Rhode Island State Crime Laboratory

Operations – Submission Manual

LABORATORY SERVICES AND REQUIREMENTS FOR SUBMITTING EVIDENCE

Date: 12/1/06 REV. 1 Approved:

INTRODUCTION

The Rhode Island State Crime Laboratory had its beginnings in 1949 with the arrival of Dr. Harold C. Harrison at the University of Rhode Island's Department of Chemistry. Dr. Harrison had a passion for applying science to police investigations. He first offered his expertise, to the South Kingstown Police Department, in a breaking and entering case in which he matched glass from a store-front window to samples of glass found in the pant-leg cuffs of a suspect.

Dr. Harrison's unique interest developed into "The Laboratories for Scientific Criminal Investigation", where he provided his expertise to law enforcement throughout the New England area. In 1952, Dr. Harrison began teaching law enforcement officers the "how to" aspect of scientific criminal investigations. In 1953, twenty-eight of Rhode Island's "Top" Police Officers graduated from that program. The Attorney General, in 1958, officially acknowledged the Laboratory as a valuable resource to the criminal justice system.

While working at the University as both a Professor of Chemistry and the Assistant Director of the Laboratory, Dr. Harrison developed many contacts with other faculty. He sought assistance from colleagues in many cases. Two key contacts were Dr. Heber Youngken, Dean of the College of Pharmacy and Dr. David R. DeFanti, a professor of Pharmacology and Toxicology.

In 1969, Dr. Harrison suffered a stroke and died a few days later. At that time, Dean Youngken proposed shifting the Laboratory from the Chemistry Department to the College of Pharmacy. Dean Youngken became Director in 1970 and Dr. DeFanti became the Assistant Director. In 1971, Dr. DeFanti became the Director of the Laboratory. The Laboratory by this time was operating under grants from the Law Enforcement Assistance Administration (LEAA). Dr. DeFanti hired a full-time examiner for trace evidence examination.

With the elimination of the LEAA grants, which the Laboratory had relied upon for funding, legislation enacted in 1978 created a State Crime Laboratory Commission and the State Crime Laboratory at the University of Rhode Island.

In 1980, the State of Rhode Island, through the Department of the Attorney General, received a grant from the Federal Government to improve the prosecution of arson cases.

This provided the laboratory an opportunity to purchase new equipment to examine this type of evidence and to add a third examiner to the staff.

In 1992, Dennis C. Hilliard became Acting Director/Adjunct Assistant Professor of the Rhode Island State Crime Laboratory (RISCL). In 1995, he became Director/Adjunct Assistant Professor of the RISCL and to date is the current Director of the Laboratory. As the need for additional forensic services increased, along with the state's population, the RISCL has grown. Currently, the RISCL employs 12 scientists and support staff. These dedicated professionals perform scientific testing and services on several thousand exhibits each year.

The RISCL has defined its customer base as all appropriate agencies investigating evidence relating to federal, state or local crimes. The RISCL is committed to meeting the needs and expectations of all of our customers utilizing a philosophy of quality and service.

The goal of the RISCL is to provide our customers with scientific results and administrative services in a useful time-frame. This booklet is designed to make the process of submitting evidence to the RISCL easier, safe and more efficient. Although this manual is a comprehensive guide, additional section specific guidelines may exist. Should you require additional information or guidance, please call the Laboratory at 401-874-2893 for assistance.

HOURS OF OPERATION:

Laboratory hours are from 8:30 a.m. to 4:30 p.m., Monday through Friday. Evidence may be submitted and/or retrieved between 9:00 a.m. and 4:00 p.m., Monday through Friday.

LABORATORY LOCATION:

220 Fogarty Hall
41 Lower College Road
Kingston, RI 02881-1966

Telephone: 401-874-2893 FAX: 401-874-4868

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SERVICES

The RISCL offers a range of scientific services for all appropriate agencies investigating evidence related to federal, state or local crimes. Not all services are available onsite and services offered may change from time to time depending on the availability of scientific expertise. However, evidence may be delivered to the laboratory for transfer to the appropriate laboratory which does offer the requested service(s).

SERVICES PERFORMED BY THE RISCL **PAGE NO.**

FUNCTIONS OF THE RHODE ISLAND STATE CRIME LABORATORY

In accordance with the State of Rhode Island General Laws, Title 12 Criminal Procedure Chapter 12-1.2, §12-1.2-3 Functions of the state crime laboratory. - The state crime laboratory shall be responsible for:

- Technical services - examine and evaluate physical evidence collected at the scene of a crime or related to a crime.
- Examine evidence upon submission by the state and local fire departments and law enforcement agencies.
- Assure the safe custody of that evidence.
- Submit written reports of the results of examinations of evidence to the agency.
- Request the services of qualified consultants when necessary.
- Furnish expert forensic testimony.
- Assist in crime scene processing.
- Offer a training course in scientific criminal investigation each year to all state and local enforcement divisions.
- Offer in-service courses in specialty areas of criminal investigations.
- Upon request, conduct training with police science for state and local Police Academy classes.
- Conduct ongoing research in the areas of forensic sciences.

FEES

The RISCL is funded through the budget of the Office of the Rhode Island Attorney General. The RISCL does not charge a fee for cases accepted for examination by the Laboratory staff.

EVIDENCE SUBMISSIONS

All submissions of exhibits should be connected to criminal investigations. No evidence will be analyzed for private individuals or corporations.

Several methods may be used to submit evidence to the laboratory. The method selected will depend upon the type and size of the item, the urgency, and the complexity of the case. At this time, the RISCL **does not accept any evidence by email submission**.

Whatever method is used, the officer/submitting agency must take care to ensure that the evidence will not be lost, damaged, or contaminated and that the chain of custody will be as short as possible. It is equally important to recognize and observe that proper **safety**

precautions have been used at all times not only in the collection of evidence but also when submitting evidence to the RISCL.

The following describes the general requirements for submitting evidence to the laboratory. Other special instructions will be given in each service area. Please refer to these instructions before submitting any evidence.

******* IMPROPERLY PACKAGED ITEMS WILL NOT BE ANALYZED*******

GENERAL REQUIREMENTS FOR SUBMITTING EVIDENCE

CASE DOCUMENTATION

The **RISCL Evidence Examination Request (or equivalent) is required** each time evidence is submitted to the laboratory. The submitting agency is responsible for filling out the information on the request prior to submitting evidence to the laboratory. A **copy of the Incident Report must be provided on all cases**. To ensure the best laboratory service for each case type, it is important to supply information as to the significance of the evidence in relation to the crime. A lengthy narrative is not necessary but it must be informative because this is a source used by the scientist(s) to help make decisions regarding case priority and type or extent of testing. A duplicate investigative summary (or incident report) is not necessary for subsequent submission(s) unless additional investigative information is available. **Submitting information** must be **COMPLETE AND LEGIBLE.** Refusal to submit an incident report by the submitting agency will be documented and handled on a case by case basis via the Director of the RISCL.

IDENTIFYING, PACKAGING, MARKING, and SEALING for DELIVERY

It is important that **all items** of evidence be **IDENTIFIED** on the **outside PACKAGING** as to the: **item identification number, submitting agency offense (case) number, evidence description, location (if applicable), date collected, and time of collection (if available)**. **SEALING** of the outer containers, along with the **INITIALS** of the sealing officer, is **mandatory.** It is recommended that the seal be

dated as well. Adequate labeling is essential not only for RISCL laboratory applications, but also vital for usage in court.

Items are to be **individually packaged**. The individual items enclosed in packages should bear the initials or personal mark of the officer/agent for adequate identification and chain of custody. Packages should be maintained in a cool, dry location prior to submission to the RISCL. Any special storage requirements are described in the specific service areas. In many instances, it is necessary to place each item in a separate container to prevent cross contamination. Containers should be appropriately selected for each evidence type, adequately labeled, securely closed, and sealed with a tamper evident seal (example: tamper-proof evidence tape, tamper-proof seal, or heat seal). **NO STAPLES.** A **proper seal** is accomplished by using one of the above-mentioned examples on any openings in order to prevent loss or alteration. Remember: **all seals must be initialed**. It is recommended that the seal be dated as well.

All paperwork must contain the following information:

Case Type/Offense
Submitting Agency (Name)
Case Officer
Submitting Agency Case Number
Incident Location
Incident Date
Suspect and/or victim name(s) if available
Agency Evidence Item number(s)
Evidence description
Service(s) requested

The RISCL Evidence Examination Request, Incident Report, and any other information should be attached to the **outside of the sealed package** so that it may be examined without breaking the seal on the evidence package. This allows the analyst to receive the evidence in a sealed condition. For cases in which more than one section of the laboratory will be examining evidence, package the evidence separately for each section whenever possible. Specific packaging requirements are given later for individual services.

**********INCOMPLETE LABELING WILL DELAY TESTING**********

SAFETY CONSIDERATIONS in PACKAGING

Biohazards:
All biohazards must be in a leak-proof container that will contain all contents and prevent leakage during handling, storage, and transport. Biohazards that are mailed must be in leak-proof packaging with absorbent material. The primary container must be placed in an outer shipping container with secondary leak-proof materials. The biohazard warning symbol and label must be applied to the outside of the container. The packaging and marking requirements for biohazard evidence are based upon the OSHA Bloodborne Pathogen Standard, CFR Title 29, 1910.1030 and on Postal Regulations, Domestic Mail Manual 124.383.

Warning Labels:

Warning labels are **required**. Note any warning on the package. For example:

- Warning: Biohazard
- Warning: Hepatitis or HIV Positive
- Warning: Glass
- Warning: Sharp

Firearms:

All firearms **must be unloaded** prior to submission to the lab. If the case warrants leaving the cartridges in the gun, prior arrangements must be made and some type of note, sign, etc. indicating "Loaded Weapon" must be applied before hand-delivery.

Hazardous Chemicals:

Flammable and other hazardous chemical materials must be delivered in person.

Syringes:

Syringes may be valuable pieces of evidence in some cases. Therefore, in life threatening situations, they are accepted by the laboratory for analysis. However, for safety reasons, syringes must be submitted with the needles removed. Removal of the needle is the responsibility of the submitting agency/officer.

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DELIVERY IN PERSON

Evidence may be delivered in person between the hours of 9:00 a.m. and 4:00 p.m. Monday through Friday. Prior arrangements must be made with the laboratory for evidence delivered at other times.

MAILING/COMMON CARRIER

When submitting evidence by mail (U.S. Postal Service) or by common carrier (UPS, FedEx, etc.), **tracking is required.** Evidence must be receipted by a RISCL agent. It is recommended that any evidence sent via U.S. Postal Service be sent by certified/registered mail and return receipt. ***Important* All submissions by mail/common carrier must follow the general requirements for submitting evidence to the laboratory (i.e. case documentation, identification, packaging, marking and sealing) before being placed in mailing envelope, box etc.** Please call the RISCL with any questions.

Note: The U.S. Post Office will not transport human remains or body parts. Evidence, with some exceptions, may be sent by common carrier to the laboratory. Commercial carriers have additional regulations and must be consulted regarding their individual requirements.

RETURN OF EVIDENCE

In most cases, evidence will be only temporarily stored in the laboratory system until all services have been completed. Upon completion, evidence will be returned to the submitting agency. The submitting agency will be contacted by telephone or U.S. Mail to retrieve evidence. To expedite evidence pick-up, please call ahead.

A submitting agency may elect to have evidence "destroyed" instead of returned (Firearms evidence is not eligible for destruction). The destruction option is available by **written authority only**, forms available upon request. The submitting agency must return, to the RISCL, a signed and dated *Permission to Destroy Evidence Form* (OPS FORM 8). Evidence will be destroyed by the RISCL upon receipt of proper documentation.

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SERVICE REQUESTS

All evidence submitted for scientific analysis must have a service requested in writing on the RISCL Evidence Examination Request. Some evidence requires only one service (e.g. NIBIN entry); however, other evidence may require more than one type of scientific investigation. It is important that **all services** required for a complete analysis be requested by the submitting agency to ensure that the evidence is submitted for the appropriate analyses. Coordination of these service requests by the laboratory is necessary to prevent damage or loss of evidentiary value. For example, it is important to carefully evaluate any stain with an apparent pattern, particularly a bloody fingerprint. In this instance, the information derived from the latent print service could have more significance than the potential serology result.

REPORTS

The results of scientific testing are provided through the RISCL Official Reports. The reports are signed by the analyst(s) performing the examination(s). RISCL Official Reports are not official unless signed. A separate report will be issued for each service under the same RISCL case number if multiple services were requested.

FIREARMS

The Firearms Section is dedicated to providing reliable scientific support to all law enforcement personnel. Services are provided at both the investigation and trial preparation stages of criminal cases involving the use of a firearm or other tool.

The firearms section is a versatile, well-equipped unit offering a number of services that can be useful to investigators. The section can determine:

- The type of firearm that a particular bullet or cartridge case was fired from.
- Whether a bullet was, or could have been fired, from a suspected firearm.
- Whether a cartridge case was, or could have been fired, in a suspected firearm.
- Whether a tool found in a suspect's possession was, or could have been, used to cut, scrape, pry, or pinch evidence material seized from a crime scene.*
- The original serial number of a firearm or other metal object after the number has been obliterated.
- If gunpowder is present on a victim's clothing or on other evidence that may have been the target of the suspect.
- The distance from the muzzle of the firearm to the target at the time the firearm was fired.**
- Firearms submitted in criminal cases will be test fired and cartridge cases from those firearms will be entered into the IBIS SYSTEM.

** Tools found at the scene of a crime that cannot be associated with a suspect* ***will not*** *be examined.*
No muzzle-to-target distance tests can be done without the firearm that was involved in the shooting.* ***Note: It cannot be determined "how long" it has been since a firearm was fired.

Many other miscellaneous examinations may be performed at the request of the customer. Examiners in the Firearms Section may conduct other testing that is of special interest to an investigator. Such requests may be made at the time of evidence submissions or by phone.

Collection and Submission of Evidence:

The following are general requirements for officers and other law enforcement personnel for collecting and submitting evidence to the Firearms Section. As in all cases, common sense should be used when attempting to protect the integrity of evidence as well as the insuring the safety of those who will handle the evidence.

Firearms

Firearms should be collected carefully so that no parts of the gun are damaged. Officers should make sure that nothing comes in contact with either the inside of the barrel or the breech face, which is where the head of the cartridge rests before firing. If a firearm(s) in question is to be examined for fingerprints or swabbed for DNA samples, it should be carefully handled and not touched by the evidence officer.

Weapons Recovered from Water

Weapons removed from **fresh** water **must** be contained in the same water. Small lunch coolers work very well for handguns. In the event that a rifle or shotgun is removed from a lake or pond but can't fit into a container, the firearm should be sprayed heavily with WD-40 or other lubricant and taken to the Firearms Section as soon as possible. The slightest bit of rust to the inside of the barrel will alter the individual characteristics necessary to make identification. If the gun is removed from the water, it must be oiled, making sure that the inside of the barrel is sprayed or filled with oil. This will slow the oxidation process. Weapons removed from **salt** water should be rinsed, heavily oiled and brought to the crime laboratory. Heavily bloodstained weapons should be packaged in bags with a biohazard label. (**Note: Do not use plastic bags**)

Protecting the Weapon from Damage

Do not insert foreign objects into any part of the gun such as the barrel or ejection port. In the event the gun will be dusted for fingerprints or super glued, block both ends of the barrel gently with tape. This will prevent residue from building up inside of the barrel. Loaded firearms will not be accepted at the RISCL unless the following conditions are met:

1) It is imperative that the weapon not be disturbed prior to laboratory examination.

NOTE: If it cannot be determined that a weapon is not loaded, said weapon will be treated as a "loaded firearm" and the sections below describing transportation of a loaded firearm will be followed.

2) The firearms section will be contacted and the circumstances explained.
3) The firearms section will notify the Laboratory Director and seek his/her approval for delivery of said "loaded firearm".
4) The "**loaded firearm"** will not be delivered to the laboratory until the firearms section is contacted **and a date and time for delivery is approved.**
5) Said **"loaded firearm"** will be received only by a firearms examiner within the RISCL.

Do not dry fire or work the action of any weapon that is to be submitted to the crime lab. Leaving empty cartridge cases in the chamber of a revolver when submitted might assist the examiner in determining from which chamber the round was fired. In these circumstances, the **firearms section must be contacted** and the situation explained to the firearms examiner **prior to submitting the evidence** to the RISCL.

Bullets, Cartridge Cases and Cartridges

When bullets and cartridge cases are submitted for analysis, they must be described and entered into evidence separately. Therefore, **bullets and cartridge cases should be individually packaged** in their own envelope or other small container.

- Do not mark or engrave any surface on a bullet or cartridge case as this may damage individual characteristics. If evidence must be marked, mark the container itself.
- Do not let any metal object such as forceps, knives or screwdrivers come into contact with a bullet. Metal objects will scratch the surface and alter the markings used for identification.
- Be sure to collect any wads or pellets in cases involving a shotgun. Many times a wad can be matched to the barrel of a shotgun, especially if it has a sawed-off barrel.

Clothing

Clothing submitted to the Firearms Section to be checked for gunpowder should be packaged in a paper bag or box. Do not package wet or bloody clothes until they have

air-dried. Wet clothes will mold, making them difficult to examine. Inform the firearms examiner of how the layers of clothing were worn in order to assist in determining the path of the bullet. This information should be written on the evidence bag. The Firearms Section also performs muzzle-to-target distance determinations. In order to perform this service, the gun identified as being used in the shooting must also be submitted. If no gun has been seized, the examination will be limited to a search for gunpowder or a gunpowder pattern.

Automobiles

If it is necessary to have a firearms examiner examine a car or other vehicle associated with a gunshot or gunshots, the vehicle shall be secured at an indoor location by the requesting agency. The Director of the RISCL will then be contacted and a request made for examination of the vehicle. Examination of glass fractures can be critical; therefore, all precautions should be taken not to further fracture any glass on the vehicle.

Integrated Ballistic Identification System (IBIS)/ National Integrated Ballistic Information Network (NIBIN)

The Integrated Ballistic Identification System (IBIS) is a highly technical, computerized image analysis system that allows firearm technicians to acquire, digitize, and compare markings made by a firearm on bullets and cartridge cases. The National Integrated Ballistic Information Network (NIBIN) is a network that enables law enforcement agencies to discover links between crime comparing the evidence regionally and with the option to search nationally the growing database of images. Bullets and cartridge cases recovered from victims and crime scenes are imaged into the database and correlations are performed against test fires from confiscated weapons used in the commission of a crime and other evidence cartridge cases from other incidents/crimes. The images from the test fires are compared against the evidence cartridge case database. These images are compared in a few seconds, an impossible task for a firearms examiner using conventional procedures. These images are correlated by the IBIS system and given a score as to a possible match. The results of this correlation are called High Confidence Candidates, or HCCs. The firearms examiner makes a final determination of a positive match which then becomes a Hit. The RISCL will notify the submitting agency if a Hit occurs. Further investigative and legal actions may be taken at the discretion of the designated law enforcement agency.

LATENT PRINTS

Latent Prints are among the most valuable and common types of physical evidence. All objects at the scene of the crime should be considered as possible sources of latent prints that may lead to identification of the offender. By examining the evidence submitted, the laboratory may be able to:

- Determine the presence of latent prints
- Determine if the latent prints are identifiable
- Compare and identify latent prints with the known exemplar prints of suspects and with others for eliminating purposes
- Establish the identity of unknown persons
- Identify the latent print via the Automated Fingerprint Identification System (AFIS)

Collection and Submission of Evidence:

Evidence should be submitted for examination as soon as possible after its recovery. Cotton gloves should be used to pick up items of evidence, being careful not to wipe possible latent prints off the surface. Never wrap nonporous items in cotton or cloth – they damage or destroy the latent impressions.

Packaging/Identification

Exhibits being forwarded to the laboratory should be initialed and dated for identification. It is important **not** to place the marks in an area that would obliterate latent prints. If insufficient space exists for initialing, the item may be tagged or placed in a bag and properly marked on the exterior. **Identify all evidence, indicating if it is an original article, a lift, a photograph, a photographic negative, or a digital image. All photographic and digital images of latent prints must include a scale.** Put developed latent lifts in envelopes, mark, and seal. Mark the packaging "Latent Prints Evidence" and with the biohazard symbol if it contains bloodstained evidence.

Any number of paper specimens containing latent prints may be placed in a single container for transmittal. These may be protected by either of the following: place them in manila envelopes or plastic folders; put them between stiff cardboard; or wrap them in a box.

Secure large articles containing latent prints with string or wire to a rigid surface to prevent shifting and contacting other items.

Exposure to water or dampness does not necessarily destroy all latent prints. Any wet or damp object must be air dried before it is packaged for shipment.

Items of evidence which are to be examined for latent prints should be submitted to the Latent Prints Section, **before** submitting to any other section(s) **except** the Trace Evidence Section.

If items have been processed prior to submission to the RISCL, package those items to prevent smudging of the latent prints or possible breakage. Also, **a notation must be placed on the evidence package(s) indicating prior processing.**

Submission of Latent Prints for Comparison

Submission of latent print(s) may include original article, a lift, a photograph, a photographic negative, or a digital image. Photography shall include traditional based film or digital technology. Digital photographs and scanned images shall be recorded at a minimum of 1000 ppi. **Latent print images** (photographed or scanned) **must include a scale**. If at all possible, it is recommended that the item of evidence from which the latent print(s) was obtained, also be submitted to the laboratory.

Submission of Known Exemplar Prints for Comparison

Known exemplar prints for comparison with latent prints may be submitted with the evidence. Photocopies of prints may be submitted. If known exemplar prints are not available, the investigator may name the person(s) for comparison, and an effort will be made to locate the prints in the RI Attorney General's Office BCI files. All descriptive data available pertaining to the individual should be listed. **Treat all known exemplar print cards as evidence,** seal, and package with a completed RISCL Evidence Examination Request and an incident report.

Often latent prints found at the scene of a crime involve areas of the palms, second and third joint of the fingers, and the finger sides and tips. For this reason, the investigator should take complete major case prints of all the ridges on the hands of subjects and persons known to have legitimately handled the evidence (elimination prints) to permit

comparisons. Palm prints should always include prints of the lower finger joints, as well as an extra print of the outer edge of the palm.

Identifying the Deceased

In order to identify a deceased subject, known exemplar fingerprints and palm prints should be taken for comparison purposes. Complete major case prints along with footprints should routinely be taken of deceased subjects for potential investigative purposes. If legible prints cannot be obtained, please contact the Latent Prints section for further instructions.

Automated Fingerprint Identification System (AFIS)

The Automated Fingerprint Identification System (AFIS) is a computerized system capable of reading, matching, and storing fingerprints and palm prints for every criminal justice agency in the state of Rhode Island. AFIS-quality latent prints are entered into the AFIS to search for possible matches against the state-maintained database of known exemplar print records.

By examining the evidence submitted, the laboratory may be able to determine the presence of AFIS-quality prints on the evidence, photographs, latent lifts and/or negatives for possible AFIS search. RISCL will notify the submitting agency of the AFIS search results.

Unidentified Latent Prints

Entry of unidentified latent prints into the AFIS unidentified latent database will be determined by the quality of the latent print(s) submitted and the particular criminal offense. Unidentified latent prints of good quality entered into the unidentified latent print database will be compared daily to new print records being added to the main print database. If identification is made, the RISCL Official Report will notify the submitting agency.

If the submitting agency later identifies any latent prints submitted to the laboratory for an AFIS search, or the case concerning the latent prints is cleared for any reason, the agency should notify the laboratory so that these latent prints can be purged from the database.

TRACE EVIDENCE

Trace evidence examinations encompass a wide variety of evidence types that include trace (transfer) evidence, fractured materials (physical matches) and impression evidence (footwear and tire).

Trace (Transfer) Evidence

This category of evidence includes materials that are often microscopic in nature and are readily exchanged between people, places and objects upon contact. Examples of this type of evidence include hair, fiber, glass, paint and plastic. Examination of questioned and known materials can determine whether samples could (or could not) have the same source of origin.

Fractured Materials (Physical Matches)

It is possible to examine any broken, torn or cut items to determine whether or not they were at one time a single, intact item. This type of examination can determine if evidence did originate from one particular source.

Impression Evidence

In many instances, footwear and tire impressions can be positively identified as having been made by a specific shoe or tire.

Submission of Evidence:

Trace evidence may not be visible to the naked eye; therefore, special care must be taken to preserve it and prevent loss or contamination. Whenever possible, submit the entire item suspected of bearing trace evidence. All trace evidence must be collected by the RISCL before items are processed for latent prints.

- **All trace evidence must be submitted to the laboratory in a sealed and labeled condition** or otherwise protected from loss of sample or contamination unless the evidence precludes reasonable likelihood of loss or contamination. Tape that forms a tamper-proof seal or heat-seals is an acceptable sealing method with initials of officer across the seal. A seal is defined as a complete closure that will prohibit the loss or contamination of microscopic evidence. Closed

envelopes or bags, stapled bags, containers with unsecured lids and short pieces of tape along one portion of a fold do not constitute properly sealed evidence.

- Enclose **small items** (e.g. hairs, fibers, paint scrapings or glass fragments) in properly labeled and sealed paper folds, gel-lifts or other appropriate packaging material. Enclose the paper fold or gel-lift in a sealed outer container such as an envelope or plastic bag.
- Do not put clothing, damp items or items bearing biological evidence in plastic bags. **Each piece of evidence must be packaged separately**. Exceptions to this would include clothing from a single individual or several broken items from a single crime scene (e.g. broken glass from a single window or broken plastic from a hit-and-run scene). Clothing and bed linens from suspect and victim must be handled and packaged separately to avoid cross contamination. Some trace evidence can remain airborne for long periods of time and cross contamination can occur if extreme care is not taken in the handling of these items.
- **All items must be clearly labeled** with a description of the contents, location where collected, date and time of collection, investigator's name and agency, case number, and exhibit number.

Gunshot Residue Kits

Gunshot residue kits should be processed as instructed in the kit and sealed with tape. The name of the person or object that was sampled should be written on the outside of the package so that there is no need for opening at the time of submission. Only GSR kits approved by the crime laboratory will be accepted. These are available directly from the manufacturer.

Tools for Toolmark Comparison

The Trace Section and the Firearms Section can receive tools suspected of being associated with a crime scene. Cutting, pinching, prying, and striking tools are all examined by these sections. Great care must be taken by the officer to protect the marking surfaces on the tool. If the entire tool cannot be wrapped, the tool's marking surface should be protected using whatever materials are available to the officer. It should be understood that tools found at the crime scene that cannot be associated with a suspect will not be examined. Materials recovered from the crime scene that are suspected of being marked by the recovered tool should be carefully removed from the

scene so that the marks are not disrupted. Each item should be packaged separately and submitted to the laboratory.

Filaments

When the service request is to determine whether or not a lamp was on at the time of an accident, the entire lamp must be brought to the crime lab whenever possible. Care should be taken not to disturb the filament inside the bulb so that it can be examined. The lamp should be packaged in a box so that it cannot move around inside the container. If the lamps have been destroyed, collect and submit as many fragments and pieces as possible.

Paints and Coatings

Paint is likely to be transferred in instances of forceful contact such as a pedestrian being struck by a vehicle or a surface being pried with a tool. Paint can also be transferred in a passive manner by contacting a surface with loose or wet paint. Examination of paint in the laboratory may reveal the following information:

- The color of a hit-and-run vehicle and information concerning the year, make and model of the vehicle.
- Whether a paint fragment originated from a particular source (physical match).
- Whether paint samples could (or could not) have the same source of origin (comparison of known and questioned samples).

Hit-and-Run Vehicles

There is a potential to physically match chips of paint left at the scene back to the suspect's vehicle. If this potential exists, no paint should be removed from any damaged vehicle areas. Submit the questioned paint chips and the vehicle to the laboratory for a fracture match analysis. If the potential of a fracture match **does not** exist, samples of transferred (questioned) paint should be taken from each damaged area of the vehicle. Each sample must be packaged separately. Known (standard) samples should then be collected from the original undamaged paint within one inch of each damaged area. Package each sample in a separate container.

Collection of Paint Standards (Known Samples)

A paint standard is a known sample of the undamaged paint collected from within one inch of a damaged area. Paint may vary in type or composition in different locations on a vehicle or item even though the color appears the same. Therefore, it is important that known paint standards be collected from **each separate panel or area** of the object showing fresh damage. The known standard should contain enough paint to cover the surface of a nickel and must contain all layers of paint down to the unpainted surface. Place each sample in a different paper fold or other appropriate packaging materials, seal and label. **In addition to investigator's name, date and time of collection, the label must include the specific source of the sample, including vehicle identification number (VIN), if applicable** (e.g. "Right front fender, 1996 Chevrolet Blazer, VIN ABC123456789"). The paper fold must be placed in a sealed and labeled envelope or bag. Paint samples must be collected from every vehicle or painted object involved in the incident, even if some known paint standard is included during the removal of questioned transfers.

Clothing

Do not attempt to remove paint from clothing. Wet clothing must be dried on clean white butcher paper being careful not to lose any microscopic evidence. Package clothing and the paper it was dried on in paper (not plastic) bags.

NOTE: Time is critical in hit-and-run cases requiring investigative lead information. Please submit evidence from hit-and-run victims as soon as practical.

Tools and Other Objects

Tools used to gain entry into buildings or safes often pick up traces of paint as well as other substances such as plaster or safe insulation. Care must be taken to ensure that this evidence is not lost. If such transfers may be present, enclose the end of the tool containing the material in a plastic or paper bag and secure with tape to prevent loss. It is preferable that the entire tool or object be submitted for microscopic examination; however, if the item cannot be submitted, a sample must be obtained. Do not remove paint samples by scraping the surface. Collect the underlying material with the paint. **Never use adhesive tape to collect paint samples**. Remember that tools may also

deposit paint onto the surface being contacted. Submit the marked or indented area for trace evidence examination before casts or impressions are made of the toolmarks.

Summary for Collecting Paint Evidence

- Obtain paint from vehicles, walls and similar locations by chipping or carving the paint with a clean scalpel, razor blade or knife.
- Use a clean knife, new razor blade or scalpel for collecting each sample to prevent contamination.
- All layers of paint down to the unpainted surface must be obtained. Place the sample into a paper fold or other appropriate packaging material, seal with tape and place in an envelope or plastic bag.
- Do not place samples directly into envelopes. They will leak.
- Keep each sample collected in a separate sealed container.
- When possible, submit entire object or cut out areas bearing paint smears and transfers.

Plastics and Polymers

Plastics are used in a wide variety of modern products. Vehicle parts, decorative trim, decals, adhesive tapes (duct, electrical, masking, etc.) or rubber may be broken or transferred from one source to another.

Collection and Submission of Plastic Evidence

All plastic evidence must be submitted to the laboratory in an appropriately sealed and labeled condition. The same collection and packaging procedures outlined previously should be used for plastic evidence.

When vehicle parts bearing numbers or markings are recovered from a hit-and-run scene, attempts should be made to have them identified by local auto dismantlers or new vehicle parts department employees. If a part cannot be identified locally, it may be submitted to the laboratory for examination.

Care should be taken with adhesive tape samples to ensure that they don't become entangled or "wadded up". **Call the laboratory for instructions on packaging and transport of adhesive tape samples**.

Fractured Materials (Physical Matches)

It is possible to examine any broken, torn, cut or separated items to determine whether or not they were at one time a single, intact item.

Pieces collected from **different locations must be packaged separately,** taking care to avoid any further damage to the fractured surfaces.

Every attempt should be made to collect all the broken pieces of the item in its reconstruction.

Care must be taken not to cross contaminate broken items that may have other types of trace evidence on them.

Fibers and Textiles

Fibers can become important evidence in incidents that involve personal contact and struggle. Examples of such incidents are homicide, assault, and sexual offenses. In these instances, cross transfers may occur between the clothing of a suspect and victim. Fiber transfers can also occur between people and their environment (e.g. carpeting, upholstery or bedding). The force of impact between a hit-and-run victim and a vehicle may leave fibers, threads, or even whole pieces of clothing adhering to the vehicle. An intruder entering a broken window may leave fibers on the jagged glass or screen edges. Ropes and cordage from a crime scene can be compared with known samples collected from a suspect.

What to Submit

Cases involving a struggle that has taken place require the submission of clothing from both individuals. **Do not handle victim and suspect's clothing in the same room.** Fibers remaining suspended in air for long periods of time can cause cross contamination. **Keep the victim's and suspect's clothing in separate containers**. At no time allow them to come in contact with each other.

Collection of Fiber Evidence

Keep in mind that fibers from the victim's clothing may still be on the suspect item for quite some time after the incident. Submit the entire item to be examined. Do not rely on alternate light sources to attempt fiber collection in the field. Many fibers significant to the case will not fluoresce and will be missed. If the entire item cannot be submitted, tape lift the item to collect transferred fibers before collecting a fiber standard. Fiber standards (known samples) should be collected from each source that the victim and suspect are suspected of contacting. Submit the entire item to be used as a fiber standard. If this is not possible, cut a small swatch (i.e. for a car seat) or pull a random sample of the fibers (i.e. for carpeting).

NOTE: The more matching fiber types that exist in a case, the stronger the evidence of association. Remember that fiber matches between two individuals who share the same environment (e.g. live together or drive the same car) are essentially meaningless.

Hair

Through transfer of hairs, contact and association can be demonstrated between individuals and objects. Laboratory examination of hair may reveal:

- That the source of origin is human or animal.
- Body area of origin.
- Artificial treatment.
- Condition of hair (e.g. forcibly removed, broken, burned, putrefied).
- Wig fibers.
- Whether it could or could not have originated from an individual.

What to Submit

When requesting a hair comparison, submit both known and questioned hair samples. A known hair sample consists of a minimum of 50 head hairs or 20 body hairs (pubic, chest, arms, legs etc.) pulled randomly from the specific body area. Hair samples from the head should be pulled from five (5) regions; front, top, back, left side, and right side (10 hairs from each of the five regions). These samples should be packaged separately in a sealed paper fold or plastic bag(s) and labeled with at least the individual's name and area of

body origin; **DO NOT** attempt to remove questioned hair(s) from clothing, unless necessary to prevent loss. Submit the entire item in a sealed paper bag.

Glass

Glass is often encountered as evidence in burglaries, homicides, assaults, and hit-and run offenses. Examination of glass in the laboratory may reveal:

- Whether questioned fragments could (or could not) have originated from a particular source.
- From which side of the glass a force was applied to break it (direction of force).
- Whether broken fragments were at one time a single piece (fracture match).

What to Submit

If the available evidence appears to have potential for a fracture match (physical fit), all pieces of broken glass must be collected and submitted. If the potential for a fracture match is unlikely, all glass evidence found in the possession of the suspect should be submitted. Submit all clothing worn by the suspect. Do not attempt to remove glass from clothing unless absolutely necessary for its preservation. A representative glass standard (known sample) from each broken item (e.g. windowpane, headlight, container, etc.) should be submitted for comparison purposes. This comparison glass should always be taken from any remaining glass in the window or doorframe, as close as possible to the point of breakage.

Packaging of Glass Evidence

Questioned and known glass samples must be packaged separately. Glass fragments should be packaged in solid containers to avoid further breakage and/or loss. Sealed boxes, metal tins or heavy plastic bags are appropriate. Clothing should be wrapped in clean paper then submitted in sealed paper bags. Submit entire item suspected of having embedded glass whenever possible (e.g. bat, club, weapon, etc.).

Direction of Force

The determination of "direction of force" identifies from which side force was applied to break the glass. This may be helpful to determine whether the glass was broken from the inside or the outside. When information regarding the direction of force is needed, all broken glass must be recovered and submitted for analysis. Leave the remaining glass in the window or doorframe intact and mark as to exterior and interior surfaces.

Impression Evidence

Persons committing a crime may leave footwear or tire impressions entering and/or exiting the crime scene. In many instances, impressions can be positively identified as having been made by a specific shoe or tire. Clothing of a pedestrian struck by a motor vehicle can also leave impressions on the vehicle. Examinations may provide investigative lead information such as brand and model of tires and footwear leaving impressions. Vehicle makes and models may also be determined from wheel base measurements of tire tracks.

Collection of Impression Evidence

Once detected, **impression evidence should be photographed** and collected as described below:

- Take close-up photographs. 35 mm photography is preferred over digital photography for impression evidence. If digital photography must be used, it is recommended that the camera be set at the highest capture quality/resolution possible. **Contact the laboratory for assistance in setting up your camera if needed.** Poor image quality/resolution may adversely affect the comparison between the image and exemplar footwear. A **scale** must be included in these photographs so that an actual-size enlargement can be made. **The camera must be directly above the impression, not at an angle.** Submit the negatives, film, and or digital image to the laboratory.
- If the impression evidence can be removed from the scene, protect the impression from possible damage before submitting it to the laboratory.
- If the impression is three-dimensional (in sand, soil, or snow), cast the impression with Dental Stone. **NOTE:** Impressions in snow should be sprayed with snow wax before casting.

- If the impression is two-dimensional and cannot be removed, then photograph and lift.
- **Do not cover an impression with tape.** This may obliterate it and make enhancement impossible.
- Do not attempt to wash a cast. Submit it to the laboratory with the soil intact.
- Always photograph impression before attempting the cast/lift. Do not substitute one for the other.

Examination of General Materials

This class of materials includes bank dye bombs, fire extinguisher residue, metals, cosmetics and building materials. This list is not all-inclusive, but will include materials that have not been expressly discussed in prior sections. These types of examinations may be identification or classification of the material as well as comparison with suspected sources.

FIRE DEBRIS

Petroleum products and other ignitable liquids are the most common types of materials used in arson cases. Because alcohol, gasoline, stove oil, paint thinners, solvents, and other similar fluids frequently do not burn completely, residues of such fluids can be recovered from fire scenes and identified. The packaging and preservation of samples from the time of collection to the time of analysis is critical. Fire debris evidence; therefore, must be submitted to the laboratory in a timely manner.

All fire debris evidence **must** be submitted in vapor-tight containers such as unused metal paint cans with friction fit lids. Teflon-lined metal paint cans are recommended. Paper and/or plastic bags are **not** vapor-tight containers and will not be accepted by the laboratory. The evidence containers must be properly closed to provide a vapor-tight seal and not filled over **three-quarters** full. Debris around the rim can keep the container from sealing properly. The outside of the metal cans must be kept clean and dry to reduce corrosion of the can. Any broken lid seal or corrosion on the metal container may allow ignitable liquid vapors to escape.

Samples of raw ignitable liquids, **not to exceed one cup**, must be submitted to the laboratory in a sealed bottle with **TFE** (Teflon: tetraflouroethylene)**-lined caps** or an unused Teflon-lined metal paint can.

A **tamper evident seal must be placed on each lid**. All containers must be labeled with victim's names (if available), investigator's name, location, date and time of collection. In addition, a RISCL Evidence Examination Request, and an incident report including a description of the fire scene, is required. **NOTE:** The RISCL **does not routinely screen for alcohols**. If an alcohol is suspected, a request for analysis must be made upon submission of evidence.