MESSAGE FROM THE LABORATORY DIRECTOR

THIS GUIDE WAS CREATED TO AID YOU, OUR CUSTOMER, IN THE PURSUIT OF JUSTICE FOR VICTIMS OF CRIME THROUGHOUT THE STATE OF LOUISIANA. OUR GOAL IS TO PROVIDE QUALITY FORENSIC ANALYSIS, IN A TIMELY MANNER, FOR ALL LAW ENFORCEMENT AGENCIES WHO REQUEST OUR ASSISTANCE. OUR COMMITMENT TO THIS GOAL IS UNWAVERING. THE CRIME LAB EMPLOYEES I HAVE HAD THE PLEASURE OF WORKING WITH NOT ONLY MEET, BUT EXCEED THE HIGHEST OF EXPECTATIONS. THE LAB STAFF WILL CONTINUE TO WORK TIRELESSLY TO MAINTAIN THE HIGHEST FORENSIC STANDARDS BY FOLLOWING BEST PRACTICE PROCEDURES FOR EVERY TYPE OF FORENSIC ANALYSIS PERFORMED WITHIN OUR LABORATORY.

WE ARE A PUBLIC LABORATORY, ACCREDITED BY THE AMERICAN SOCIETY OF CRIME LAB DIRECTORS/LABORATORY ACCREDITATION BOARD (ASCLD/LAB). THE MEN & WOMEN WHO HAVE COMMITTED THEMSELVES TO THIS PROFESSION ARE SOME OF THE BRIGHTEST, MOST DEDICATED, AND MOST DETERMINED GROUP OF INDIVIDUALS I COULD EVER HOPE TO ASSEMBLE. IT IS AN HONOR TO BE THEIR LABORATORY DIRECTOR.

WITHIN THE LAST FOUR YEARS, OUR CASE BACKLOG HAS BEEN ELIMINATED; OUR TURNAROUND TIMES HAVE BEEN GREATLY REDUCED AND WE STRIVE TO MAINTAIN THIS VIGOROUS PACE. WE CONTINUE TO FOSTER A MUTUALLY RESPECTFUL AND EFFECTIVE WORKING RELATIONSHIP WITH YOU, OUR PARTNERS IN THE CRIMINAL JUSTICE COMMUNITY.

PLEASE TAKE A FEW MOMENTS TO COMPLETE THE LOUISIANA STATE POLICE CRIME LABORATORY CUSTOMER SATISFACTION SURVEY LOCATED ON OUR WEBSITE SO WE MAY BETTER SERVE YOU.

-CAPTAIN WILLIAM DAVIS

QUALITY, INTEGRITY, COMMITMENT, & SERVICE
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"Wherever he steps, wherever he touches, whatever he leaves, even without consciousness, will serve as a silent witness against him. Not only his fingerprints or his footprints, but his hair, the fibers from his clothes, the glass he breaks, the tool mark he leaves, the paint he scratches, the blood or semen he deposits or collects. 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 human failure to find it, study, and understand it can diminish its value."

Dr. Edmond Locard
Introduction:

The rapidly evolving and expansive field of Forensic Science commands a need for constant attention by the various individuals who have devoted themselves to this career path. New technology, techniques, and procedures are continually developed, providing new capabilities or refinements to existing capabilities, allowing cases to be worked in ways the law enforcement community never would have imagined were possible. We strongly urge investigators to use this as a guide for their crime scene examinations, as the ultimate goal in its creation is to provide a valuable reference guide for evidence collection and submittal for analysis.

With that in mind, the Louisiana State Police Crime Laboratory Forensic Services Handbook has been compiled to assist law enforcement personnel with the basic procedures of proper evidence handling and the importance of doing so for their investigation. Recognition, collection, and preservation of physical evidence is the most vital aspect of solving crimes. Thus, accuracy and attention to detail cannot be overemphasized when handling crime scene evidence.

This handbook should give officers the necessary tools to develop their ability to recognize the numerous types of evidence that may be encountered.

All agencies are encouraged to keep regular contact with the Louisiana State Police Crime Laboratory to remain informed about any changes or modifications to existing lab techniques, procedures, or capabilities.

While this guide gives a wide variety of specific information, many conditions are out of your control. In a perfect environment, these recommendations should be followed, however there may be instances where

*Please do not hesitate to contact properly trained personnel at the Crime Lab if you feel this manual lacks information crucial to your investigation or to clarify anything outlined herein that seems unclear.*
Contact Information:

- **Main Office**: 225.925.6216 ext. 200
- **Main Office Fax**: 225.925.6217
- **Evidence Receiving**: 225.925.6223
- **Troop A**: 225.754.8500

  *Please contact Troop A (or your nearest troop) if your agency requires assistance with a crime scene investigation outside the laboratory’s regular hours of operation.*

- Crime Lab on-call mobile number: 225.252.6269

- **Hours of Operation**: 8:00am-4:30pm (Monday-Friday)
- The Crime Lab is closed every year on state holidays observed in Louisiana.

- Questions for individual departments can be addressed by trained lab personnel:
  
  - **DNA**: 225.925.7791
  - **CODIS/DNA Administrative**: 225.925.1732
  - **Narcotics**: 225.925.4379
  - **Firearms / Crime Scene**: 225.925.7545
  - **Latent Prints/Fire Debris/Shoeprints**: 225.925.4013
  - **Toxicology**: 225.925.4221

- Mailing Address:
Other Useful Contact Numbers:

❖ Haz Mat Unit (Right to Know hotline): 1.877.925.6595 When hazardous materials are suspected or have been encountered, the LA State Police TESS Unit should be contacted??)

❖ Department of Child & Family Services (to be contacted if children or vulnerable adults are in need of assistance at a scene)

1.888.524.3578

❖ Department of Public Safety Central Supply Warehouse: (to obtain Blood Alcohol/Toxicology Kits for your agency & evidence envelopes):

290 E. Airport Drive
Baton Rouge, LA 70806.
Telephone: 225-925-6152
Objectives:

The lab’s objectives in providing this handbook are as follows:

i. To explain and highlight the most important aspects of physical evidence in criminal investigations.

ii. To explain the proper methods officers should utilize for the identification, collection, and preservation of physical evidence.

iii. To outline the various services provided by the Louisiana State Police Crime Lab for law enforcement agencies throughout our state.

iv. To instruct officers regarding the proper way to submit evidence for analysis by the lab.

v. To demonstrate the usefulness of expert witness testimony as valuable tool for attorneys within the judicial process.
Overview of Crime Lab Services:

Analysis is performed for official criminal investigations only. The Louisiana State Police Crime Lab does not conduct evidence examination services for private individuals or corporations. The only time the Crime Lab is involved in civil litigation is when criminal cases become civil in nature.

Additionally, the Crime Lab’s forensic services include, but are not limited to, assistance with crime scene investigations. When requested by an authorized law enforcement agency, scientific analyses in several forensic disciplines, and court appearances that require expert testimony, are available at no charge. The only exception is a criminal case for which the court orders lab services when a defendant has shown cause.

The procedures contained herein conform to LRS 15:41, 32:1700 et seq., and 40:4601 et seq., and shall form the basis for the confiscation, storage, transfer, release, disposal of evidence or contraband, property seized.

- Assistance to any Louisiana law enforcement agency, upon request, in criminal matters ONLY; these services are furnished at no cost to agencies requesting such help.
- Assistance to Louisiana law enforcement agencies includes crime scene processing, where specialized scientific knowledge is needed.
- Examination, analysis, and comparison of numerous types of physical evidence. This is explained with more specificity throughout this guide.
- Expert witness testimony in courtroom proceedings.
- Instruction, both basic and specialized, to law enforcement personnel within the state. Requests for in-person instruction should be directed to the Laboratory Director or appropriate Supervisor.
CHEMISTRY UNIT:

CONTROLLED SUBSTANCES
(1) Analyze pharmaceuticals, powders, liquids, and vegetable material for the presence of controlled dangerous substances, as prohibited by LA Title Code 40, Schedules I-V.

(2) Provide information on the discovery and processing of clandestine labs and large seizures of illegal drugs.

(3) Disseminate current drug trend information to law enforcement agencies.

TOXICOLOGY
(1) Analyze body fluids for drugs.

(2) Analyze blood samples to determine ethyl alcohol levels for impairment cases.

(3) Certify analysts and equipment used in performing Blood Alcohol analysis in Louisiana.

PHYSICAL EVIDENCE UNIT

FIREARMS / CRIME SCENE
(1) NIBIN database entry of evidence firearms and cartridge cases

(2) Obliterated serial number restoration

(3) Gunshot residue analysis for distance determination

(4) Firearms examination

(5) Toolmark examination

(6) Filament examination (filament bulbs only, cannot be done on LED lights)

(7) Assist law enforcement agencies in LA with processing crime scenes (including vehicles) and recovering evidence

Rev. 03-24-16
(8) Fracture match

**LATENTS**

(1) Process evidence for fingerprints

(2) Latent print comparison and verification

(3) AFIS / IAFIS database entry

(4) Impression comparison (shoeprints, tire tracks)

(5) Fire debris analysis

(6) Indented writing

**DNA UNIT**

**FORENSIC DNA**

(1) Analyze biological samples taken from crime scenes, victims, suspects, etc. (swabs, cuttings)

(2) Screen items of evidence for possible recovery of DNA (blood, semen and contact DNA)

(3) Y-STR analysis

(4) CODIS DNA database searches (for eligible DNA profiles)

**CODIS DNA / ACCESSIONING**

(1) Receive DNA collection kits taken from arrestees, convicted offenders, and sex offenders, and enter their identifying information into CODIS database

(2) Collected DNA samples are processed and uploaded into CODIS database

(3) Agency training / re-training on proper data collection and use of DNA collection kits
Chain of Custody:

The chain of custody is a record that documents every person and every location that had custody and control of items collected during criminal investigations; this record is chronicled from the moment of its collection until its introduction in court. It allows the courts to question all persons who possessed an item regarding their handling procedures and actions they took.

The importance of properly documented chain of custody cannot be overemphasized. The chain of custody is often closely scrutinized, and admission of evidence in trial is challenged and sometimes rejected because of improper handling or documentation. Therefore, it is extremely important that proper methods be used in collecting, preserving, and documenting physical evidence.

Avoiding Weak Links:
The chain of custody can be challenged in an attempt to expose weak links. To avoid weak links, it is important to keep the following in mind:

a. Keep the chain as short as possible: evidence should be handled by a minimal number of people. Ideally, it should only include:
   
   1. The investigator who recovers the evidence
   2. The departmental evidence custodian (in cases when the item is not immediately transported to the laboratory by the recovering investigator)
   3. The person who transports the evidence to the Crime Lab. (If possible, this should be one of the two preceding individuals)
   4. The evidence technician who receives the evidence at the laboratory.
   5. The Crime Lab forensic analyst/scientist who examines the evidence
   6. The person that retrieves the evidence from the lab after its examination

b. A chronological log should be maintained, or records to construct this chronology should be easily retrievable. This includes the dates and times of transfer and the name of person(s) to whom evidence was transferred. Each transfer should be documented by both parties when the evidence changes hands.
c. Documentation may be maintained in several ways:

1. A special form for all evidence in the case
2. On each individual container of evidence
3. Electronically, using secure passwords and/or PINs (personal identification numbers)

d. The same person who recovered the evidence should seal and place evidence labels on each container

e. Each person who possesses the evidence must maintain custody in a vault, cabinet, or secure room at all times.

f. NEVER store evidence in a locked vehicle at any time of the year. Exposure to the heat, moisture, light, etc. may destroy an item’s evidentiary value.

g. Evidence delivery should be made in accordance with both your agency’s policies and those policies set forth in this manual.

h. All evidence submitted to the Crime Lab must be properly packaged and sealed, using tamper evident evidence tape. All seals must be initialed on and off the tape (as illustrated in Figure F.1, page 26). Contact the Crime Lab for instructions on maintaining evidence integrity for those items that are too large to be packaged. Also, the “General Evidence Packaging” section will provide more information on this topic, or you may reference the evidence type you are packaging within the “Specific Evidence Handling” section.

ii. **Legal Requirements:** To maintain the judicial admissibility and value of the evidence, the investigator should be able to:

a. Identify each piece of evidence at anytime he/she is asked to do so
b. Describe the exact location of the item at the time it was collected

c. Prove that the chain of custody has been maintained properly

d. Describe changes that may have occurred in or to the evidence between the time of its collection and its introduction in court
General Evidence Handling:

Physical evidence is any tangible object that is found during a criminal investigation, which can provide a link between a crime victim(s) or suspect(s). The proper handling of evidence is crucial in any investigation, often determining whether or not a case can be solved or successfully adjudicated. In any investigation, the validity of information derived from examination of the physical evidence depends upon the care with which evidence has been handled. If evidence has been improperly collected, handled, documented, or stored, its value may be destroyed and no amount of laboratory work will be of assistance. If handled properly, the likelihood is increased that useful information can be obtained from the evidence collected.

Stages of Processing a Crime Scene

A. **Protection:** The first officer at the scene has the initial responsibility of protecting the scene.

   i. Upon arriving at a crime scene, officers may not be sure what evidence is most valuable. Therefore, all items should be treated with equal significance.

      1. As you near the scene, take note of persons* and vehicles in the general area.

         *EMS, Coroner, or other support personnel (e.g. wrecker service, search & rescue canines, chase teams, traffic/crowd control, etc.) should be contacted immediately, if needed

      2. Guard all entrances/exits to the crime scene.

      3. Limit crime scene access to **essential personnel ONLY.** This includes limiting access to other law enforcement or auxiliary personnel not actively processing the crime scene. An inner and outer crime scene perimeter may be needed, and should be clearly marked with barrier tape.

      4. Note your route through the scene. Do not use victim/suspect suspected points of entry or exit, if possible.
5. Remove persons present from the scene—victims or witnesses—so that they do not purposely or inadvertently alter or destroy evidence. Instruct them not to discuss the events. Document if they have disturbed anything in or around the scene.

6. Maintain a crime scene log in which the name, department, arrival, and departure of each person at the crime scene is recorded. Note who has been inside the scene perimeter (EMS, fire department, etc.).

7. Use a camera, video camera, or other means to document the scene as it was initially found.

8. Record any changes to the scene by your actions or those of emergency personnel.

9. Make note of the following but do not move or pick up anything:
   a. Doors and Windows: opened, closed, or locked?
   b. Lights, TVs, or Radios: On or off? Which ones?
   c. Odors in the air? (Cleaning solutions, cigarette smoke, perfume, etc.)
   d. Items out of place?
   e. Condition of body? (if applicable)

10. Attempt to “freeze” the scene as closely as possible to the condition in which it was found to minimize the destruction of evidence.
    a. Protect suspected routes of entry and exit. If possible, use another entrance to the scene to avoid destroying possible latent footwear and fingerprint impressions.
b. Protect evidence (such as footwear and tire impressions, biological and trace evidence) from inclement weather.

c. Wear gloves and, if necessary, mask and shoe covers when entering the scene. (Shoe covers should be worn at scenes where biological and trace evidence and latent footwear impressions may be important.) These types of items are known as Personal Protective Equipment (PPE).

11. Collect victim/suspect clothing, including footwear. If the victim’s clothing is removed at the scene by emergency personnel, advise them not to cut through the bullet holes and pattern impressions in the clothing.

12. Record any observations of the suspect or victim. Any injuries? Any bloodstains on hands or clothing? Condition?

B. **Recognition:**

   i. Evidence recognition is an acquired skill, improved and refined over the course of an officer’s career. Education and experience will improve this skill

   ii. By making themselves aware of the functions of the Crime Lab and what analyses the Crime Lab or other labs can perform, officers can determine what items at a scene hold the best evidentiary value.

   iii. Understanding all types of evidence and what questions they may potentially answer will aid tremendously in the reconstruction of a crime.

C. **Documentation:**

   Documentation of the crime scene has a two-fold basis of significance:
i. Legally: If evidence associated with a crime scene is not properly collected or documented, this may present complications when tried in court.

ii. Scientifically: Incorrect or incomplete crime scene documentation can impede the forensic analysis process, resulting in little or no assistance in solving your case.

Nothing at the crime scene should be altered until detailed record of condition, location, etc. has been made. Utilize the following methods as necessary:

- Written notes
- Sketches
- Photographs
- Audio and/or Video tapes

D. Collection & Preservation:

The general rule is to submit the evidence in the same condition as when collected. Exceptions are noted throughout this manual. (E.g. some evidence must be dried, refrigerated, or frozen).

Care should be exercised when collecting all evidence. This section provides general guidelines for handling evidence during collection.

Evidence should not be collected until the whole crime scene has been documented (unless transient evidence will potentially be lost if not immediately collected). First responders should ensure the scene remains secure until trained crime scene response personnel arrive.

If any uncertainties arise regarding how to collect, package, or preserve evidence, please call Crime Lab personnel for instructions or on-site assistance. LA State Police crime scene investigators are on call* 24 hours a day, 7 days a week for this purpose.

*Contact numbers for LSPCL crime scene personnel are listed on pages 6 & 7 of this manual.*

i. Use personal protective equipment (PPE) to prevent contamination of both personnel and the scene.
ii. Remain aware of your and others’ movements in and around the
crime scene. Even slight changes could impede forensic analysis.

iii. With some types of evidence, known comparison samples
(references) are necessary.

iv. **Labeling evidence accurately is of the utmost importance.**
Labeling errors, inconsistencies, and oversights tend to be one of
the most frequently encountered, yet avoidable, challenges for
forensic analysts.

v. Identify and protect fragile and/or perishable evidence (e.g.
consider climatic conditions, crowds/hostile environments).
Ensure that all evidence that may be compromised is immediately
documented, photographed, and collected.

vi. Some items must be thoroughly dried before packaging (DNA
swabs, bloody clothing, plants, etc.) After drying, these types of
evidence are best stored in clean paper containers. **Plastic
containers should NEVER be used for long-term storage of
biological fluids or fresh vegetable material.**

E. **Packaging:** Use appropriately sized containers to package your
evidence securely and properly. Avoid folding or stuffing larger items
into smaller containers or packaging smaller items in very large packages
(unless secured to the package).

i. **Paper Containers:** Paper is appropriate packaging for most
types of evidence. Paper is porous—it allows water and other
vapor to escape. Clothing and other cloth items which are to be
examined for DNA evidence should always be packaged in paper;
moisture can lead to the destruction of DNA samples. Plant
materials, such as marijuana or mushrooms which are confiscated
fresh, should be dried before submittal to the laboratory or
packaged in paper.1

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1 More specificity about packaging evidence of this type can be found in the “Specific Evidence
Handling” section, within the categories entitled **DNA & Controlled Substances.**
Paper packets can also be used to package paint chips, hairs, fibers, or other very small items. Ensure that the paper is folded and sealed so that the sample cannot escape. An illustration, showing the best way to make a paper fold to enclose evidence in this manner will be shown later in this guide.

a. **Bags:** Paper bags are widely used and very effective in packaging most types of evidence. Evidence should fit inside the paper bag comfortably, while allowing sufficient room to fold the top over and apply evidence tape for proper sealing.

b. **Envelopes:** Like paper bags, envelopes may leak at the seams and may not be suitable for powder evidence unless the seams are taped.

   1. Heavy-gauge paper envelopes of various sizes are best for packaging narcotics evidence or moderately heavy evidence items.

   2. Paper evidence packets are widely used for enclosing very small, easily lost pieces of evidence (paint chips, small pieces of glass, etc.)

*Illustrations on making paper folds can be found on the following pages.*
3. Manila “coin” envelopes are very useful for packaging evidence that is not as easily lost as much smaller items,
like cigarette butts or cartridge cases.

ii. **Boxes:** Cardboard boxes will routinely be used to create a durable enclosure for items that could possibly be broken, crushed, abraded, eroded, or damaged in any way and for heavy, bulky items. Unless they have a waxy finish, cardboard shares paper's porous nature and is a good choice for items that may contain residual moisture and for DNA samples. Cardboard boxes should not be used for trace evidence (or when the item being packaged is to be examined for trace evidence.)

   *Cardboard boxes* (i.e. copy paper boxes or similar): Many forensic supply companies carry boxes designed for packaging weapons, including knives, long guns, and hand guns.

   *Please submit reasonably sized boxes that are not overfilled, too heavy, awkward, or bulky.*

**Metal Containers:** New, clean, lined paint cans are ideal for storing non-biological samples that could evaporate and that contain volatile smell/fumes. The most common example is fire debris containing ignitable liquids. A previously used can is not acceptable due to contamination risk.

iii. **Glass Vials or Jars:**

   a. These are useful for collection of liquid evidence, such as urine or blood. They may also be used for packaging liquid fire debris evidence (e.g. gasoline, charcoal lighter fluid, etc.).

   b. Please **do not** submit glass jars or tubes without packaging them securely within boxes, or similar enclosures, to prevent breakage.

   c. Appropriately identify biological fluids with **biohazard labels**, for the safety of all persons who will handle this evidence.

   b. **Plastic:** Plastic has several obvious advantages: it has great strength for its weight and transparent plastic allows inspection of the enclosed contents. However, there are several disadvantages: Water vapor does not freely pass through plastic. Most evidence
is adversely affected by prolonged exposure to water: steel will rust, cardboard or paper may decompose, biological materials (e.g. blood stains) are destroyed, and natural clothing materials (leather, wool, cotton) can mold and degrade. Some vapors other than water can pass through plastic, and, therefore, may allow sought-after samples to escape. Plastic is acceptable, however, for items that you are certain are dry.

a. **Plastic Bags**: These are available in a variety of sizes and can be used to package a few types of evidence. Plastic bags are seldom recommended for packaging evidence, except in the case of certain types of drug evidence.

   *Refer to the Controlled Substances subsection under “Specific Evidence Handling” for more information regarding the use of plastic bags*

b. **Plastic Sharps Containers**: These are available in a variety of sizes. Hypodermic needles and/or knives can be placed in sharps containers. However, consideration should be taken when deciding what packaging to use for sharp objects. If questions arise about this topic, please contact crime lab personnel.

c. **Heat Sealed Bags**: The heat sealing method partially melts the plastic packaging and fuses it together. Some sealers emboss an identifiable mark on the seal. Use an indelible marker to write your initials across the seal, if this method is utilized. This demonstrates that the package was not opened and then resealed.
iv. **Sealing and Labeling Evidence:** Evidence is considered properly sealed when the evidence inside is protected from loss, contamination, or deleterious change and any attempt to remove the items would be noticed. Throughout this handbook, the phrase, “please use proper evidence sealing techniques” refers to all of the guidelines listed here.

Tamper evident tapes are commonly used so that any attempt to remove them will result in destruction of the tape. Traditionally, the security feature is created by a combination of a tenacious adhesive and a low tensile strength backing. Some tapes change color, have words that develop when disturbed, or fluoresce under alternate light. These tapes are available in long rolls and individual strips; they can be purchased through any forensic supply company.

a. **Basic Techniques for Proper Evidence Sealing:**

   a. Use tamper evident evidence tape to seal all evidence containers.

   b. **Staples, clear tape, paper clips, or anything other than evidence tape does not constitute proper sealing.**
c. The open flaps of envelopes must be sealed with evidence tape, and each strip of tape must be initialed. The collector must initial or sign across the junction of the tape and the container as illustrated above using an indelible pen/maker. **Intact manufacturer seals do not need to be resealed with evidence tape.**

d. Bottles and jars must be capped tightly to avoid leakage, and then sealed with evidence tape. The tape must extend across the container/lid junction in at least one area.

e. Package all containers securely to avoid leakage, tearing, or the sifting of evidence through cracks or small openings. Consider a double packaging process to protect trace evidence from being lost in a larger outer container.

Containerization and sealing are unnecessary for large items such as furniture, doors, windows, and automotive components which cannot be packaged and sealed in a practical manner. In such cases, the area of the item that has forensic importance should be covered and clearly marked.

b. Other Information to Consider:

a. Tamper evident tapes are advertised as providing tamper-evidence seals on all surfaces. **Always perform a quality check** before using a new roll of tape. Each brand of tape used should be tested in this manner.

b. Some evidence tapes will not adhere under cold conditions.
c. Evidence tape should not be placed on top of packaging tape in a manner that only covers such tape, but should be placed in such a way that creates a tamper evident seal.

**Basic Techniques for Proper Evidence Labeling:** Be sure to include as much information as possible about each item collected; below is the minimum amount of information needed for each piece of evidence.

**Remember:**
*An indelible pen/marker should be used when entering this information on the outside of properly sealed evidence*

a. Name or initials of collector, written across the junction of the tape and envelope  
b. Date/Time of collection  
c. Where at the crime scene evidence was found  
d. Crime scene location (address, VIN, etc.)  
e. Source of item/name of subject: If collected from a person, label using the person’s name and whether they are the suspect of victim, rather than only “suspect” or “victim”  
f. Brief description of the item (i.e. identifying features like color, license plate number, vehicle make and model)
Specific Evidence Handling:

The following sections will offer specific details regarding the handling of various evidence types. These are organized in the same manner as the Louisiana State Police Crime Laboratory Units.

Subsequent segments of this manual will discuss certain types of analysis not performed by the Crime Lab, but such evidence is worthy of mention for informational purposes. If questions arise, please contact the laboratory for clarification or additional information.

A Short Introduction to Forensic Evidence Handling:

It would be impossible to list all the objects that could conceivably be useful in solving a crime. Every crime scene should be treated on an individual basis, with its own history, conditions, and complexities. Below is a list of items whose scientific examination is likely to yield significant results in ascertaining the nature and circumstances of a crime.

Being familiar with the recognition, collection, and analysis of physical evidence, as well as the LSP Crime Laboratory’s capabilities to process this evidence, will allow you to make the best decisions when determining what to collect from the scene and what to submit for analysis.
Controlled Substances:

Many substances are analyzed by forensic scientists at the Crime Lab to determine the presence of controlled dangerous substances in plant materials, powders, liquids, capsules, and tablets. A controlled dangerous substance means a drug, substance, or immediate precursor in Schedules I-V of R.S. 40:964 of the Louisiana Criminal Code. For a current list of controlled dangerous substances, consult an updated copy of Title 40. Forensic Scientists may also advise law enforcement personnel in assessing, processing, and collecting evidence at clandestine drug laboratories. Additionally, analysts, with specialized training in this area, will alert law enforcement personnel to the most current drug trends.

Federal, state, and local agencies share responsibility for enforcing the Nation's drug laws, although most arrests are made by state and local authorities. In 2012 the Federal Bureau of Investigation's Uniform Crime Reports (UCR) estimated that there were about 1,552,432 state and local arrests for drug abuse violations in the United States.

According to the UCR, drug abuse violations are defined as state and/or local offenses relating to the unlawful possession, sale, use, growing, manufacturing, and making of narcotic drugs including opium or cocaine and their derivatives, marijuana, synthetic narcotics, and dangerous non-narcotic drugs such as barbiturates. More than four-fifths of drug violation arrests are for possession.
Cautionary Rules When Collecting Suspected Drug Substances:

These precautions may be mentioned several times throughout this section; however, because of their importance to the health and safety of the investigating officer(s), these points cannot be overemphasized.

a. Never taste any material suspected of containing drugs, chemicals, or poisons.

b. Never smell materials suspected of containing drugs, chemicals, or poisons.

c. Do not handle drug evidence more than is absolutely necessary. After drugs have been handled, wash hands thoroughly and as soon as possible.

d. Handle all chemical materials with care. They may be highly flammable, poisonous, caustic, or explosive.

e. Use particular care in searching a person who is suspected of having drugs, an automobile suspected of containing drugs, or any area where it is possible that hypodermic syringes or makeshift needles may be hidden. Even slight pricks in the skin from such needles can be dangerous if the drug user has a communicable disease, such as infectious hepatitis or HIV. If the skin is punctured, wash the area with soap and water and seek appropriate medical attention.

A. Evidence Analysis: Qualitative tests are performed to determine the presence of controlled substances. The following are the most common types sent to the laboratory for forensic analysis:

i. Tablets
ii. Liquids
iii. Powders, Crystalline and Rock-like substances
iv. Vegetable Matter
v. Drug Paraphernalia
B. **Collection of Drug Evidence:** Proper collection, packaging, storage, and submission of drug evidence help ensure the integrity of the evidence for forensic analysis. Each type of evidence requires specific handling precautions that need to be followed before submitting to the laboratory for analysis.

For faster and more efficient analysis:
- Minimize the layers of evidence packaging
- Combine like drugs in the same envelopes
- Use approximate counts and weights on the submittal form or packaging
- Submit only one packet of each brand of suspected synthetic cannabinoids.

**DO NOT SUBMIT:**
- Field test kits (including those with broken ampules) and field test wipes (aka NIK wipes)
- Empty plastic bags, bottles, and containers
- Factory Rolled cigarettes and cigars
- Paraphernalia such as scales, rolling papers, rolling machines, roach clips, cigarette lighters, etc.
- Currency including coins and paper money
- Over the counter (OTC) drugs that are not controlled such as Aspirin (acetylsalicylic acid), Tylenol (acetaminophen), Advil (ibuprofen), Aleve (naproxen), Guaifenesin, Phenylephrine, Vivarin (caffeine), cough and cold medicines.*
- Prescription medicines that are not controlled such as antibiotics, heart medications, Viagra, etc.*

The above section refers only to narcotics testing of these items. These items may be submitted for other types of testing (ex. prints, DNA).

* These items may be submitted on a case-by-case basis if case details warrant their testing. Call the Narcotics Unit supervisor for inquiries.

i. **Powders & Crystalline/Rock-Like Material:** Cocaine, cocaine base (crack), methamphetamine, and heroin are controlled substances usually seen in a powdered or chunky/rock-like form. These drugs are commonly encountered in colors ranging from white to tan to brown. Cocaine is sometimes seen as compressed bricks of white to off-white powder (kilo bricks), with logo marking and multiple layers of tape and plastic packaging.
a. Evidence of this type should be packaged in paper.

b. Do not place small amounts of powder in heat-sealed plastic or large plastic bags. The static electricity generated by the plastic makes recovery of the material difficult.

c. Ensure that the drug evidence does not escape through seams or seals.

ii. Pharmaceuticals: Pharmaceutical tablets, capsules, and patches can frequently be identified through their markings (imprint codes). An officer may consult references such as the *Physicians’ Desk Reference*, the *Drug Identification Bible*, or [www.drugs.com](http://www.drugs.com).

a. This type of evidence should not be removed from the original containers in which they are found. Preserve any bottle, cans, boxes, envelopes, or wrappers connected with the evidence (information found on any outside labels may be helpful to lab analysts).

b. Each package should be itemized, counted (approximate tablet counts are acceptable), and listed on the submittal form.

iii. Marijuana and other Vegetable Material: The most common drug submitted to the laboratory is marijuana. Marijuana contains the controlled substance tetrahydrocannabinol, commonly known as THC.

a. Marijuana, in any form, should be air-dried thoroughly before it is submitted to the Crime Lab. Large amounts of fresh or wet plant material can ferment and become moldy, which will destroy the evidence.

b. Dry, loose vegetable material should be placed in sealed paper or plastic bags.

c. Partially burned vegetable material should be packaged in either sealed envelopes or plastic bags.

d. Live plants should be removed from the container with the roots intact. Plants should be submitted with leaves, stems,
and roots intact and still connected. Package the plants in paper bags or boxes. **NEVER PUT FRESH PLANTS INTO PLASTIC BAGS.**

e. Seeds should be placed in a small envelope. Care should be taken to prevent crushing, as seeds must be grown into a plant before analysis can be performed. Seeds will only be grown at the discretion of the analyst and submitting agency.

f. Mushrooms must be removed from original container, stored in paper and delivered to LSPCL as soon as possible. Refrigeration of samples is suggested if the samples cannot be brought to the lab within 24 hours. The controlled substance in mushrooms (psilocin and/or psilocybin) cannot be detected until the mushrooms are fully grown. Therefore, suspected mushroom spores should not be submitted.

iv. **Illicit Tablets:**
Illicit tablets often contain many types of controlled substances and these appear in many colors with various logos. These tablets are commonly referred to as “ecstasy.” Ecstasy tablets have traditionally contained methylenedioxymethamphetamine (MDMA). However, laboratory analysis has found other controlled substances such as 3, 4-methylenedioxymethamphetamine (MDA), benzypiperazine (BZP), methamphetamine, ketamine, PCP, and GHB, often in combination with MDMA and other adulterants. Laboratory analysis can determine the specific controlled substance(s) present.

v. **Liquids:** Phencyclidine (PCP), gamma-hydroxybutyric acid (GHB), gamma-butyrolactone (GBL), 1, 4-butanediol, codeine cough syrup, and anabolic steroids are controlled substances usually seen in liquid form. Steroids usually are available in pharmaceutical preparations with labels often in a foreign
language. As liquids are usually transported in glass containers, care must be exercised to prevent the container from breaking.

a. Liquids should be placed in clean glass or plastic bottles with screw caps.

b. Submit the original container the liquid was removed from, if liquid drug evidence was removed from such a container.

c. Place in a box, seal, and mark “FRAGILE”.

Drug Paraphernalia: The term "drug paraphernalia" means anything primarily intended or designed for use in manufacturing, concealing, ingesting, or otherwise introducing into the human body a controlled substance. Possession of these items is unlawful under Louisiana law.

i. Syringes are a health hazard and should be handled with care. If the syringe contains a liquid, the plunger should be secured with tape to prevent the loss of liquid by accidental discharge.

Syringes must be packaged in a sharps container. Prior approval must be obtained from the Narcotics Section Supervisor (225-925-6507) or Chemistry Manager (225-925-4379) before submitting syringes to the Crime Lab.

ii. Items containing suspected drug residue should be placed in an evidence package and sealed. Never use cellophane tape to cover an item with obvious or potential drug residue.

iii. Residues and/or gleanings found on items such as smoking devices, pipes, scales, spoons, straws, plates, bowls, bottles, cups, knives, razor blades, safety pins, push rods, mirrors, etc. will not be analyzed by the Narcotics Section if there are other items in the case that contain controlled dangerous substances unless specifically requested by the agency.
C. **Latent Prints/DNA on Drug Packaging Materials:**

When it is anticipated that latent print examination or DNA testing will be needed on drug packaging materials, these items should be handled as little as possible. Indicate on the lab submittal form, at the time of submittal, that latent prints and/or DNA analysis is requested in addition to drug analysis.

D. **Large Drug Seizures:**

   i. Determine if a crime scene team is needed for assistance in fingerprinting, photographing, and sampling large seizure of drugs at the scene.

   ii. If large amounts of drugs are seized (i.e. large marijuana or cocaine bundles, several hundred packets of suspected bath salts or synthetic cannabinoids), contact the Narcotics Unit supervisor so that an appointment may be made for a drug analyst to obtain a total weight and to sample the evidence.

E. **Clandestine Laboratories:** A clandestine lab is defined by the DEA as an illicit operation consisting of a sufficient combination of apparatus and chemicals that either has been or could be used in the manufacture or synthesis of controlled substances. Such labs range from makeshift operations to highly sophisticated and technologically advanced facilities, some of which are mobile. The health and environmental safety concerns will vary with the type of drug being manufactured and production method being utilized.

Because of the danger of explosions, fire, and toxic chemical exposure, a clandestine lab must never be processed or dismantled without the aid of a member of a Hazardous Material team or a DEA chemist who has been trained and certified in this area. Visit the Louisiana State Police Hazardous Material and Explosives Control Unit (HAZMAT) website at [http://www.lsp.org/hazmat.html](http://www.lsp.org/hazmat.html) for more information.
i. **General Information & Safety Precautions:** Clandestine labs can be set up anywhere, even in vehicles. These laboratories are often hidden in remote areas, may contain sophisticated surveillance equipment, and may be booby-trapped to prevent intruders and law enforcement personnel from entering as well as to destroy any evidence should the facility be discovered. Operations also vary in degrees of sophistication from individual operators to organized groups.

According to the DEA, more clandestine drug labs are being seized than ever before; this increase is attributed to the availability of chemicals and information about manufacturing processes, as well as the ease of the manufacturing processes, low production costs, and high profits from the drugs.

**Extreme care and caution should be used whenever investigating or processing a clandestine lab site.** The substances used in the production of controlled substances may be caustic, carcinogenic, explosive, or flammable. Personnel engaged in clandestine drug laboratory investigations and seizures should have specialized training and personal protective equipment. Clandestine drug labs may also involve the removal and proper destruction of large quantities of hazardous toxic chemicals. The disposal of these chemicals is strictly regulated by state and federal environmental protection agencies.

v. **Miscellaneous Drug Information**

a. Drugs are categorized both legally and pharmacologically. Legally, drugs are listed and classified based on their medical use and potential for abuse and dependency. The “highest” schedule is Schedule I, indicating drugs that have no accepted medical use and a high potential for abuse and dependency. The “lowest” schedule of drugs is Schedule V, indicating drugs that require a prescription but have a very low potential for abuse.

b. The LSPCL Drug Unit has the right of refusal, meaning that if a case is improperly packaged or if the evidence is compromised,
decayed, or consumed the case can be returned unanalyzed. The evidence may be resubmitted at a later date if the situation can be resolved.

DNA:

DNA is the genetic material that determines the characteristics of all living organisms. While the majority of human DNA is very similar, enough variation exists that forensic DNA analysis can distinguish one individual from another, except for identical twins. This extremely sensitive and specific type of analysis is allowing more criminal cases to be solved than in decades past.

The Louisiana State Police Crime Laboratory currently performs nuclear DNA and Y-STR analysis. Nuclear DNA is found in the nucleus of the cells and is the type of DNA testing generally utilized in crime laboratories. Y-STR analysis detects the DNA from all males in a family lineage.

Despite the various ways that DNA testing has advanced the field of forensic science, there are still some limitations to be aware of:

- Casual contact may not transfer enough DNA for analysis
- DNA can be removed by washing, bleaching or other activities
- DNA analysis cannot be performed in a few hours
- DNA analysis cannot determine when/how the DNA was deposited on an item
- Certain environmental factors such as mold, heat, humidity, bacteria, and sunlight can destroy DNA very quickly

Please Note:

- Plastic bags should NEVER be used to package evidence bearing biological fluids.
- DNA collections should always be air-dried.
- NEVER use heat to dry.
- Packages that contain items with biological fluids must have biohazard labels.
A. **Blood:**

This is the most often encountered biological fluid at scenes. It can be found on a wide range of items, and in several states; the most common are listed below along with basic instructions for collection.

i. **Blood found at a Crime Scene**, (i.e. pool of blood that is not staining an object):

   a. Saturate two sterile swabs with the blood. After doing so, **AIR-DRY** the sample.

   b. If the suspected blood sample is extremely small (i.e. size of a letter on this page), use only one swab to collect and submit the sample.

   c. Enclose swabs inside a clean envelope (ex. coin envelope) or an appropriately sized paper bag.

   d. Transport samples to the Crime Lab as soon as possible.

   *DO NOT* dry DNA evidence with a heat source, direct sunlight, dryer, or any other heat-producing appliance. Heat, light, and moisture can destroy DNA.

ii. **Moveable Items Stained with Blood**, (i.e. bedding, clothing, or any type of evidence that can be transported to the lab with relative ease):

   a. Air-dry the entire area of the sample where blood is present.

   b. Each blood-stained item should be packaged separately and securely to avoid contamination.

   c. Transport such items to the Crime Lab as soon as possible.

iii. **Immoveable /Large Items Stained with Blood**, (i.e. items that cannot be transported to or moved from their location):
a. If the blood is wet, use two sterile swabs to collect it, as described above.

b. If the blood has already dried, use sterile water and two sterile swabs to collect a sample (for very small samples use one swab).

B. **Saliva:**

Saliva contains water, mucous, proteins, salts, and enzymes, in addition to suspended skin cells from inside the mouth. An individual’s DNA profile is present in these cells.

i. Collection of:

a. Cigarette Butts
   1. Do not touch the filter end, where possible saliva may have been deposited.
   2. Brush off loose ashes; package each cigarette individually. If all are collected from a single area (such as an ash tray or small patch of ground) they may be packaged together.

b. From skin (i.e. bite marks)
   1. Dampen a sterile cotton swab with sterile water.
   2. Swab the area to remove suspected saliva.
   3. Air-dry the sample.
   4. Place in a clean paper swab box or envelope.

c. Liquid Saliva (large volume):
   1. Soak two sterile cotton swabs in the liquid.
   2. Air-dry the sample.
   3. Place in a clean paper swab box or envelope.

d. Reference Samples:
   1. Collect known reference samples from all parties involved.
   2. Swab the inside of the cheek and along the gum line.
   3. Air-dry the sample.
   4. Place in a clean paper swab box or envelope.
ii. The Crime Lab will accept blood or saliva to use as reference DNA samples.

C. **Semen:**

The presence of semen is most commonly associated with but not limited to sex crimes. Semen is composed of seminal fluid and sperm cells. Seminal fluid acts as the liquid carrier for sperm, the male reproductive cell where DNA is found. The presence of semen cannot establish whether a rape occurred, but may be indicative of sexual activity.

i. **Collection of Biological Evidence:**

a. Objects stained with semen:
   1. Air-dry the stain in a manner similar to that for blood.
   2. Place the item in a clean paper bag.

b. Liquid semen:
   1. Soak a cotton swab in liquid semen
   2. Air-dry the sample
   3. Place in a clean paper swab box or envelope

c. Sexual Assault Kit:
   1. The attending physician or coroner should obtain the samples specified in the sexual assault kit, including vaginal washings and swabs from the suspected assault victim.
   2. Seal, label, and initial the sexual assault kit.
   3. Store in a secure, refrigerated location until transport to the Crime Lab.

d. Reference Samples:
   1. Collect reference DNA samples (blood or saliva) from victim, suspect, and any known consensual partners.

ii. **Samples Collected for Suspected Sexual Assault:**

a. Vaginal Samples:
   1. Vaginal samples (air-dried); a cervical swab may also be collected.
2. Vaginal washings should be as concentrated as possible with 1-2 mL of sterile saline solution.

3. Pubic hair combings for the identification of foreign hair.

b. Rectal Samples (if anal intercourse is indicated):
   1. Rectal swabs

c. Oral (mouth) Swabs (if oral intercourse is indicated):
   1. Oral swabs

d. Other Swabs: Based on the case synopsis, collect the appropriate swabs (bite mark swabs, breast swabs, etc.)

e. Reference Materials from Victim:
   1. Buccal swabs may be collected instead of blood, if no oral assault is reported.

   *Always collect reference material; it may be needed for comparisons with evidence from the scene. Package and label each reference sample separately.*

D. **Contact DNA:**

Contact DNA is also referred to as “touch DNA.” It is a small amount of DNA that is recovered from skin/epithelial cells that is left behind when a person touches or comes into contact with items.

   i. Swabs from or items left at a crime scene by suspect

   ii. Swabs from or items touched by suspect

   iii. Whenever possible collect **one** contact type swab from each item to be tested. If not, then submit the item to be swabbed to the crime lab.

   iv. Items submitted may have been touched or belonged to the victim(s). These require the collection and submission of reference samples to the crime lab for comparison purposes from individuals that have touched the item.

E. **Reference (Known) Sample(s):**
Collect reference samples from victim(s), suspect(s) or others who may have come into contact with or contaminated the object to be tested (buccal, or mouth swabs, should be used for reference DNA). If collecting a liquid blood sample, it should be placed in a tube containing a preservative and anticoagulant.

Kits used for arrestee and convicted offender collections should not be used to collect saliva or blood reference samples at a crime scene.

i. Each sample should be labeled with the person’s name and transported to the Crime Lab as soon as possible. Collect and label samples one at a time.

F. Contamination Prevention/Preservation During Collection:

Contamination prevention is vital to ensure that future analysis of your evidence will be possible, or will produce meaningful results.

i. Wear proper protective clothing, including gloves, mask/face shield, disposable lab jacket, or other disposable items that cover clothing/shoes

ii. **Do not handle any items without gloves.**

iii. **Change gloves after handling each item.**

iv. Avoid handling any item *directly* where DNA may be deposited—you will likely wipe it off, even with gloves (ex. mouth area of water bottle).

v. Beware of personal habits: Do NOT talk, cough, smoke, dip, chew gum, spit or sneeze, etc. on or near DNA evidence.

vi. Each item of evidence should be packaged and labeled separately; one item should be placed in each envelope/bag. *(The only exception would be for multiple swabs from the same person/item.)*

*When collecting DNA evidence from an object, document where the sample was obtained. Such documentation may consist of notes, a diagram and/or photograph detailing the sample’s location before collection.*
G. **Packaging:**

   i. Each item, including each article of clothing, should be packaged separately to avoid transfer of materials between items.

   ii. Use clean paper bags, envelopes, or boxes to package evidence. Evidence must be completely dry before packaging.

   iii. Plastic is acceptable storage for transporting wet items from the scene, but evidence must be removed and dried immediately upon return to your office.

   iv. Do not package objects tightly into bags; leave room so the packages can be resealed after examination. Comforters, blankets, pillows, coats, and other large items should be packaged in a way that allows them to be re-packaged at the end of the forensic examination. Contact the DNA unit before submitting large items such as bedding, couch cushions, etc.
Physical Evidence:

Items of physical evidence encompass any tangible items related to a crime scene that can assist in solving the crime that occurred. The Physical Evidence Unit of the Crime Lab is divided into two sections—Latent Prints and Firearms—and performs forensic analysis in the following disciplines:

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<thead>
<tr>
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<th>Latents Unit</th>
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<td>Fire debris analysis</td>
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<tr>
<td>NIBIN database entry</td>
<td>Shoeprint / tire track analysis</td>
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<tr>
<td>Tool mark analysis</td>
<td>Indented writing analysis</td>
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<td>Filament analysis</td>
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<tr>
<td>Crime Scene/Vehicle Examination analysis</td>
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</table>

Following are the disciplines in which testing is performed, with descriptions, collection guidelines, etc. For more specific information about any of these topics, please contact the Physical Evidence Unit Supervisors or Manager.

Filaments:

Vehicle lights are submitted to the Crime Lab to determine whether a vehicle’s lights were on or off at the time of an accident. Examinations are conducted on the vehicle’s area of impact and on the filaments and other parts of the bulb. As part of the investigation of vehicle accidents, it is often important to determine whether or not a headlight, taillight, spotlight, turn indicator light, or other unit was on at the time of the accident. Such determinations usually can be made if the lamp bulb has been cracked or broken at the time of the accident. In some instances, such determinations also can be made even if the glass is not broken. This examination can only be performed on filament bulbs (not halogen, LED, etc.).

i. Precautions:

a. Never turn on a vehicle’s headlamps after a collision. If the glass envelope of a bulb has fractured, the filament can burn out when energized and show indications of being incandescent at impact.
b. The evidentiary value of vehicle lamps can be lost if the lamps are not collected, packaged, and transported using the correct procedures. Lamps should always be delivered to the Crime Lab in person rather than mailed or shipped.

ii. Initial Examination of the Vehicle:

a. Document the condition of the vehicle’s lights and switches upon arrival at the scene and prior to removal.

b. **NEVER TURN ON THE LIGHT SWITCH TO SEE IF THE LIGHTS ARE WORKING** until the vehicle has been inspected for any broken or cracked bulbs or bulbs that might be loose in their metallic base. When the operating condition of lights is of importance, check the position of the light switches. Inform the lab if any attempt has been or may have been made to turn on a damaged or broken lamp after the accident occurred.

c. Remove all broken bulbs BEFORE turning on the vehicle’s lights. Replacement bulbs can be placed in empty sockets to test those circuits.

iii. Collection & Preservation:

a. Prior to removing a lamp, mark the 12 o’clock or “up” position.

b. If possible, measure continuity of the filaments using a circuit tester or with replacement bulbs prior to collecting the lamps. **Do not test continuity by turning on the lamps.**

c. The filament of the bulb is the most important part needed for laboratory examination. Avoid breaking any filaments during handling or transporting lamps. If a filament is accidentally broken, make note of this. However, recovery of all parts of the broken lamp is important. The parts recovered should include the socket, glass fragments, filament supports, and the filaments.
d. If a lamp is intact and easily removed from its socket, it can be removed as normal. Broken lamps should be removed with the lamp base and packaged to protect the filaments.

e. Check the lamp housing and surroundings for loose filament fragments. These can be packaged in plastic bags or envelopes. Do not place packaging materials around the filaments of broken lamps.

f. If the bulbs are badly damaged and cannot be unplugged from the socket, cut the wiring harness and submit the entire unit.

g. If the glass envelope of the bulb becomes loose during your attempt to remove it from the socket, note this on your evidence envelope.

h. Recovered filaments should be protected from further breakage. They may be placed on cotton or other soft material which is then sealed in a larger packet. Do not use tape to secure the filament.

i. Whenever practical, if the broken unit is in one of a pair, remove and submit the other lamp of the pair to the laboratory. Frequently, such unbroken units will aid in determining the age and condition of both lights prior to the time that one was broken.

j. Check the vehicle at the time the lamps are removed to determine the purpose served by each broken light. While this is normally obvious, occasion do arise where wiring has been altered.

iv. Procedural Limitations:

a. If damage to the vehicle is too far away from the headlights or taillights, the bulbs’ filaments may have sustained no damage. In such cases, no meaningful determination can be made via forensic analysis. Conversely, if the automotive light filament is damaged too severely, it may not be possible for any valid conclusions to be made.
b. Light bulbs **without filaments** cannot be examined for ON/OFF status using filament examination (ex. some strobe lights or LED lights).

v. **Daytime Headlights on New Vehicles and Motorcycles:**

Newer model cars and trucks have joined motorcycles in that they now have full time daytime headlights. Note that this feature can be bypassed in some vehicles.

*Caution should be exercised when making interpretations relating to the “lighting system” of the vehicle being ON or OFF based on the examination of individual headlight or tail light bulbs.

**Firearms:**

A firearm is defined as any weapon (including a starter gun) which will expel a projectile by means of an explosive or is designed or may be readily converted to do so. This includes the frame or receiver of any such weapon, any firearm muffler or silencer or any destructive device.

Criminal incidents and investigations involving firearms are widespread and numerous. It is important that when applicable to your case that firearms or any related evidence be properly collected for preservation of any elements left behind (e.g. fingerprints, DNA, gunshot residue). Firearm examiners can identify bullets and cartridge cases as having been fired in a specific weapon. Even bullets fired from consecutively manufactured barrels possess sufficient differences to distinguish between them. Many other examinations within the firearms section routinely assist the law enforcement community.

i. **PRECAUTIONS:**

1. **Do not stick any object in the barrel of the firearm for any reason.**

2. Handle each firearm with an abundance of caution, even if all initial appearances indicate the gun is unloaded or the safety switch is active/on. The safety may be faulty or the trigger pull may be very light (“hair trigger”). Place the firearm into a box (preferred), paper bag, or envelope for transporting.
3. All firearms must be verified as UNLOADED before they are submitted to the Crime Lab for any type of analysis.

4. If the firearm is to be processed for latent fingerprints or DNA, caution should be exercised in order to prevent the destruction of prints or the contamination of potential DNA on the weapon. The submitting agency should call the Crime Lab for instructions prior to packaging if questions arise about this matter.

5. **Do not** clean the firearm before submitting.

6. **Do not** fire the weapon before submitting.

7. If a firearm is recovered from water, it must immediately be submitted to the Crime Lab. A weapon recovered in water can be kept in a bucket of the water from which it was recovered for transporting purposes, to prevent further rust / corrosion. If a gun is found in water, contact the Crime Lab ASAP for specific instructions and submission guidelines.

   **DO NOT PLACE THE FIREARM IN CLEAN FRESH WATER.**

8. **Proper evidence labeling techniques should be utilized:** this includes the contents, source, date, time, agency case number, and name and initials of collector.

9. The officer recovering the weapon should note weapon conditions (e.g. cocked/uncocked, safety on/off, loaded/unloaded, fired cartridge case under hammer, sequence of cartridges/cases in the cylinder).
Number the chambers, starting at the top and going clockwise; note any cartridge in each chamber, whether it has been fired, and head stamp information, indicating the manufacturer. See example below. Mark the outside of the cylinder before opening so no confusion occurs about which cartridge case was in the #1 position.

ii. **FIREARMS UNIT CAPABILITIES & SERVICES:**

1. Restoration of obliterated serial numbers. Additional information about serial number restoration is included on the following pages.

2. Processing of clothing items for gunshot residues to determine approximate muzzle to garment distances.

3. Determination of shotgun shot patterns (distance), shot size, and gauge of wads.

4. Determination of mechanical condition of weapon (i.e. verify if weapon will function normally).

5. Determination of weapon type (caliber, revolver/pistol, etc.) and/or brand name possibilities of weapon which fired a bullet or ejected a cartridge case. (This can be performed when no weapon is recovered)

6. Entry of a firearm or cartridge case into the computerized firearms database (NIBIN).

### Headstamp

*Facing rear of cylinder*

Diagram to be made by Officer recovering the weapon.

<table>
<thead>
<tr>
<th>Chamber #</th>
<th>Condition</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fired</td>
<td>S&amp;W</td>
</tr>
<tr>
<td>2</td>
<td>Fired</td>
<td>REM</td>
</tr>
<tr>
<td>3</td>
<td>Fired</td>
<td>WRA</td>
</tr>
<tr>
<td>4</td>
<td>Loaded</td>
<td>S&amp;W</td>
</tr>
<tr>
<td>5</td>
<td>Loaded</td>
<td>WES</td>
</tr>
<tr>
<td>6</td>
<td>Loaded</td>
<td>PET</td>
</tr>
</tbody>
</table>

iii. **SUGGESTIONS FOR MARKING & PACKAGING:**
1. **Bullets**: Mark only base or nose with initials. Package in tissue inside small cardboard pill boxes or paper envelopes, but NEVER package in glass tubes, jars, or any sealed container.

2. **Cartridge Cases/Shotshells**: Initial near the open end (mouth) or inside the mouth, if possible. **Do not** place any marks or foreign material across the base or primer.

3. **Weapons**: Initials may be scribed on the butt or underside of the trigger guard or some other inconspicuous location with as little damage or alteration as possible. Package inside a cardboard box (gun box).

4. **Clothing**: Handle as little as possible. Initial each piece and then package in paper bags after air-drying. Package each clothing item separately; a specific request for GSR (Gunshot Residue) analysis should accompany the clothing.

   All items must be properly packaged, sealed, and unloaded. Ammunition that is seized with the firearm can be packaged in an envelope and put in the box containing the firearm. In the case of latent prints or DNA being requested, remove any magazines from the firearm and remove any cartridges from the breech and lock the weapon open. Leave the cartridges in the magazine.
iv. Firearms Nomenclature & Definitions:

1. Handguns:

a. Revolver: A firearm with a cylinder having several chambers arranged rotate around an axis; it can be discharged successively by the same firing mechanism.

![Revolver Diagram]

b. Pistol: A repeating firearm requiring a separate pull of the trigger for each shot fired, and which uses the energy of discharge to perform a portion of the operating or firing cycle.

![Pistol Diagram]

c. Magazine: A container for cartridges which has a spring and follower. The magazine serves to provide a new cartridge for loading into the chamber of a pistol during the firing cycle.
d. **Clip**: A detachable metal frame or box, which contains cartridges and serves to facilitate the loading of an internal magazine.

![Schematic of a semiautomatic rifle or shotgun](image)

2. **Long Guns**:

   a. **Rifle**: A firearm having rifling in the bore and designed to be fired from the shoulder.

   b. **Shotgun**: Generally, a smooth bore shoulder firearm designed to fire a shotshell containing numerous pellets or a single projectile (slug). Shotguns can also be equipped with a rifled barrel.

3. **Ammunition Components**:

   a. **Bullet**: A non-spherical projectile designed for use in a rifled barrel.

   b. **Cartridge**: A single unit of ammunition consisting of the cartridge case, primer, powder, and bullet / projectiles.

   c. **Cartridge Case**: The metallic container, which is no longer filled with the components that originally comprised the cartridge.

   d. **Shotshell**: A single unit of ammunition consisting of a shotshell case, which contains a primer, powder, and one or more projectiles.
e. **Shotshell Case:** The shotshell container, which may be plastic or paper and is no longer filled with the components that originally comprise a shotshell.

f. **Shotshell wad:** The components of a shotshell, which typically separate the powder and projectiles and are used to adjust the volume of the contents of the shotshell. Wads are made of a variety of material types (e.g., circular cardboard, fiber or felt disks, plastic one-piece or multi-piece shot cup and/or shot columns).

g. **Slug:** A term applied to a single projectile loaded into shotshells.

h. **Pellets:** ranging in size, normally loaded in shotshells. (Note: There are some cartridges currently available for handguns that contain pellet loads.)
4. Preferred Wording for Firearms Evidence:

<table>
<thead>
<tr>
<th>Correct</th>
<th>Incorrect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bullet</td>
<td>Slug (except for shotguns)</td>
</tr>
<tr>
<td>Lead Bullet</td>
<td>Spent Slug</td>
</tr>
<tr>
<td>Jacketed Bullet</td>
<td>Spent Round, Spent Jacketed Projectile</td>
</tr>
<tr>
<td>.38 Spl. Cartridge Case</td>
<td>Spent Round, Hull</td>
</tr>
<tr>
<td>.38 Spl. S&amp;W Revolver S/N</td>
<td>.38 Cal. Pistol</td>
</tr>
</tbody>
</table>

5. **COMMON DEFINITIONS** (Refer to AFTE Glossary for a more comprehensive listing of definitions and acceptable abbreviations.)

   a. **Breech Face** - That part of the breechblock or breech bolt which is against the head of the cartridge case or shot shell during firing.

   b. **Breech Face Marks** - Negative impression of the breech face of the firearm found on the head of the cartridge case after firing.

   c. **Class Characteristics** - Measurable features of a specimen which indicate a restricted group source. They result from design factors and are therefore determined prior to manufacture. “GRC” is the common term used for firearms.

   d. **General Rifling Characteristics File (GRC)** - a computer database of General Rifling Characteristics published annually by the FBI Laboratory Firearms/Tool Marks Unit.

   e. **Comparison Microscope** - Two microscopes connected by an optical bridge which allows the viewer to observe two objects simultaneously with the same degree of magnification. This instrument can have a monocular or binocular eyepiece. Sometimes referred to as a comparison microscope.

   f. **Distance Determination** - The process of determining the distance from the firearm to the target based upon patterns of gunpowder or gunshot residues deposited upon that target. Where multiple projectiles, such as shotshells, have been fired the spread of those projectiles is also indicative of distance.
g. Firearm - An assembly of a barrel and action from which a projectile(s) is propelled by products of combustion.

h. Griess Test - A method for the detection of close range gunshot residue nitrites around bullet holes.

i. Individual Characteristics - Imperfections or irregularities produced accidentally during manufacture and/or caused by use, abuse, corrosion, erosion or damage to an object. They are unique to that object and distinguish it from all others. Also called accidental characteristics.

j. Land and Groove Impressions - The negative impression on the bearing surface of a bullet caused by the rifling in the barrel from which it was fired.

k. NIBIN – “National Integrated Ballistics Imaging Network” – equipment and firearms cartridge case and bullet database provided and maintained by ATF.

l. Propellant - In a firearm, the chemical composition, which when ignited by a primer, generates gas. The gas propels the projectile(s). Also called powder, gunpowder; smokeless powder.

m. Reference Bullet – Bullet test fired in a known firearm. Also called test or known bullet.

n. Reference Cartridge Case / Shotshell – Cartridge case / shotshell test fired in a known firearm, test cartridge case / shotshell.

**NIBIN (National Integrated Ballistics Information Network):**
The National Integrated Ballistics Information Network (NIBIN) is a nationally interconnected, computer-assisted ballistics imaging system used by forensic firearms examiners to obtain computerized images of the unique marks made on bullets and/or cartridge cases when guns are fired. Through NIBIN, these images can then be compared rapidly with all other images in the system of numerous federal, state, and local law enforcement agencies. In this way, evidence from multiple crime scenes can be linked, identifying patterns of criminal activity, and leading to the apprehension of suspects. The Bureau of Alcohol, Tobacco, and Firearms (ATF) has assumed the lead role in the further development and deployment of NIBIN.

As an investigative tool, ballistics imaging complements crime gun tracing. Crime gun tracing consists of tracking the history of a crime gun. By tracing crime guns, ATF assists state and local law enforcement agencies in solving firearms-related crime by, among other things, identifying suppliers of multiple-crime guns, and gun trafficking patterns. Prior to NIBIN’s establishment, the Federal Bureau of Investigation (FBI) and ATF established separate computerized ballistics
imaging systems in 1993, called, respectively, “Drugfire” and “Ceasefire” (the latter now called IBIS). NIBIN was established in 1997 to unify these systems.

The use of NIBIN has greatly increased the ability of the Crime Lab’s Firearms Section to identify incidents in which the same firearm was used. Often, NIBIN can offer new leads in “dead end” cases and reduce the number of unsolved firearms cases. If your agency has any questions regarding submissions for NIBIN entry, please contact someone from laboratory’s firearms section.

**Types of Firearms Entered into NIBIN:**

The following calibers are entered into NIBIN:

1. .380
2. 9mm
3. .40
4. .45
5. .223 / 5.56
6. 7.62x39
7. 5.54x39
Fracture Matches:

These examinations/comparisons are conducted in an attempt to establish a common origin between two or more pieces of evidence. For example: A broken turn signal lens fragment from a hit and run scene may be positively matched to piece remaining on the suspect vehicle, placing that vehicle at the crime scene. The examination may be conducted in a fashion similar to putting together a jigsaw puzzle or may require tedious examination under a microscope.

i. A few types of evidence encountered in this category are:

1. Glass fragments (headlights, mirror pieces, etc.)
2. Plastic fragments (vehicle lens or grill pieces, packaging materials)
3. Tape (masking, duct, electrical)
4. Fiberglass (especially in vehicle front and rear ends)
5. Cloth (torn sheets, garment pieces)
6. Wire (cut, broken, pulled apart)
7. Metal (chrome trim on auto/broken chain links)
8. Paper
9. Fingernails

ii. Many times a fracture match examination is incidental to the original request for analysis. However, since a fracture match is just as unique as a fingerprint match, the investigator should always collect evidence with this in mind.

iii. When adequately sized fragments of plastic lenses are recovered from a vehicle or crime scene, attempts should be made to have them identified by local auto dismantlers or new vehicle parts department employees.
**Gunshot Residue:** Gunshot residue refers to gunpowder and primer residues which exit a weapon upon discharge. Gunpowder particles may be located on clothing articles when a weapon is discharged at close range. Primer residues should be thought of as much more fragile and delicate than gunpowder. Primer residues are the main sources of the elements antimony and barium. These are tested for in hand swab kits. These residues, when present in sufficient quantities, may support other evidence that a subject handled or discharged a firearm.

Hand swab kits should be administered on a subject as soon as possible. As the time between suspected firing and swabbing increases, the chances of positive results decreases drastically. Commercially assembled hand swab kits are available through police supply companies. The GSR (Gunshot Residue) kits contain instructions which should be followed exactly. The kit should be administered in a room not frequently used for handling of firearms or ammunition.

*As a general guide, the following precautions should be followed:*

i. Administer GSR kit immediately to obtain the most reliable results.

ii. Subject should be prevented from any use of hands prior to swabbing (e.g. rubbing hands together, placing hands in and out of pockets, washing hands, wiping hands on any objects, fingerprinting, etc.)

iii. Determine and record date and time of incident; record date and time of swabbing along with type of weapon/ammunition.

iv. Make these determinations about the subject(s):
   a. Right or left handed
   b. Occupation
   c. Last time he/she fired a weapon

v. Deceased subjects (possible suicide victims) or living subjects who are victims of a close range gunshot need not be tested by this kit. You already know that these persons were in an environment where gunshot residue was present.

vi. Do not administer the GSR kit if:
   a. .22 caliber ammunition other than Federal brand was used
b. Subject washed his/her hands

c. More than 6 hours have elapsed since incident (this is applicable for live subjects only)

Shoe & Tire Impression Evidence: Wherever a crime has been committed, someone has had to enter and exit the scene. In the process, shoeprints, footprints, and tire tracks can be left. These types of impressions are encountered on a wide variety of surfaces and different collection techniques may be utilized. Proper processing of each surface type may result in collection of impressions which can, in some cases, be positively matched to a specific shoe or tire.

Footwear and tire track comparisons are typically conducted between a questioned impression and known shoe or tire impression. It is necessary to submit to the LSP Crime Lab both the questioned impression and the known shoe or tire to conduct a comparison.

A questioned impression does not need to contain the entire length of the shoe or tire for a comparison analysis to be performed. The most important factor is the quality of the photo/cast/lift, which is dependent on the officer using proper collection/documentation techniques.

Shoe Prints:

a. Locating:

1. Soil, mostly free of vegetation, may retain a good quality three-dimensional impression unless it is too loose, firm, dry, or wet.

2. A dirty shoe sole may leave a two-dimensional (flat) impression. A faint shoe impression may need additional illumination to be seen. Using oblique lighting techniques will aid in locating faint impressions on many surfaces.

b. Processing the Shoeprint:

1. Measurements: A scale must be used when photographing or electronically documenting an impression. It is necessary for the scale to be on the same plane (height, angle, etc.) as the impression. If the ruler is higher or
lower than the impression, accurate measurements cannot be made.

2. **Photography:** Close up photos should be taken with an L-ruler. Camera should be positioned so that it is exactly parallel to the impression. Use of a tripod is highly recommended. Side lighting from several different angles with electronic flash or other high intensity light should be utilized. Vary the position of the light source with the camera in the same position, taking a photo in each of the light positions. This will ensure that all details are recorded rather than partially obscured by shadows.

3. **Casting:** Casting may be used to capture three-dimensional impressions, such as those left in soil. The most common type of casting material is dental stone, which is easily obtained from dental supply companies.
   
   a. Casting material should be the consistency of pancake batter when pouring, and should be free of clumps.

   b. **Casting material should never be poured directly onto the impression.** It should be poured next to the impression so that the dental stone flows, or gets “pushed” into the adjacent impression. Pour to
approximately 1” thickness and label the cast. Approximately two pounds of dental stone is enough to cast a medium-sized shoe impression.

c. *Never clean the dirt or debris from the bottom of the cast*; dig slightly below the depth of the cast and remove and package the soil and cast together. Once the cast has dried, it should be packaged in a box or paper bag. *Casts should be allowed to fully dry for 48 hours before cleaning.*

**Tire Impressions:**

Several measurements can be determined from tire tracks which may aid in an investigation. These include: tire width, front wheel stance, rear wheel stance, and wheel base. This data, when coupled with the tread design, can aid in locating or greatly reducing the number of vehicles which may have left the impressions.

a. Vehicles may have more than one brand of tire on the wheels. Ensure that all four tires are photographed and that each tire’s information (brand, model, etc.) is documented if a comparison is to be done.

b. Wheelbase measurements can assist in determining vehicle type. At the scene, look for where the vehicle turned, stopped, or changed directions. The tracks that make sharp turns will be the front tire tracks. Wheelbase measurement is made from the leading edge of the front tire to the leading edge of the rear tire. Turns and direction changes will be the best locations for measuring the front and rear stance as well.

c. Photography and casting can be done as described in the shoe impression section above.

d. Tire casts should be taken if identification to a specific vehicle is desired. Each tire cast should include 12-14 inches of the tire track where the tread detail is suitable.
Fire Debris:
The Crime Lab can furnish the arson investigator with information relating to the presence and classification of an ignitable liquid at a fire scene. Fire debris analysis cannot determine whether a fire was intentionally set, and cannot identify a specific source of the ignitable liquid residue. The presence and classification of an ignitable liquid, which may be used to start or accelerate the spread of a fire, is determined by analysts using a gas chromatograph/mass spectrometer (GC/MS).

Latent print or DNA examinations may be incorporated in arson cases. Unburned or partially burned items may yield identifiable latent prints or DNA profiles if collected properly and submitted for analysis immediately.

Proper collection and packaging of evidence for fire debris analysis is critical; such debris may contain volatile ignitable liquid residues which can evaporate quickly if packaged improperly.

The State Fire Marshal is an excellent resource for investigating and collecting evidence from fire scenes. An arson investigator should be consulted when processing complex fire scenes or those involving fatalities / serious injury.

a. Collection: All equipment used to process fire scenes and collect evidence should be cleaned before each use. This includes tools (shovels, rakes, screens, etc.), clothing (especially shoes), and other items that may come into contact with scene debris. The lab’s analysis equipment is extremely sensitive and may detect ignitable liquid residues carried over from another scene if items are not properly cleaned.

b. Packaging: It is strongly recommended that all fire debris evidence that comes into the laboratory be packaged in one of the following ways:

1. Heavy Duty KAPAK or Nylon bag—used for packaging solids and soils. The bags can be cut to size, and should be filled no more than 2/3 full. Liquids should never be placed directly inside these bags.

2. Clean, lined, metal paint cans—used for packaging solids and soils. The cans can be placed inside heat sealed KAPAK or Nylon bags to prevent contamination between samples in cans. Unlined cans
rust more easily than lined cans, and could result in sample loss or contamination. Cans should be filled no more than 2/3 full. Liquids should never be placed directly inside a metal paint can.

c. Storage: Samples should be stored in a climate controlled storage facility. Heat will cause ignitable liquid residues in samples to vaporize, expand, and move around inside the container. If the containers are not sealed properly, leak, or fail in some other way, contamination or sample loss may occur.

1. Soil samples should be immediately stored in the freezer to minimize bacterial degradation of ignitable liquids in the soil.

2. Liquids should be contained inside a clean, glass container, such as an evidence vial or a glass jar. An alternative is to absorb some of the liquid onto clean gauze or similar material, and then package the gauze inside a clean, metal paint can or Kapak or Nylon bag.

3. Large, bulky items, such as gas cans, flooring, lumber, etc. may be difficult to package in the recommended containers. It is acceptable to place these items inside paper or plastic bags, provided the agency can get these items to the laboratory quickly so they can be properly packaged as soon as possible.

NOTE: Regardless of the packaging method used, all containers must be thoroughly sealed so that any ignitable liquids present are not allowed to escape from the sample.

**Fingerprints:**
The Crime Lab processes evidence for prints in the lab and at crime scenes. There are many reagents available for processing evidence at a scene, but the most common is fingerprint powder. Items can be processed by officers at a scene, or collected and submitted to the Crime Lab for lab analysis. When prints are recovered, they are forwarded to print comparison analysts for examination.

Friction ridge impressions can be organized into three categories—latent, patent, and plastic prints. Latent prints require some method of physical or...
chemical enhancement to be seen. The processes used to recover latent prints are determined by the surface of the object upon which the prints have been deposited and the condition of the surface. Patent prints are those that can be seen without any enhancement, such as a greasy print on a window, or a bloody print. Plastic prints are three dimensional prints, such as those could be found in gum, putty, or paint.

There are a few important considerations for making processing and collection decisions about evidence at a scene. However, the most important thing to remember is that prints are very fragile, so all items should be examined, processed, and packaged with utmost care. Careful evaluation of the scene and knowledge of your processing capabilities will determine the course of action taken at each scene.

**Print Processing**

1. Identify what objects may be suitable for print processing

   a. Disturbed or out of place items—which items were likely to have been handled?

   b. Items not belonging to victim (or suspect)

   c. Points of entry/exit at a scene (doors, door frames, windows, window screens, door knobs, tools used to gain entry, etc.)

   d. Points of attack (areas where items have been disturbed, damaged, or removed)

   e. Other items that may be of evidentiary value—will prints on the object be probative to the investigation?

   f. Once it is determined what items are to be processed for prints, any fragile or transient evidence should be handled first.

2. Handling of Objects

   a. Handle objects (with gloved hands) by touching edges, corners, or other surfaces that are too small for prints or unsuitable for prints (such as surfaces of gun grips).
b. Gloves should be utilized with care. Any surface that has a print on it can easily have the print wiped off when handled, either with or without gloves.

c. Extreme care should be exercised when handling tape or other items with exposed sticky surfaces

   1. Prevent handling loose ends or other exposed sticky surfaces.

   2. Leave the tape intact on the item, whenever possible. If it is necessary to remove from a person, cut the tape in an area that is away from the end of the tape and do not separate layers. You may stick the adhesive side to a clean page protector.

3. Decide which processing method will work best
   a. Porous vs nonporous items
   b. Bloody vs non-bloody items
   c. Light vs dark colored items
   d. Large vs small items

4. Decide which items should be processed at scene, and which items should be processed at lab

   a. Do you have the reagents and equipment necessary to best process items at the scene?

   b. Will processing for prints likely destroy other evidence that may be present? Does the item need more than one type of analysis (prints, drugs, DNA, etc.)?

   c. Do you have the evidence collection and packaging equipment needed to properly preserve the item for lab analysis?

      1. Ensure that your vehicle is stocked with proper evidence collection/documentation equipment
         a. Multiple sizes of envelopes, bags, sharps containers, etc.
         b. Labeling utensils, rulers, evidence markers, etc.
d. Some items may be too large to collect (couch, bed, wall, etc.) and should be processed at scene, or a sample of the item may be collected for analysis (example: area of a floor with bloody shoeprints)

As noted above, the majority of scene processing by officers will likely be with fingerprint powder. Basic dusting and lifting techniques are described below. The most important thing to do for developing good evidence handling, dusting, and preservation techniques is PRACTICE!!!

1. Dusting techniques

a. Use fiberglass or feather brushes for all non-magnetic powders—any other type of brush may damage fragile prints
   1. Magnetic brushes must be used for magnetic powder

b. On large surfaces, use broad, sweeping strokes to apply powder and locate ridge detail in prints
   1. Follow up with smaller circular strokes to work powder onto all sides of the developing print and get rid of excess powder

c. Shining a flashlight at an oblique angle will aid in locating prints after dusting

d. When dusting, you should not “spin” the brush, “poke” at the surface, or brush too hard—this will damage or completely erase prints that are very faint or fragile.

2. Print preservation techniques

a. **Photograph before doing anything else to the print!!**

   1. Use a ruler in the photos

   2. Get as close-up a shot as you can—fill the frame with the print being captured

   3. Make sure the photo is in focus before lifting the print
4. Ensure the camera is parallel to the surface/print being photographed. Otherwise, the print may be distorted

b. Lifting techniques

1. Can use hinge lifters, lift tape and lift backs (preferably clear backs), or gel lifters
   a. Clear lift backs are preferred to allow for additional contrast if needed

2. Wear gloves and avoid unnecessary handling, as even gloved hands can destroy prints.

3. When lifting on curved surfaces, remember that the tape will only bend in one plane at a time.

4. Manipulate the tape or lifter to be solid until you put it down, so it doesn’t flop over and stick to itself or other items

5. Eliminate bubbles and creases in the tape when lifting and when adhering to lift backs
   a. Large bubbles may be eliminated by pricking (not slicing) the bubble with a scalpel or other sharp point and then “squeezing” the air out of the bubble

6. Adhering tape to lift backs
   a. Do not stick tape to index cards, evidence envelopes, or other coarse-grained paper
   b. Adhere the lift to a (preferably clear) lift back—do not fold the tape back onto itself as a backing
   c. DO NOT lift prints that have been processed with superglue only—the adhesive on the lift tape will dissolve the print

Print Comparisons

Analysts in the print comparison discipline receive prints from outside agencies, as well as prints recovered from cases processed by the Crime Lab. Direct...
comparison is made between the unidentified print and reference prints from victims, suspects, officers, or other individuals who may have touched the evidence on which prints were developed.

When submitting evidence for print processing or print comparison, the following information must be included on the submittal form (or in other submitted paperwork):

1. Name, race, sex, date of birth, and State Identification Number (SID #, if applicable) of all victims, suspects, and elimination individuals

2. Reference finger AND palm prints for any victims, suspects, or other individuals who may have touched the evidence
   a. A SID number may be submitted in lieu of reference prints if officers have verified that both finger and palm prints of an individual are in AFIS.
   b. If the evidence is from a business burglary, high-traffic area, etc., reference prints may not be necessary. This information should be stated on the submittal form.
   c. Both inked and live scan prints are sufficient for comparison purposes, as long as the prints are clear.

Submission criteria may be waived on a case-by-case basis by the Latents Unit Supervisor or Manager.

Guidelines for taking good reference prints:

1. Roll the finger “nail to nail”. The resulting fingerprint should be square-like in shape with no smears. Palms should be rolled from the wrist bracelet (crease at bottom of hand) to fingertips, ensuring that all ridge detail is present and there are no voids in the print.

2. Maintain constant, even pressure throughout the roll.

3. Inked prints: Do not use too much ink. Excess ink makes the prints blotchy, smudged, and unclear.
   Livescan prints: make sure to clean the glass between rolls.
4. Label all reference prints with the individual’s name, and label each finger (right index, left thumb, etc.).

Tips for taking good reference prints on individuals with “difficult” prints:

1. Sweaty hands—wipe each finger with an alcohol swab before inking and rolling. This should remove excess sweat and allow ink to stick to the finger.

2. Poor ridge detail—construction workers, some office workers, and elderly individuals may have very poor ridge detail or flat ridges. Have them hold an ice cube for approximately 1 minute, or use a purchased “ridge builder” to plump up ridges before rolling.

3. Dry hands—apply a small amount of lotion to the hands and rub in completely. The added moisture should rehydrate ridges enough to take legible prints.

4. Deceased prints—reference finger and palm prints should be taken from all deceased individuals involved in a case, as their prints may be needed for future comparison requests.
   a. Clean the individual’s hands using alcohol swabs.
   b. Use disposable ink strips to ink the hands.
   c. Cut individual strips from a roll of latex tape (1-2” wide), press onto the finger, remove, and adhere the tape lift to a clear acetate sheet, page protector, etc. Pressing down on the finger joints may assist in straightening the fingers for easier printing.

Unidentified prints are routinely searched through AFIS, and sometimes through IAFIS, if they are of sufficient quality. If suspects or victims are from another state, this should be stated on the submittal form so that prints can be searched through IAFIS.

1. AFIS (Automated Fingerprint Identification System) is the state Fingerprint / palm print database. Arrestees, applicants (nurses, concealed carry permits, etc.), law enforcement, and unidentified prints are all housed in this database.
a. Unidentified prints are searched through this database and may remain in the system if all reference prints have been submitted in a case, and if the print is of sufficient quality.

2. IAFIS (Integrated Automated Fingerprint Identification System) is the federal fingerprint database. Criminal, civil, military, applicant, and unidentified finger and palm prints are housed in this database, which is maintained by the FBI.

a. Unidentified prints may be searched through IAFIS. They are typically not retained in this system for continued searching.

**Toolmarks:**
A tool mark is a mark made by one object on the surface of another softer object. Tool mark examinations are the comparison of scratches, indentions, or other deformations resulting from force applied by some type of tool. Various kinds of toolmark evidence can be found at a crime scene, such as forced entry marks left on a door frame, fractured knife blades, cut marks on wire, abrasions left on a vehicle, cut marks on a padlock, and machine marks on a metallic surface. During the contact of two surfaces, foreign debris can be transferred to each of the contacted surfaces. This can be in the form of paint, glass fragments, safe insulation, grease, etc. It is, therefore, important that both tools and tool marks be protected from any further contamination.

i. Types of commonly encountered tools include, but are not limited to, the following:

1. Pry Bars
2. Screw Drivers
3. Pliers
4. Bolt Cutters
5. Knives

ii. Positive tool mark identification holds the same significance as positive firearms identification.

iii. Tool mark cases require a lot of time in the laboratory because it is often difficult to duplicate the exact manner in which the tool was used by the perpetrator. Another variable that hinders
examinations is duplicating the proper surface on which to make the “test”/comparison marks in the laboratory.

iv. If the object bearing the tool mark is reasonably mobile, bring the entire object to the laboratory. If the object is particularly large or is completely immobile, the tool mark area may be cut out (depending on the situation, e.g., security considerations and damage to property).

v. Care in collecting and packaging this evidence must be exercised:

1. Handle the tool with gloves, as DNA or prints might be recovered from a tool left at the scene.

2. The object with suspected tool marks should be handled like the sides of a bullet—avoid any abrasion. Package these in boxes or envelopes.

3. Tool marks in metal may begin to rust if contact with moisture is not prevented.

4. The suspected tool should NEVER be placed on the evidence in question for measurements, etc. This contact could easily damage the tool mark, alter the tool, and/or trace evidence could be contaminated.

5. Care must be taken to protect the suspected tool so that the face of the tool is not damaged, thus changing the tool mark it will produce. Protect the face of the tool, or the surface used for cutting, scraping, etc., with soft tissue paper or an envelope.

6. Protect any trace material on the face of the tool. Paint and other materials from a surface frequently adhere to the tool. The trace material can be compared with samples of the surface containing the tool mark.

7. Samples of the surface adjacent to the tool mark must be taken. If a suspected tool is recovered, trace materials on the tool can be compared to the samples taken at the scene.
8. In the case of cut wire (or similar material), mark the end of the wire material which was cut by an agency representative during evidence collection, indicating that this is a cut produced by a known tool. This provides information to the Crime Lab as to which end of the material is to be compared.

**Crime Scene:**
The LSP Crime Lab is available for crime scene assistance to any law enforcement agency in the state. Local agencies may not have the personnel, equipment, or training necessary to perform some types of crime scene documentation or analysis; therefore, LSP Crime Scene analysts are on call 24 hours a day and are available for questions or on-site response. Your agency can contact the Crime Lab directly if assistance is needed during business hours, or Troop A if after-hours response is needed.

**Crime Scene Sketch:** The crime scene sketch is an invaluable aid in recording investigative data. It is a permanent record that provides supplemental information that is not easily accomplished with the exclusive use of crime scene photographs and notes. A crime scene sketch depicts the overall layout of a location and the relationship of evidentiary items to the surroundings. It can show the path a suspect or victim took and the distances involved. It can be used when questioning suspects and witnesses. During trial, the crime scene diagram correlates the testimony of witnesses and serves as a tool for relaying reference and orientation points to the prosecutor, judge, and jury.
i. **Sketching the Crime Scene:** Before beginning the sketch, obtain a comprehensive view of the scene. Determine the sketch limits—decide what to include and what to exclude. If the scene is complicated, a number of sketches may be necessary for adequate documentation.

ii. **Types of Sketches:**

1. **Overview Sketch**—consists of a bird’s eye view or floor plan sketch of the scene. This is the most common type of sketch and consists of items on the horizontal plane.
2. **Elevation Sketch**—portrays a vertical plane rather than a horizontal plane. Examples include bloodstain patterns on vertical surfaces such as walls or cabinetry and bullet holes through windows.
3. **Exploded View or Cross-Projection Sketch**—consists of a combination of the first two sketches. It is similar to a floor plan except the walls have been laid out flat and objects on them have been shown in their relative positions.
4. **Perspective Sketch**—depicts the scene or item of interest in three dimensions. It is the most difficult to create and requires some artistic skill.

iii. **Sketches Drawn to Scale:**

1. To avoid a distorted view of the scene, measurements must be reduced in proportion so that they bear correct relationship to each other.
2. Select the scale of the diagram by fitting the longest dimension in the scene to the area of paper being used.
3. Graph paper should be used when creating this type of sketch. Each block represents a specified length of measurement. Use convenient units for the scale. (e.g. One block=One foot)

iv. **Sketches not Drawn to Scale:**

1. Sketch can be accomplished more quickly than a scaled diagram.
2. Items are placed in the diagram based on approximation. This type of diagram may provide a distorted view of the scene. Correct proportions and relationships may not be maintained.
3. Measurements may be recorded on the sketch or in a chart.
4. This rough sketch may be used to complete the scaled diagram later.
5. These diagrams should clearly be marked **NOT TO SCALE**.
6. To the right of this text is a sample crime scene sketch, drawn for information purposes only and **not** based on an actual crime scene. Any similarities to an actual crime are purely coincidental.

### Forensic Photography

Evidence photography, video documentation, and other evolving multimedia technologies are indispensable to the evaluation, interpretation, and presentation of physical evidence in court. Evidence photographs, diagrams, videos, and other media must be of consistently high quality as well as fair and accurate representations of the depicted subject matter. The following recommendations have been compiled to assist law enforcement personnel in taking photographs that adequately capture the crime scene, evidence, and all appropriate details.

#### i. Criminal Investigations:

##### A. General Guidelines

i. Upon arriving at the scene, the photographer should obtain all available information from either the first officer on the scene or the officer in charge. Using this information, the photographer should decide what photographs are needed and in which order they are to be produced. Do not move or disturb any evidence, bodies, or items within the boundaries of the scene before they have been photographed, measured, sketched, and released for collection by the officer in charge.

ii. **Do not take a suspect or any item of physical evidence that has been moved or disturbed back to the scene for photographic or other purposes.**

iii. Do not include yourself, other persons, or any object not part of the scene in the photograph. If positions of evidence need to be denoted, first take a photograph without any alterations, and then retake the photograph...
with evidence markers in place. A good axiom to follow is: *If in doubt, photograph it.*

B. **Procedural Suggestions:**

i. Determine a photographic starting point and progressively take photographs, working your way into the scene. Photographs should maintain continuity between each other to present a “picture story” of the scene.

ii. Photograph rooms from each corner within a minimum of four views. Additional photographs may be required of ceilings, floors, doorways, or hallways if not covered in the four minimum views.

iii. Photograph bodies from all angles and overhead, if possible. (Be careful of distortion when photographing from head and feet). Do not disturb the body or clothing on the body to take photographs.

iv. Scenes should be photographed keeping four basic views in mind:

1. **Overall Views:** these show general locations, conditions, and surroundings:
   a. Should be done at photographer’s eye level unless duplicating a witness’s point of view.
   b. A large outdoor scene, a scene involving several buildings, or a route used may require aerial photographs
   c. All scenes should have 360° overall views looking towards the scene and looking toward the scene and looking away from the scene. If possible, include identifiers like street numbers or similar permanent reference points, etc. Structures should have all sides, surrounding areas, and adjacent buildings photographed.
d. Interior overall views using the minimum four corner technique should be produced of all rooms connected with the scene.

2. **Mid-range (Evidence establishing) Views:** these show a significant segment of the scene that has been previously recorded in the overall views

   a. Example: Pictures of a body lying in the middle of a room—the overall view would show where the body was found in relation to the room. A medium view would focus attention to the particulars of the body, giving details like type of clothing, position of extremities, items close to the body, etc.

3. **Close-up (Macro) Views:** these are used to specifically show position and detail. They are detailed photographs documenting items of evidentiary value.

   a. Examples include: a gun in relation to the hand, ejected cartridge cases, a bullet lodged in a wall, visible entry damage, footwear/tire impressions, fingerprints, tool and pry marks, etc.

   b. Close-ups of all evidence should be taken before collection, measuring, and sketching take place.

   c. Items that may have been photographed in a mid-range view should be photographed again to show more detail.

   d. As a final step, the photographer should confer with the officer in charge and describe all the photographs that were taken of the scene. The officer may require additional photographs to be taken.

C. **Scaling Photographs:** In criminal investigations, properly taken, scaled photographs are indispensable in the evaluation and interpretation of physical evidence. The location, relative position, appearance, physical size, and depth and shape of any object that possesses potential evidentiary value should be photographed, both scaled and not scaled, using these
suggestions as a basic framework for completing this process. Any questions about more detailed forensic photography should be directed to Crime Lab personnel.

**Indented Writing:**

Indented writing analysis attempts to develop marks (indentions) which are left on a surface (usually paper) underneath the one on which visible writing was placed. Such indentions are caused by pressure exerted on the paper by the writing instrument. Indented writing has proven to be a very valuable type of evidence which can remain long after the original document has been lost or destroyed.

The best ways to handle evidence of this type are as follows:

i. Remember the possibility of latent prints and handle accordingly. Handle as little as possible and only on the edges.

ii. This examination must be done before the surface is processed for latent prints.

iii. If the indented writing is on a paper surface, do not fold. Place document unfolded in a manila envelope.

iv. *Be sure to initial and date the evidence label BEFORE the document is placed inside the envelope.*

v. Take care that nothing is placed on the envelope that will either make new indentions or destroy the existing ones.

vi. The type of analysis request for these cases is “Indented Writing.” Please specify this, so that latent prints processing will not be administered first.

**Other Physical Evidence Information:**

Many items of evidence at a scene can be collected for types of analysis not performed by LSP Crime Lab. Below are some types of analysis that may be performed on evidence items from crime scenes, and general information on proper collection/documentation methods.
**Explosives Residue:** Residues of explosives are materials left at the scene of an explosion. This may include unexploded devices or small particles left in soil, wood, glass, etc.

i. When collecting physical evidence resulting from explosion: **DO NOT ATTEMPT TO DEACTIVATE, COLLECT, OR TRANSPORT ACTIVE EXPLOSIVES.**

ii. When explosives are found: Call the Bomb Squad from your agency or the **LA State Police HAZ MAT Unit** in Baton Rouge. (The LA State Police troop nearest to you can be contacted for assistance in contacting the HAZ MAT Unit). Army EOD teams are also available for deactivation of bombs, but they should be used as a last resort. (225) 925 – 6113 or 1-877-925-6595 (TESS/Right to Know hotline)

iii. Collecting Explosives Residue:

1. Before any evidence is collected, photographs of the scene should be taken. All evidence should be collected by a person wearing gloves so as not to destroy any fingerprint evidence.

2. The first objective in the collection of explosives residues is to locate the area of the origin of the blast. At this site, swab samples should be taken. Each swab is packaged individually in a tube, sealed, and labeled with location, date, time, and name of collector.

3. Loose soil and debris should be collected for examination for explosives residue. This should be placed in metal paint cans, sealed, labeled, and taped closed. **Do not use paper bags.** Collect approximately two full cans of soil from the crater area.

4. The total area to be searched is determined by establishing the origin of the blast and the farthest point from that origin where debris may be found. This entire area must be searched. Be sure to search not only the ground but also rooftops, trees, and anywhere that fragments could possibly be lodged. You will be searching for components of the device...
such as small blasting caps, fusing and firing system components, along with explosives wrappers. Collect all components located. All of these pieces should be placed in metal cans, sealed, labeled, and then taped closed.

iv. Possible results from laboratory analysis:
   1. Fingerprints / DNA of possible suspects
   2. Identification of the explosives (Types of powders: TNT, C4, etc.)
   3. Reconstruction of the explosive device.

**Glass:** Glass is encountered in several types of crime scenes. Some common instances are windows broken in vehicle or home / business burglaries, or headlights in hit and run. Also, bottles or other glass objects may break and leave fragments in pockets or on garments or shoes of suspects in these types of crimes. Glass taken from a broken window at a burglary may be compared with glass fragments found on a suspect’s body or clothing; glass from a broken windshield may be compared with pieces of glass found on a hit-and-run victim’s body or to glass found at the scene. These types of cases involve comparison of the glass samples to determine if they could have a common origin. With larger pieces of glass, it may be possible to physically fit the pieces together (fracture match). These examinations require the collection of all glass pieces found.

i. Collection & Packaging of Glass Evidence:

   1. The shoes and clothing of suspects, as well as other objects which may have been contaminated with glass should be collected, marked and packaged separately to avoid cross-contamination. Package each item in paper bags or boxes.

   2. All glass at hit and run scenes should be recovered because more than one type may be present. In addition, if just a few representative samples are saved, individual pieces that could be physically matched may be overlooked. The search should not be limited to just the point of impact since other pieces may drop off at some distance away as the car or individual leaves the crime scene. Glass from different locations should be kept in separate containers.
3. Place small glass fragments in folded white paper; seal and mark the container. Refer to the section entitled “General Evidence Handling” for paper fold instructions.

4. Place large glass fragments in paper bags or boxes. Separate individual pieces with paper or tissue to prevent breakage or damage to edges during shipment. Large fragments can be marked with grease pencil, adhesive tape, or other labels, but this is usually not necessary if all are sealed together in a single marked container. When breakage direction determination is requested, it will be necessary to mark each glass piece prior to its removal from the window to designate inside and outside surfaces.

ii. Standards for Comparison:

1. Windows: If the evidence glass is large enough for physical matching of broken edges or comparing the fracture lines, surface abrasions, hackle marks, or contamination, the whole broken window is necessary. When physical matching does not appear possible and a broken window is large, the recovery of several samples of the window is usually satisfactory. Heat hardened or tempered glass is commonly encountered in glass doors and automobile side and rear windows. The well-known diced breakage of this kind of glass into typically small, rectangular beads makes physical matching impractical in most cases. Several pieces should be collected for comparison of physical properties with evidence glass.

2. Other Glass: When bottles or other glass objects are broken, recover all remaining glass. For example, glass on shoes of suspects may be compared with broken bottles at crime scenes, or glass found on a murder victim may be compared with a broken bottle used as a weapon.

iii. Value of Glass Comparison: Glass will have the greatest value as evidence only when fragments from two sources can be physically matched together. When this is possible, a common origin can be conclusively established even when the fragments are quite small. In the case of powdered glass and minute fragments, it can be
established that the material is glass and limited comparisons can be conducted. However, conclusive identifications as to common origin usually are not possible. Nevertheless, the latter type of comparisons will establish similarities or differences in samples and thus may prove significant.

iv. **Other Glass Studies:** Other studies of glass are sometimes of importance. In the case of broken windows or other glass sheets, it often is possible to determine the side to which the force was applied which resulted in breakage. When multiple fractures are present in glass, it also may be possible in some instances to prove the sequence of shots through glass when consecutive bullets penetrate glass from one or both sides. In all such instances, it is essential to have all remaining glass in a window, as well as fragments which broke and fell to the ground, available for study/examination.

**Paint:** Paint chips and fragments of other protective coatings like varnishes, sealers, lacquers, enamels, and plastics are frequently recovered at the scenes of burglaries, hit and run vehicle scenes, forced entries, etc. A determination of common origin is possible in cases where paint chips can be physically joined to form a fracture match. In most instances, only class characteristics can be compared between questioned and known samples. However, the value of a single paint chip or paint smear should not be overlooked.

i. **Hit & Run Cases:**

a. Paint may be transferred to the clothing of pedestrian victims. Examine all garments, with particular attention being paid to areas showing pressure, tears, or other contact.

b. Sometimes, chips of paint will be transferred to clothing. If these flakes contain several layers, and particularly if they came from a repainted car, such evidence may have more value when a suspect car is located.

c. Chips of paint may also be found on the ground near the point of impact. In some cases, it has been possible to physically match chips found at accident scenes with paint remaining on the suspect vehicle.
d. Obtain paint samples from all areas showing fresh damage on suspect vehicles. This is very important since the paint may be different in type or composition in different locations even though the color is the same. If the paint can be flaked off by bending the metal slightly, remove it in this manner. If not, chip the paint off, using a clean knife or razor blade. DO NOT remove the paint by scraping off individual layers. In every case, make certain that samples of all layers down to the metal are collected. Carefully wipe the blade of the knife before collecting each sample to prevent cross-contamination. Place each sample collected from different area in separate paper packets.

e. When cross transfers occur, always collect known, uncontaminated samples from each vehicle from areas immediately adjacent to each transfer collected. This is necessary for the laboratory to distinguish between the transferred paint and the paint originally present on the vehicle.

ii. Burglary Cases:

a. Tools used to gain entry into buildings or safes may contain traces of paint, as well as other substances such as plaster, safe insulation, etc. Care must be taken so that this type of trace evidence is not lost. If such transfers are thought to be present, wrap the end of the tool containing the material in paper and seal with tape to prevent loss.

In no situation should an attempt be made to fit the tool into the mark or the impressions. Doing this may damage existing evidence.

b. Collect specimens of paint from all areas which the tool may have contacted at the crime scene. These samples should include all paint layers present.

c. The tool itself may contain paint or other coatings, traces of which may be left at the crime scene. A careful search should be made of each tool mark for any such evidence.

iii. Recovery and Preservation of Paint Specimens:
a. Keep all samples collected in separate, size-appropriate paper packets. If the sample is very small or difficult to remove, send the complete exhibit to the laboratory.

b. Always chip or otherwise remove samples which contain *all layers* of paint or other material present if the complete exhibit containing the paint is not submitted to the laboratory.

c. Do not put paint chips on adhesive tape or loose inside an envelope. Package in paper packets, then secure in a larger package.

**Fibers:** Fiber comparisons are a sub discipline of *fracture matches.* Results of fiber comparisons are used as circumstantial evidence to corroborate testimony or other evidence.

i. Types of Fibers:

   1. Animal (Wool)
   2. Vegetable (Cotton)
   3. Synthetics (Nylon, etc.)
   4. Mineral (Fiberglass, etc.)

ii. Determinations can be made as to whether unknown fibers are of the same type, color, blend, along with any other unique, microscopic characteristics.

iii. Collection may involve preserving a single thread to cutting a 6-inch section from a carpet, rug, etc. Samples must have been collected and packaged in separate packages in a manner which will prevent contamination.

iv. Known or reference samples for comparison must be obtained and packaged to prevent contamination.

v. Samples may be collected by physically “picking” them off a surface, vacuuming, or adhesive lifting.

**Toxicology:**
Forensic Toxicology is the scientific area which deals with the extraction and identification of drugs or alcohol in biological specimens. The most commonly encountered in the LSP Crime Lab Toxicology Unit are cases requiring analysis of blood for alcohol content determinations and cases requiring analysis of bodily fluids for the presence of controlled dangerous substances. Contaminated foods and product cases are handled on an individual basis. Before submitting a case of this type, consult with laboratory personnel for specific information before you transport evidence to the lab.

i. A request for toxicological analysis should include:

1. Symptoms of individual or a copy of autopsy report. In a DWI investigation, the officer should include the individual’s physical state and results of any tests conducted to determine impairment. Information that may narrow the drug possibilities may also be helpful.

2. A list of all drugs found in possession of subject. These may be submitted to the laboratory as a CDS request in the drug unit.

ii. Specimens needed:

1. DWI Investigation: Even if an individual has submitted to a breath test, blood and/or urine samples may be collected.
   a. Blood
   b. Urine
2. Death Investigation:
   a. Blood
   b. Urine
   c. Stomach Contents (if an overdose is suspected)

iii. The approved BA/TOX kit **must** be used for preserving blood for
    blood alcohol analysis and/or for preserving blood and urine for
    drug screens. These kits are available at the LSP Warehouse near
    Headquarters (225-925-6008).

    **Make sure the kit you are using is not expired!**
iv. **Two tubes of blood must be collected if an alcohol level and a toxicology screen are requested.** The minimum amount of urine or other bodily fluid sample needed is 25mL. All samples present must be collected in the appropriate containers provided in the blood alcohol kit.

These guidelines **MUST** be adhered to when collecting blood or urine specimens for submittal to the Crime Lab for forensic toxicological analysis:

- Kit numbers found on the outside of kits, the Investigating Officer’s Report inside the kit, along with urine specimen containers and/or both vials for blood collections must match. If inconsistencies are detected by an officer before a sample is collected, discard the kit. Further, if such mistakes are detected once the specimen is submitted to the lab, analysis may not be able to be conducted.
  - **Kits MUST be used BEFORE their expiration date.**

- Evidence tape or opaque labels, tapes of any kind should not be placed over a kit’s expiration date. Please be aware of kit expiration dates’ locations so that labels or opaque tape are not inadvertently placed in a manner that prevents the expiration date from being seen once the kits has been utilized.

**Blood Alcohol Levels:**

Louisiana state law currently allows for two types of tests to determine ethyl alcohol levels in the human body:

i. **Blood:** The LA State Police Crime Laboratory oversees the blood alcohol program within the state, with the responsibility for certification of analysts and instrumentation used in forensic blood alcohol analysis by laboratories statewide.

   Precautions when collecting blood and/or urine:

   1. **Remember:**
      
      **Labeling accuracy is of the utmost importance.**
      
      Labeling errors are very common but very avoidable, so please check and re-check your specimen collections to ensure all information is accurate and as detailed as necessary before submittal.

      Make sure that vials/tubes of blood and the paperwork inside your evidence envelope are labeled with the EXACT same information: e.g. kit numbers, name of subject (first and last),
For example: For a female subject, do not use her first name and married surname on the tube of blood, while entering her first name and maiden name on the paperwork. Even the smallest inconsistencies can cause MAJOR problems/difficulties in processing your evidence analysis requests.

2. Please use biohazard labels in appropriate places to indicate the enclosed evidence is biological in nature.

ii. Collection Guidelines:

a. The proper collection and submission of specimens for toxicological analyses is of great importance if analytical results are to be accurate and their subsequent interpretation is to be scientifically sound and, therefore, useful in court. These guidelines can apply equally to investigations by Medical Examiners / Coroners and to investigation by law enforcement agencies.

b. For the purposes of blood alcohol\(^2\) analysis for potential DWI prosecution, only those blood alcohol kits approved by the Louisiana Department of Public Safety and Corrections may be utilized for such collections.

c. BA/TOX kits are provided free of charge, by LSP, for all state law enforcement agencies. Substituting any portion of these kits or use of another kit may invalidate the test results for legal purposes.

d. Blood may only be drawn by a physician, registered nurse, or qualified technician. Each qualified technician must be certified by an accredited licensing agency as a certified phlebotomist.

e. If a person is in a condition that consent can be given, he/she must be read and made aware of his/her rights relating to chemical tests used to determine intoxication.

f. Read the instructions found inside the BA/TOX kit.

\(^2\) BA/TOX
g. All information from the blood collection should be recorded on the investigating officer’s report, found inside the kits, along with the signature of the subject, in the allotted space on the consent form.

h. Blood must be drawn in the presence of a police officer, whose name must be entered on the Investigating Officer’s Report.

i. Immediately following the collection, the blood vials should be slowly inverted several times; this is done so that the blood will completely mix with the chemicals in the vial that prevent coagulation of blood and inhibits the growth of microorganisms capable of destroying alcohol.

j. The “Investigating Officer’s Report” should be as complete as possible. Remember to include the name and the title of the person taking the samples.

k. The chain of possession section should be completed if the samples changes hands at any times. This will ensure the evidence’s integrity is preserved at all times.

l. Adhesive seals found in the kit must be filled in with appropriate information. Seals are to be used to secure the stoppers to each vial and the sample box.

m. Syringes should NOT be included and/or returned in the kit. Please dispose of these properly at the medical facility where the blood sample is collected.

n. If delivery to the Crime Lab is not immediate, the kit must be placed in a secured location (i.e. locked storage area) within twenty-four (24) hours of the collection.

If possible, refrigerate the sample, though, this is not required to preserve the sample before toxicological analysis. BA/TOX kits should not be stored in such cold temperatures that solidification of the sample could occur, possibly resulting in breakage of the glass vial.
Also, NEVER leave blood kits on the dashboard, glove box, or trunk of car at any time of the year.

o. Kit(s) must be submitted to the Crime Lab within ten days after their initial collection. A completed RSAF (DPSSP 4606) must accompany the kit(s). Several kits (up to twelve) associated with one case may be listed on one RSAF.

p. In addition to the items indicated on the forms to be filled in, also include the driver’s license number of the subject, the state the driver’s license was issued in, and the state computer number found on the accident report. Also, indicate if the subject is deceased.

q. Sealed BA/TOX may be submitted to the LSPCL via Registered Mail (USPS), FedEx, UPS, etc. When mailing, please make sure the absorbent pad is placed in the box holding the sample vials, and place that box inside the plastic bag. This can then be placed inside the cardboard shipping container.

The RSAF should also be completed and placed in the cardboard box. Another alternative is to place both the cardboard box and the form in a large mailing envelope.

r. When BA/TOX kits are received at the Crime Lab, they are handled in the standard procedure of evidence submitted to the lab. In accordance with the rules and regulations for blood alcohol analysis, blood alcohol kits may be destroyed after one year. Photocopies of the label from the kit along with the specimen containers (labels showing) should be made. The original of the consent form may be retained.

iii. **Breath:** The breath testing program is under the jurisdiction of the State Police Applied Technology Unit. They should be contacted at the State Police Training Academy for the certification of breath alcohol operators and for the maintenance and certification of breath alcohol testing instrumentation.

The rules and regulations for testing procedures for blood and breath alcohol levels are different. These rules are published in
the Louisiana Register. Refer to this publication for specific details as they are constantly being revised.

**Alcohol Content:** Alcohol content analysis quantifies the amount of ethyl alcohol present in a sample suspected to be an alcoholic beverage. R.S. 32:300 defines alcoholic beverage as any beverage containing 0.5% or more alcohol by volume. There are many other laws regarding the consumption of alcoholic beverages in motor vehicles, in public areas, and possessing an open container in a motor vehicle. Requirements for submitting samples of suspected alcoholic beverages for analysis are as follows:

i. The minimum amount of sample needed for analysis is 1.0 mL  
ii. The sample must be contained in a leak resistant plastic container such as a Nalgene, Fisher, VWR or equivalent brand of liquid storage container  
iii. Glass or plastic beverage containers are not recommended due to high propensity for leaking.  
iv. The container with the liquid must be placed into a properly labeled and sealed plastic or paper evidence bag or envelope.
CODIS:
The Louisiana State Police Crime Laboratory participates in the Combined DNA Indexing System (CODIS), which is maintained by the Federal Bureau of Investigation (FBI). This allows for searching of qualifying samples within the State DNA Indexing System (SDIS), as well as across the nation via the National DNA Indexing System (NDIS). These databases allow the searching of forensic samples against each other in an attempt to link cases. Forensic samples are also searched against offenders’ samples in an attempt to link an offender to a crime. When cases are linked to one another, this is termed a “hit.”

Offender DNA samples should be submitted to the LSPCL for CODIS database entry and maintenance. Offender samples maintained in the database are not intended for court purposes but only for searching and supplying investigative leads. These DNA samples, submitted for the purposes of entry into the LA arrestee and convicted offender cataloguing system, are NOT considered evidence samples and do not take the place of a suspect reference sample in forensic cases. Offender DNA Collection kits should NOT be used for forensic case reference samples, the collection of DNA at a crime scene, or in any other manner. If reference samples are submitted using these kits, they may be rejected by the Crime Lab.

The following pages include information regarding agency responsibility in collecting arrestee and convicted offender DNA samples. Please consult someone within the DNA Administrative Unit of the Crime Lab if you have questions.

i. Arrestee DNA Collection Kits:

a. Provided upon request to law enforcement agencies, collection kits are shipped in sets of 100, and each kit possesses a unique barcode identification number.

b. Each arrestee DNA collection kit contains instructions for use, gloves for the collector’s protection, two collection swabs, an evidence envelope to enclose subject’s DNA swabs, a red tamper-proof evidence seal, and three small barcode stickers, all marked with duplicated identifying numbers, along with one postage paid manila envelope, used for returning the collected DNA sample and all necessary paperwork.
ii. **Convicted Offender (CO) DNA Collection Kits:** Provided upon request to law enforcement agencies, these kits are shipped in sets of 100 and possess a unique barcode identification number.

a. Inside the CO kit, the collector should find:
   1. one set of rubber gloves
   2. one “FTA® Classic Card” with the affixed barcode* (found on the front center portion of the card)
   3. one “DNA Database Information & Collection Card”, also with an affixed barcode* in the bottom left corner, and a blank square where the subject’s thumbprint is placed.

   *The collector should ensure **EXACT** matches on the above noted barcode numbers.

   4. one alcohol pad
   5. one small needle, encased in durable orange plastic, used for pricking the subject’s finger to acquire the small amount of blood necessary
   6. one thick plastic bag for enclosing the blood sample once it is collected
   7. one adhesive bandage
   8. one durable postage paid business reply envelope, which has an orange biohazard label.

Instructions for the collection of Arrestee and Convicted Offender samples are included in each collection kit. If questions arise, please contact an LSP Crime Lab CODIS Unit Supervisor for assistance.
Submitting Evidence to the Crime Lab:

**Crime Lab Incinerator:** The incinerator is available on a first come, first serve basis for agencies that need to use it. A Destruction Order for the evidence must be obtained independently by the agency requesting evidence destruction—this is done by contacting your local District Attorney’s Office. Agencies are responsible for maintaining their own chain of evidence, and following their own policies and procedures for evidence destruction. Crime Lab personnel are responsible for operating the incinerator.

*The LA State Police Crime Lab does not conduct evidence examination services for private individuals or corporations.*

For step by step information about filling out your Request for Scientific Analysis form please consult the document on our website[^3] entitled “Guidelines for Submitting Evidence.” The following section will contain similar information but will be more detailed in nature, including a checklist to complete before submitting case evidence to the Crime Lab for forensic analysis.

All evidence submitted to the Crime Lab must be accompanied by a Request for Scientific Analysis Form (RSAF-DPSSP 4606). These forms may be obtained from the Crime Lab Evidence Receiving Section or on the LA State Police Crime Lab website. All information on the form must be completed. Typed forms are preferred; however, legible handwritten forms are acceptable.

*Forms that are illegible or missing the required information will NOT be accepted.*

i. **Rush/Emergency Analyses:** These are conducted in justifiable situations, and such a request should specify the reason and deadline of the request, and whether a verbal result is requested before the written report is issued.

a. Please ensure that all evidence submitted is sealed, packaged, and labeled correctly.

b. For reference purpose, please review the sections in this guide that are applicable for the evidence type submitted and/or the section titled “General Evidence Handling.”

[^3]: [www.lsp.org/crimelab.html](http://www.lsp.org/crimelab.html)
ii. **General Guidelines for Submitting Evidence:** Listed below are the general guidelines for submitting evidence to the Crime Lab for analysis. Please contact evidence receiving personnel with any questions.

   a. Evidence previously examined by another laboratory will not be accepted for forensic analysis.

   b. Splitting of evidence is discouraged. All evidence involved in an investigation should be submitted to the same laboratory (unless special circumstances arise).

   c. All evidence submitted to the Crime Lab for forensic analysis must comply with the guidelines set forth in this handbook. Any evidence that does not comply with these guidelines will not be accepted. Exceptions may be made on a case-by-case basis by Unit Supervisors or Managers.

   d. If additional evidence in a case is brought the Crime Lab for analysis after the initial submission, the officer should inform evidence receiving personnel, and note this on the submittal form by checking the box (upper right corner) labeled “Additional Evidence.” This will insure that the same LSP Crime Lab case number will be assigned to the evidence, and, if possible, the same analyst will perform the requested forensic examination(s).

   e. Any evidence submitted to the Crime Lab must be properly sealed prior to acceptance by the lab. Any openings must be covered with evidence tape. Intact manufacturer seals do not need to be sealed with evidence tape. The person sealing the evidence should initial / date each side of the seal. The writing should cross the evidence tape onto the container’s surface, so that any attempt to tamper with or alter the evidence in any way would be detected.

   f. All evidence should be submitted in the appropriate size packaging. Individual sealed evidence packages may be consolidated into larger “Convenience Packs” that need not be sealed.

   g. When delivering large amounts of evidence to the Crime Lab, please limit the weight of any one container.

   i. Prior approval must be obtained from the Evidence Supervisor or Drug Unit Supervisor for the delivery and submission of drug evidence with a gross weight in excess of fifty (50) pounds.
h. Syringes will not be accepted without prior approval from the Drug Unit Supervisor.

i. Any biological evidence or evidence which may have been exposed to biological substances (e.g. human blood, feces, etc.) should be marked with biohazard labels.

j. All biological specimens (vials of blood, urine, etc.) must be packaged securely and properly labeled.

iii. Delivery of Evidence to the Crime Lab:

a. Personal Delivery: This is the most reliable method of getting evidence to the Crime Lab. The importance of the chain of custody regarding the handling of physical evidence cannot be overemphasized. The chain of custody should include as few people as possible.

Please contact the Evidence Receiving Section at 225.925.6223 to schedule an appointment for evidence submission.

b. By USPS, UPS, FedEx or another carrier: Any evidence sent by any of these couriers must be clearly labeled with biohazard labels, if necessary, and must meet carrier regulations, and must be properly sealed and packaged according to agency and Crime Lab guidelines. Additionally, the shipping should be tracked to ensure delivery.

i. Evidence that should not be sent via USPS, UPS, FedEx, or another carrier: Any evidence with a request code of CDS or MJ will not be accepted via couriers. If for any reason, drug evidence will be mailed or sent via courier, the drug section supervisor and/or manager must approve of this delivery in advance of it being sent. This evidence shall also adhere to the other regulations that govern sending evidence via couriers (section iii, subsection b).

Note: If loaded guns or live ammunition of any sort MUST be shipped, prior permission should be obtained from the Crime Lab Evidence Receiving Unit supervisor and/or the Firearms section supervisor. The US Postal service does NOT allow such items to be shipped, but FedEx does with prior notification and approval.
FedEx regulations regarding the shipment of firearms can be found here⁴. (Click on “Firearms” to view the entire list of regulations.)

⁴ If you are viewing this document in MS Word, press CTRL while simultaneously clicking “here.” The URL is: http://www.fedex.com/us/terms/express-ground/index.html