapsulation, or between layers of cotton in a rigid container.

11. Age of a Document

The earliest date a document could have been prepared can sometimes be determined by examining watermarks, indented writing, printing, and typewriting.

12. Carbon Paper or Carbon Film Ribbon

Examination of used carbon paper or carbon film ribbon can sometimes disclose the content of the text.

13. Checkwriters

A checkwriter impression can sometimes be identified with the checkwriter that produced it. Examining a checkwriter impression can sometimes determine the brand of the checkwriter.

14. Embossing and Seals

An embossed or seal impression can sometimes be identified with the instrument that produced it.

15. Rubber Stamps

A rubber stamp impression can sometimes be identified with the rubber stamp that produced it. Submit the rubber stamp to the laboratory uncleaned.

DO'S AND DON'TS

- **DO preserve documentary evidence in the condition in which it was found. It must not be folded, torn, marked, soiled, stamped, written on, or handled unnecessarily. Protect the evidence from inadvertent indented writing. If you need to mark on the documents, do so unobtrusively by writing the information in pencil.**
- **DO, whenever possible, submit the original evidence to the laboratory. The lack of detail in photocopies makes examinations difficult.**
- **DON'T process the documents for fingerprints before a document examination.**
- **DON'T store or ship photographs in plastic envelopes.**

J. SKELETAL REMAINS

No two skeletons are exactly alike. Variations, whether congenital or acquired, are used to identify or eliminate a missing person who could be the skeletonized victim. In many cases, if most of the skeleton can be located and properly collected, the following conclusions may be reached:

- estimations of race, stature, age, and sex
- determination of the possible cause of death through damage to skeleton
- evidence of possible ante mortem trauma or certain diseases through X-ray and microscopic examination
- estimation of time of death through examination of associated items such as coins, clothing, shoes, or other materials

1. Collection and Submission of Evidence

- a. Careful examination and collection of skeletal remains are necessary to achieve accuracy and to facilitate reassembly. If possible, the medical examiner or designee should see the bones at the site while they are being excavated. (See Figure 13.)
- b. Take good general photographs of the bones and associated evidence prior to collection.
- c. Inventory the bones while they are being removed from the ground.
- d. Some smaller bones are extremely fragile and decay rapidly. Even when present, they may be overlooked because their coloring can be similar to the soil.
- e. Proper packaging, labeling, and transportation of skeletal remains are important. Packaging should be done in a manner that makes the examination more rapid and should be done at the scene to avoid loss of small bones and teeth. Use separate containers for each hand and foot and label right and left.
- f. Package evidence items found with the skeletal remains separately using proper procedures outlined in this manual.
- g. Each FDLE crime scene unit is trained in the detection and proper recovery of surface and buried remains.
- h. FDLE does not conduct examinations on skeletal remains. The medical examiner or designee or a trained forensic anthropologist should perform these examinations. Contact your district medical examiner or the nearest FDLE crime laboratory for information on available resources for these examinations.

DO'S and DON'TS

- **DO immediately notify the local medical examiner of the discovery of human skeletal remains.**
- **DO try to recover all bones present.**
- **DO recover all trace evidence found with the body.**
- **DO package clothing and other evidence items separately from skeletal remains.**
- **DO photograph and map all bones prior to recovery.**
- **DO label each package with the biohazard symbol and label.**
- **DON'T excavate the skeleton using heavy machinery or large shovels.**
- **DON'T mix bones that can be identified as left or right.**



Figure 13—Excavated Grave Using Archeological Techniques

K. TOXICOLOGY

The toxicology section analyzes samples of blood and urine for the presence of alcohol and other toxic or impairing drugs.

Most cases submitted to toxicology result from DUI investigations, sexual assault investigations, and death investigations. Postmortem (i.e., medical examiner) toxicology services are not provided. Collect blood or urine samples as soon as possible after the offense. Deliver these samples as soon as possible in person to any FDLE crime laboratory, or via mail or common carrier directly to the Tallahassee or Orlando laboratories. It is not necessary to pack specimens in ice to mail. Mail samples using overnight delivery to arrive at the laboratory Monday through Friday, not on the weekend. A description of the services offered and special instructions for submission of toxicology samples to the laboratory follow.

Traffic Investigations (DUI) and Boating Investigations (BUI)

1. Blood Alcohol

Blood samples are analyzed for ethyl alcohol content.

- a. The collection and analysis of samples taken for blood alcohol testing in DUI and BUI cases are regulated by Florida Statutes sections 316.1932, 316.1933, 316.1934, and 327.352, 327.353, 327.354, and the Florida Administrative Code Rule 11D-8.
- b. Collect blood samples as soon as possible after an offense. Only authorized individuals as described in Florida Statutes should collect the samples.
- c. Collect and submit at least five milliliters of whole blood for alcohol analysis, though testing can be performed on smaller samples. For drug testing, see 2(f).
- d. Use only nonalcoholic antiseptics for cleansing the collection site on the subject's arm.
- e. Make sure that blood samples are collected in evacuated blood collection tubes containing sodium fluoride and either EDTA or oxalate. The tube label and/or collection kit documentation usually states the contents of the tube. Typically, blood collection tubes with gray stoppers are adequate.
- f. Clearly label blood tubes with the following information: subject's name, collection date, collection time, and the blood collector's initials.
- g. Do not include any used needles in the kit.
- h. Follow the procedures for Packaging and Marking for Delivery for the submission of liquid blood to an FDLE laboratory.

2. Drug Testing

- a. In cases where DUI or BUI is suspected, the best toxicology sample to collect from the subject is blood.
- b. Blood samples submitted in DUI cases are only analyzed for drugs other than alcohol when specifically requested by the submitting authority. Currently, in nonfelony DUI cases, blood drug testing is not performed if the blood alcohol level is 0.08% or more.
- c. When a blood drug test is required, submit at least 20 milliliters of sample (two gray stopper tubes) to the laboratory. Use the same collection procedures described for blood alcohol.
- d. Urine samples submitted to the laboratory in DUI cases are routinely analyzed for drugs controlled under ch. 893, Florida Statutes. This includes most common drugs of abuse: amphetamines (meth, ice, speed, Ecstasy), barbiturates (Fioricet, downers), benzodiazepines (Valium, Xanax, tranquilizers), cocaine (crack), methadone, opiates (heroin, Oxycontin, codeine, morphine, hydrocodone), and tetrahydrocannabinols (pot, marijuana). Urine samples will be tested for gamma-hydroxybutyric acid (GHB, scoop, GBL, BDO) on request. Non-controlled drugs (over-the-counter medications and many prescription medications) are not included in the drug analysis.
- e. When a urine drug test is required, submit at least 60 milliliters of sample (two ounces) to the laboratory. Use a clean (sterile) specimen container having a **leak-proof** cap. The FDLE laboratory serving your area can recommend suitable containers.
- f. Alcohol analysis from urine is not performed.
- g. Clearly label the urine specimen container with the subject's name, collection date, time of collection, and initials of the person collecting the specimen.
- h. Follow the procedures for Packaging and Marking for Delivery for the submission of urine samples.

Sexual Assault Investigations

- a. Please keep Biology evidence separate from Toxicology evidence.
- b. In cases where drug-facilitated sexual assault is suspected, the best toxicology sample to collect from the victim is urine.
- c. Collect 2 ounces (60 ml) of urine in a suitable container and transport to the FDLE laboratory as soon as possible. Blood samples (two 10 ml gray stopper tubes) may also be useful, provided that the drug assault occurred within 24 hours. After 24 hours, detection of many drugs and alcohol becomes unlikely. For example, GHB is normally not detectable in urine after about 12 hours. Detection times for many drugs are normally longer in urine than in blood. Urine collected up to 72 hours after the incident may be useful for detecting some but not all drugs. Blood should be collected up to 24 hours of the incident. Small samples of blood collected for DNA testing (purple or red stopper tubes) are not adequate for toxicology purposes.
- d. Routine toxicology analysis in suspected drug-facilitated sexual assault cases will include testing of urine and/or blood for a panel of drugs associated with this type of case, including alcohol (if blood is submitted), GHB, and other controlled (F.S. 893) and non-controlled drugs. It is very important that the investigator provide background information in order to assure appropriate toxicology screening tests are completed.

- e. In other sexual assault cases where drug testing is specifically requested by the case investigator, a routine drugs-of-abuse screen on urine will be completed.
- f. Label each blood or urine specimen container submitted with the subject's name, date and time of collection, and initials of the person collecting the specimen.
- g. Follow the procedures for Packaging and Marking for Delivery for the submission of liquid blood and urine.

Death Investigations (not traffic related)

- a. Collect blood and urine samples from the suspect(s) or subject(s) following the procedures previously described as soon as possible after the incident. Do not submit samples from the deceased to FDLE for toxicology testing.
- b. Label each blood or urine specimen container submitted with the subject's name, date and time of collection, and initials of the person collecting the specimen.
- c. Provide to the laboratory the case history and specific drug-testing requirements for the investigation.
- d. Follow the procedures for Packaging and Marking for Delivery for the submission of liquid blood and urine.

DO'S and DON'TS

- **DO take blood samples as soon as possible after the offense.**
- **DO take a minimum of one tube of blood (5 milliliters) for alcohol testing or a minimum of two tubes of blood (20 milliliters) when drug testing is also required.**
- **DO label all blood and urine containers with the name of the subject, date and time specimen taken, initials of person taking specimen, and officer's initials.**
- **DO use overnight delivery or bring to the laboratory.**
- **DO handle all specimens for toxicological analysis using procedures to protect the chain of custody.**
- **DON'T use an alcohol-based antiseptic to cleanse the person's skin.**
- **DON'T submit blood collection implements (syringes, needles, lances, swabs, gauze, etc.)**

L. TRACE EVIDENCE

The Florida Department of Law Enforcement provides Trace Evidence services in two regions. The Trace Evidence Section in Orlando examines glass, paint, polymers, plastics, lamp filaments, and fractured materials while the Trace Evidence Section in Tampa examines fibers, fabrics, fabric marks/impressions, fused/embedded fibers, rope/cordage, cut vs. torn textiles, and fractured materials.

The primary function of the Trace Evidence Section is to examine, compare, and identify items which may be transferred in small quantities between persons/scenes/objects when they come into contact with one another. Trace Evidence is referred to as “associative” evidence.

FIBERS, FABRICS AND FABRIC MARKS

Fibers, yarns, and pieces of fabric that come from items such as garments, carpet, upholstery, ropes, or other common objects are often used as evidence of association between persons, crime scenes, and objects. Examination of these items may show:

- that a weapon retains fibers like the victim’s garment
- possible composition, construction and manufacturer of the fabric or cordage
- the possibility that fibers and threads from a scene originated from a subject’s clothing
- possible contact between individuals or between individuals and objects such as vehicles
- that a piece of torn fabric originated from a particular damaged garment
- that a piece of rope from a scene is consistent with rope from a subject
- possible location of an occupant in a vehicle
- if an item was cut and/or torn

1. Collection and Submission of Evidence

- a. Cross-transfer of fibers between the clothing of the victim and the assailant may take place in incident of homicide, assault, and other crimes against persons. It may be possible to indicate contact between two individuals by comparing transferred fibers. It may also be possible to find evidence of association between the clothing of a subject and a textile material, e.g., carpet, at a particular scene.

These types of fiber transfers are not visible to the unaided eye, and the items must be examined at the laboratory. Therefore, whenever fiber or fabric evidence is required submit all appropriate clothing to the laboratory for use as standards. This will permit comparison of any transferred fibers. Handle as little and as carefully as possible to prevent loss and possible contamination. Package each item separately in brown paper bags, and do not allow subject and victim clothing to contaminate each other. Seal the top of the package by folding and taping the entire opening. Do not staple the opening because this creates holes where fibers can escape. The integrity of the sealed package is critical, and violation of a sealed item may render it contaminated and not valid for fiber examinations.

- b. Threads or long fibers may be picked up with tweezers and sealed in a manila envelope. Tape is not recommended for collecting fibrous evidence. If the fibers are short, few in number, fused to an object, or not readily visible, try to send the entire item in a sealed package to the laboratory.

- c. Pieces of cloth may be found under the subject vehicle in hit-and-run cases. Additionally, fabric marks often result from the impact between the car and the victim's clothing. These marks can appear as a series of striations or as a complete weave pattern. At times, fibers may be found embedded in the vehicle's paint in a fabric mark. Paint from the vehicle can also be transferred to the clothing of the victim.
Embedded fibers, particularly when fused or melted, are difficult to see. Side lighting and a magnifying lens may be helpful. If the fabric mark or fibers are found on an area that can reasonably be removed, submit that area to the laboratory, or submit the entire vehicle. Preserve fabric mark impressions intact using cardboard or other heavy paper materials over the damaged areas sealed at the edges. Place the entire vehicle part in a box or packaging paper and sealed. Transport bumpers, hoods, or the entire vehicle to the laboratory for the microscopic analysis because there may be fused or imbedded fibers present. If the area of the vehicle cannot be reasonably removed, photograph the damaged vehicle areas first. Indicate the position of dents and abrasions. It is important to collect fabric marks, embedded fibers, and paint samples from each damaged area of the vehicle. When photographing fabric marks, use a tripod for maximum sharpness and detail. Also, the plane of the lens should be parallel to the surface bearing the mark. Include a scale (a small ruler) in the photograph. After photographing the mark, carefully locate and remove any fibers, collect paint samples from near the mark, and finally, dust and lift the mark.

- d. Cloth evidence may be found along the path of a subject's travel into or out of a building at a torn screen, broken window, fence or other sharp edges.

- e. When trying to determine who was driving, look for fabric markings in areas where the subject could come in contact with the inside of the vehicle, such as the dashboard, glove compartment steering wheel, seat belts, airbags, and door panels.

NOTE: Fiber examinations will not routinely be conducted if probative DNA evidence has been developed. An exception must be granted by the Trace Evidence Supervisor for any fiber examination in cases where probative DNA profiles exist.

DO'S and DON'TS

- **DO collect and preserve items from all victim(s)/subject(s) as soon as possible after the incident.**
- **DO mark each package where the item(s) was/were located.**
- **DO submit clothing from all victim(s)/subject(s).**
- **DO completely dry all wet items, but keep items away from fans. Fans may dislodge trace evidence.**
- **DO package each item separately in brown paper bags and seal the top of the bag(s) by folding and taping the entire opening. Avoid stapling openings.**
- **DO use manila envelopes or pharmaceutical folds (also known as a debris fold, see diagram) for long fibers, threads, or yarns.**
- **DO protect the area with the possible mark/impression by wrapping the area with brown packaging paper or clear acetate/vinyl sheets and taping all four sides.**
- **DO send a photograph of the vehicle and from where the item was taken (e.g. quarter panel, grill, etc.).**
- **DO submit the entire rope/cord. If the rope/cord must be cut, specify which end(s) was/were cut by taping and labeling those ends.**
- **DON'T wrap any item in colored/printed material. Always use white cotton or a white cotton/white polyester material.**
- **DON'T package items from the victim(s) and/or subject(s) together or allow items of the victim's and/or subject's to touch each other or lay unpackaged on the same table.**
- **DON'T submit traps from sink drains, filters from dryers, home vacuum bags, vacuumings from hotel/motel rooms, rental cars, etc.**
- **DON'T submit items from victim(s)/subject(s) known to have routine contact.**
- **DON'T attempt to reconstruct items. This may obliterate fine microscopic details used in comparison.**
- **DON'T try to remove fused or embedded fibers in an item.**

FRACTURED MATERIALS/PHYSICAL MATCHES

It is possible to examine fractured, torn or cut items to determine whether or not they at one time formed a single, intact item. These items may include broken car part, knives, tapes, lenses, boards, etc. Each piece of the item in question should be packaged separately taking care to avoid any further damage to the fractured surfaces of the pieces.

DO'S and DON'TS

- **DO package each item in question separately taking care to avoid any further damage to the fractured, cut, torn, or severed surface.**
- **DO mark each package where the item(s) was/were located.**
- **DO submit all rolls of tape found. If the questioned or known tape must be cut, specify which area/end(s) was/were cut by labeling those ends.**
- **DO submit all pieces found at the scene involving a vehicle.**
- **DON'T attempt to reconstruct items. This may obliterate fine microscopic details used in comparison.**
- **DON'T process items for latent prints prior to submitting.**

The Florida Department of Law Enforcement does not perform compositional analyses of building materials (e.g. brick, mortar, plaster, stucco, cement, or concrete), soils, and safe insulation evidence. However, the Trace Evidence Section in both Orlando and Tampa can perform fracture/physical matches on building materials. Both Orlando and Tampa can also examine items for the presence of fiberglass. If your request goes beyond the “scope” of the items listed in the Trace Evidence Section of this manual, please contact the FBI for assistance.

GLASS

Whenever glass is broken in a criminal act glass evidence may be useful in the investigation. Windows broken in burglaries or home invasions, broken vehicle windows and windshields in hit-and-run accidents, or bottles used in assaults are just some of the cases where glass evidence may occur. Examination of glass evidence may reveal:

- if the material is glass and the type of glass from which a fragment originated, e.g., tempered window, non-tempered window, headlight, bottle, etc.
- a physical match of glass fragments from two sources to establish a common origin
- whether questioned and known glass samples could have originated from the same source of broken glass, established by a comparison of certain characteristics such as morphology, color, density, thickness, refractive index, and elemental composition

- the side to which force was applied in the case of broken windows or other glass sheets
- the sequence of bullet holes in certain glass sheets

1. Collection and Submission of Evidence

- a. Mark and package separately the clothing and shoes of suspects and any other objects that may be contaminated with glass. Clothing is generally of more value than footwear when it comes to the evidential significance of any found glass particles. The suspect's hair can be combed over white paper to recover any glass particles that may be present.
- b. Suspect drivers in hit-and-run cases may have glass particles adhering to their clothing if broken glass was involved. Collect glass from each broken source of a suspected vehicle because more than one source of glass may be present on the clothing. Take note that vehicle windshields are constructed of laminated glass and have two panes of glass, control samples of both inside and outside glass should be taken. Be sure to note which is inside and which is outside on vehicle windshield samples.
- c. Collect all glass at a scene if a fracture match, direction of force, or sequence of breakage examination is requested. If the direction of force is requested to be determined, indicate the inside or outside on those fragments remaining in the window frame.
- d. Small glass fragments require control samples to be taken from all potential sources of broken glass. Collect at least a handful of each broken window for comparison.
- e. When tiny glass fragments are to be compared to a source of broken glass other than a window (such as a bottle, vase or lamp), submit the entire broken object to be used as a control.

NOTE: Glass examinations will not routinely be conducted if other probative evidence has been developed. An exception must be granted by the Trace Evidence Supervisor for any glass examination in cases where other probative evidence exists.

DO'S and DON'TS

- **DO collect clothing (not just shoes) from subjects for glass examination.**
- **DO collect glass samples from all broken sources of glass at a scene.**
- **DO package glass from different sources and locations separately.**
- **DO place fragments in plastic containers, then in bags or envelopes, seal, and mark.**
- **DO mark the inside and outside of glass from laminated glass sources such as windshields.**
- **DO place large glass shards in bags or boxes, but separate individual pieces with newspaper to prevent breakage and damage to edges. Mark inside or outside of glass and pack together in a single marked container.**

- **DON'T package small glass fragments in paper envelopes or bags without first being placed in leak proof containers.**

GUNSHOT RESIDUE (Hand Samples)

Gunshot residue (GSR) is the term applied to minute particles of primer combustion products that are emitted by a firearm during discharge. Vaporized primer elements are ejected in a forward direction along the barrel and also backward and sideways around the weapon. As this vapor cools, particles form and can deposit on the target, the shooter, nearby objects, or individuals. Samples are taken from the hands using adhesive-coated metal disks (stubs) found in prepared GSR sampling kits. These stubs are dabbed onto the hands to pick up GSR particles. (See Figure 14) The samples are then analyzed in the laboratory using a Scanning Electron Microscope (SEM). Each stub is analyzed individually and may take up to five hours of instrument time.

It is important to use the kits approved by FDLE since quality-control testing has already been performed on the materials prior to production by the vendor. This precludes the necessity of running a control sample with every kit thereby delaying results. If you submit a kit from another manufacturer that contains no control sample, the kit will be returned unworked. Ordering information may be obtained from any FDLE laboratory.

GSR analysis cannot determine whether or not an individual has discharged a firearm, it merely identifies the presence of gunshot residue. The presence of GSR on the hands may be the result of activities such as firing a weapon, handling a firearm or a fired cartridge, having the hands in close proximity to a firearm during discharge, or touching a surface bearing GSR. Because GSR particles are easily transferred between the right and left hands through activity or movement after a shooting, the quantity and location of the particles at the time of sampling may be very different from the original deposit at the time of discharge. In other words, a greater number of particles on the right hand does not necessarily indicate that a subject fired a weapon. No conclusion can be drawn regarding the likelihood of a subject having discharged a firearm based on the location or amount of GSR within a kit.

Gunshot residue is easily removed from the hands. Typically, within two hours after firing a weapon, normal activity removes a large amount of the particles with the remainder being lost after six hours. In addition, washing or rinsing the hands removes essentially all gunshot residues that may have been deposited. Bloody or wet hands should not be sampled, and exposure to the elements can be expected to effect GSR evidence adversely. In these instances, a GSR analysis will provide no information of value.

GSR analysis of items and exhibits other than hands can be performed. Unfortunately, if GSR is found on an object such as a car window, car upholstery, furniture, clothing etc., it cannot be associated with a specific shooting incident. The GSR may have come from an incident that occurred days, weeks or months earlier. For this reason, only hands should be sampled.

NOTE: FDLE will discontinue acceptance of GSR kits for analysis on March 1, 2013.

1. Collection and Submission of Evidence

- a. Use a kit approved by FDLE and follow the provided instructions carefully. Completely fill out the data sheet in the kit and submit it with the samples to the laboratory.
- b. SEM analysis of GSR evidence is very time-consuming because the stubs can only be run one at a time, and each stub may take up to five hours for analysis. For this reason, GSR analysis should only be conducted in cases where information of value can be obtained.



Figure 14—Sampling Hands for GSR

DO'S and DON'TS

- **DO use ONLY FDLE-approved kits.**
- **DO take samples only from individuals thought to be VALID SUSPECTS in the case. The best utilization of this examination is in a situation where the suspect claims that he/she has not handled or fired a firearm and then tests positive for GSR.**
- **DO take samples in an uncontaminated area as soon as possible after apprehension rather than bagging the subject's hands for transport and sampling later.**
- **DO sample only the HANDS of individuals and not other surfaces or materials.**
- **DO completely fill out the data sheet provided in the kit including a summary of circumstances surrounding the incident. If you neglect to submit this sheet, you will be contacted for the information before your evidence is analyzed and your results will be delayed.**
- **DON'T submit samples from SUSPECTS OR VICTIMS with gunshot wounds. The purpose of GSR analysis is to determine if someone has been in an environment containing gunshot residue. If a person has been shot, then that person has been in an environment of gunshot residue. GSR analysis does not determine whether or not an individual has discharged a firearm.**
- **DON'T sample bloody or wet hands.**
- **DON'T submit samples taken from subjects found in possession of or who are known to have handled a firearm such as law enforcement officers. This analysis cannot distinguish between handling and firing a weapon. Under these circumstances, this test will provide no information of value.**
- **DON'T sample individuals for "elimination" purposes. Remember that each additional kit can consume up to 20 hours of instrument analysis time.**
- **DON'T submit samples taken from a subject where the time interval is over 8 hours between the shooting incident and the sampling of the subject.**
- **DON'T submit samples from subjects who have washed or rinsed their hands or bathed since the shooting incident. Washing or rinsing the hands can be expected to remove essentially all gunshot residue present.**
- **DON'T submit Atomic Absorption Analysis kits for GSR collection to FDLE. FDLE no longer performs this type of testing.**

LIGHT FILAMENTS

During the investigation of traffic accidents, it may be important to determine whether or not the lamps of the involved vehicles were illuminated. The filaments of headlights, parking lights, turn signal lights or taillights can be examined microscopically in either a broken lamp or an unbroken lamp. In many cases, one of the following conclusions can be reached:

- The filament was “on” at the time the lamp received a forceful impact and/or was broken.
- The filament was “off” at the time the lamp received a forceful impact and/or was broken.
- The filament displays characteristics consistent with normal burnout.

1. Collection and Submission of Evidence

- a. Unbroken lamps can be collected with little difficulty. If the base of a small lamp is corroded to such an extent that it cannot be removed from the socket easily, remove as much of the light fixture as necessary to prevent breaking the glass bulb. Once the bulb is removed, package securely to prevent movement and submit to the laboratory.
- b. Broken lamps are very fragile and require a great deal of care to collect and submit. The recovery of the filament is important because it generally reveals more information than any other component of the lamp. Make sure that nothing comes into contact with the filament as it is extremely fragile. When removing broken sealed beam headlamps, it is best not to remove the lugs from the light socket; instead, cut the wire beyond the socket and submit the entire assembly intact. If the lamp is cracked, place masking tape carefully over the cracks to prevent further damage during transport to the laboratory. If the front lens is missing, a Styrofoam drinking cup can be taped over the filament post to protect the filament from potential damage. Then package the lamp securely in a box to prevent movement and submit to the laboratory.
- c. Handle small broken lamps in essentially the same manner. It is better to remove the part of the light fixture holding the lamp base than to attempt to remove the bulb from the fixture. Styrofoam cups can be used to package and protect small broken lamps. (See Figure 15)
- d. Mark the evidence noting the origin of the light bulb on the vehicle and its purpose. Also note the orientation of the light bulb in the socket. This can be written on masking tape and secured to the bulb itself.
- e. A copy of the accident report as well as copies of photographs depicting the damage to the vehicle and relative location of the recovered lamps should be submitted with the evidence.
- f. It is also important to note whether or not fire was involved.

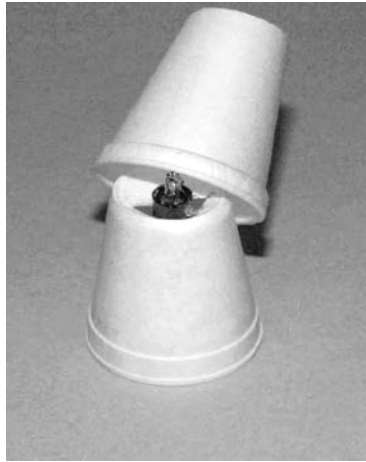


Figure 15—Protection of Light Filaments for Submission

DO'S and DON'TS

- **DO package all lamps carefully to prevent damage to both the glass bulb and the filament during transport/shipping.**
- **DO attempt to remove and submit all lamps from each damaged area of the vehicle.**
- **DO note the position of the light switches when first examining the vehicle.**
- **DO submit a copy of the crash report and photographs depicting the damage to the vehicle and relative location of the recovered lamps.**
- **DON'T attempt to test the lamps by turning on lamp switches. This may cause damage to the lamps and render them useless as case exhibits.**

PAINT

Paint is one of the most common types of evidence encountered. It is most likely to be found in hit-and-run cases. Examination of paint samples may show:

- the possible year, make, and model of a vehicle from which a paint sample originated
- whether or not two samples could have come from a common source
- that a paint fragment originated from one source to the exclusion of all others
- that paint was transferred as a result of a forceful impact

1. Collection and Submission of Evidence

- a. A good method for obtaining paint from vehicles, walls, and similar locations is to place a short strip of tape on one side of a paper packet and attach it to the object containing the specimen. Paint can be chipped loose into the envelope or package with a clean knife blade or razor blade. (See Figure 16.) Be sure to recover all paint layers down to the base material.
- b. Tools used to gain entry into buildings or safes often pick up traces of paint and other substances. Take care that this type of trace evidence is not lost. If transfers are present, enclose the end of the tool containing the material in a plastic bag and secure the open

end of the bag around the tool with tape to prevent loss. Tools may also deposit paint onto the surface being attacked.

c. In hit-and-run cases, collect known samples from all areas displaying fresh damage for comparison. Paint may vary in type or composition in different locations, even though the color appears the same. Use a different blade when collecting each known sample to prevent cross-contamination. Place each sample collected from different areas in separate containers and label as to the location from which they were collected.

d. In hit-and-run cases involving two or more vehicles, cross-transfers of paint commonly occur. If loose paint chips are transferred, collect and place them in labeled containers. If the transfers are smeared onto a painted surface, chip the underlying paint bearing the transfer from the vehicle. If the smear is on an unpainted surface, attempt to remove and submit the vehicle part.

e. Samples of any foreign paint present should be collected from each damaged area. Before collecting these samples, keep in mind that there may also be tool marks present. If this is the case, submit the entire item bearing the tool mark and foreign paint. Then collect known samples from within one inch of each damaged area. Remember to package each sample in a separate container and label appropriately.

f. Markings placed on labels, envelopes, or other containers should include the officer's name, date and time of collection, and specific sources of the sample.

g. When completing the Prelog, include the color, year, make, model, and VIN of each vehicle from which samples are being submitted

NOTE: Paint examinations will not routinely be conducted if other probative evidence has been developed. An exception must be granted by the Trace Evidence Supervisor for any paint examination in cases where other probative evidence exists.

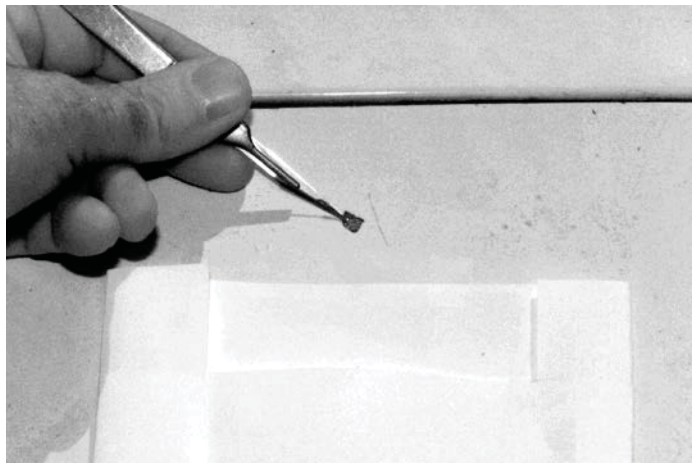


Figure 16—Obtaining Paint Chip Samples

DO'S and DON'TS

- **DO keep all samples collected in separate containers.**
- **DO send the complete item to the laboratory if the paint sample is very small or difficult to remove.**
- **DO chip samples of all layers of paint if the item containing the paint cannot be submitted.**
- **DO use paper packets, envelopes, and glass vials. These are excellent containers for paint.**
- **DO use a clean knife or scalpel or a new razor for each sample to prevent contamination.**
- **DON'T attempt to remove paint from clothing. Package the clothing in paper bags after drying thoroughly and submit to the laboratory.**
- **DON'T put paint directly in paper envelopes. Fold and seal in sheets of white paper first to prevent loss.**
- **DON'T use gummed tape to collect paint samples.**
- **DON'T remove paint samples by scraping the surface of the vehicles.**

PLASTIC AND ADHESIVES

Plastics are being used in an ever-expanding number of modern products that may be encountered as physical evidence. Examples include plastic parts of automobiles in hit-and-run accidents, duct tape, electrical tape, plastic garbage bags, knife handles, mastics (glues), caulks, sealants, vehicle bumper rub strips, etc. Examination of these may reveal:

- that a transfer is a plastic, adhesive, or rubber along with some of its characteristics, such as color, polymer type, elemental composition, and possible end-use applications
- that a physical match of fractured or torn edges on items from two different sources establish a common origin
- that physical and chemical characteristics of samples from two different sources are like one another and the two could have a common origin
- that tape from one source was manufactured by the same company and in the same plant as the tape from another source
- the brand name of a questioned duct tape sample
- that questioned garbage bag(s) were manufactured by the same company and in the same plant and at approximately the same time as the remaining box of garbage bags
- the vehicle year, make, and model from which a plastic fragment originated
- that transfers on the clothing of occupants in a vehicle involved in an accident indicate who was sitting in which position

1. Collection and Submission of Evidence

- a. Transfer smears should be submitted by packaging the object with the smear on its surface. Avoid trying to scrape the smear from the substrate surface, if at all possible.
- b. If the transfer smear must be removed for submission to the laboratory, be sure to obtain a control sample of the substrate material approximately one inch away from the area of the smear.
- c. If a physical match examination is desired, remember to collect and submit all fractured or torn pieces.
- d. Do not process fragments or pieces for latent prints prior to the plastics examination. This could result in chemical contamination of the samples.
- e. Recover and submit all plastic bags when requesting a plastic bag comparison. When acquiring known samples for comparison, remember to search accessible trash receptacles both inside and outside the residence.
- f. When collecting known sources of plastic from a vehicle, remember to package each different part in a separate container. Label appropriately.
- g. When fragments of vehicle plastic of adequate size are recovered, ask employees of local dealerships, new vehicle parts stores, or auto dismantlers to identify the year, make, and model of the vehicle from which the parts originated. If numbers or letters are present on the fragments, call the laboratory with that information to identify or at least narrow down potential vehicle manufacturers.

NOTE: Plastic and adhesive examinations will not routinely be conducted if other probative evidence has been developed. An exception must be granted by the Trace Evidence Supervisor for any plastic and adhesive examinations in cases where other probative evidence exists.

DO'S and DON'TS

- **DO submit the object containing a plastic, adhesive, or rubber transfer smear.**
- **DO submit all recovered pieces if a physical match examination is desired.**
- **DO package each different source of vehicle plastic in separate packages.**
- **DO search for and submit all plastic bags available if a plastic bag comparison is desired.**
- **DON'T process plastics for latent prints prior to submission.**

VII. USING THE LABORATORY IN THE JUDICIAL PROCESS

In addition to conducting examinations and comparisons of various types of physical evidence, analysts are available to present expert testimony concerning their findings before the courts. In order to be of maximum assistance, the following procedures should be followed:

- a. Notify the analyst, as far in advance of the trial as possible, so that time will be available for proper court preparation.
- b. Due to the number of cases being handled by each analyst, conflicts in court appearance dates may occur. When sufficient advance notice is given of scheduled trials, many of these conflicts can be satisfactorily resolved.
- c. The individual who signs the submitted reports is the analyst responsible for the evidence examinations. Notice to appear in court should be sent to this person with specific reference to the FDLE laboratory case number.
- d. Analysts must be requested to appear as witnesses by having a subpoena served on them in compliance with rules of procedure.
- e. For all cases, in addition to the subpoena to appear in court, information should be furnished as to the actual date and approximate hour when the analyst will be needed. Time spent in waiting outside of courtrooms while juries are being selected or other witnesses are being examined can amount to many days. The waiting time precludes more constructive work at the laboratory and interferes with other court appearances.
- f. Immediately notify the appropriate analyst of any change in trial or appearance dates. Often, analysts have appeared to testify on specific cases only to find that the defendant has changed the plea to guilty or the case was continued.
- g. In contacting the laboratory concerning a specific case, use the laboratory case number from the report.
- h. Normally a charge is not made for expert testimony or any other laboratory service; however, in specific situations, such as a civil trial arising out of a criminal case, or a court-ordered defense examination (when cause has been shown per F.S. 943.33), certain charges will be assessed, i.e., examination, travel and testimony time, an administrative fee, and actual travel costs.