

PHYSICAL EVIDENCE MANUAL



The purpose of this handbook is to promote the maximum use of physical evidence in the Criminal Justice System.

The value of properly collected physical evidence followed by examination and interpretation by the forensic laboratory cannot be over-emphasized.

Every attempt has been made to make this handbook as current and up-to-date as possible; however, it should be noted that the field of forensic science is expanding at a rapid rate.

New techniques and procedures are constantly being developed, providing new capabilities or refinements to existing capabilities.

Consequently, techniques, procedures and capabilities contained herein may change in the future. All agencies are encouraged to keep in regular contact with their local laboratory to keep abreast of any such changes. In the future, this handbook will be stored on the State Police Internet site:

<http://egov.oregon.gov/OSP/FORENSICS/LawEnfResources.shtml>.

Updates will also be available from the same location.

David Schmierbach, Director

Oregon State Police

Forensic Services Division

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1.0 PREFACE

The need for proper recognition, collection, and preservation of physical evidence is mandated for use in the criminal justice system. Physical evidence can directly or indirectly lead to the solution of a crime. Charging and prosecution decisions may be affected by the quality of the physical evidence supporting the case. United States Supreme Court and Oregon Supreme Court decisions have placed great emphasis upon physical evidence in criminal cases.

The Oregon State Police (OSP) Forensic Services Division (FSD) provides an important link between collection and court presentation of such evidence. It sometimes happens, however, that materials submitted to the laboratory prove inadequate for proper analysis or that improper collection or packaging methods destroy valuable evidence.

A member of the Criminal Justice System may not know the proper way to collect and preserve evidence in all situations he/she may encounter. In addition, they may not in every case understand what the various laboratory methods may involve or why some seemingly “irrelevant” piece of evidence should require such careful handling. Therefore, the FSD reserves the right to select the appropriate methods for analysis. It also reserves the right to transfer evidence between the laboratories of the Division to best be able to service the request.

This handbook is offered in the belief that increased knowledge leads to understanding and that understanding leads to excellence. It was written to provide information regarding the legal and laboratory requirements surrounding collection and preservation of physical evidence.

This handbook is not intended to be a comprehensive treatment of all of the factors involved in criminal investigations. Rather, it is a general procedural guide outlining methods for collecting and preserving physical evidence. Readers should keep in mind that the information and procedures presented here are intended to be used as guidelines when encountering other types of evidence not specifically covered.

Because the laws and legal precedents concerning the collection of physical evidence are subject to change, it is impossible to give specific up-to-date information on acceptable procedures. It is, however, of utmost importance that great care be taken to use only approved methods when obtaining evidence of any kind. Therefore, it is imperative that during an investigation a close liaison is maintained between the District Attorney’s Office, the Oregon State Police Forensic Laboratory, and those persons responsible for the collection of physical evidence.

2.0 FORENSIC SERVICES DIVISION MISSION STATEMENT

The purpose of the Forensic Services Division (FSD) is to provide timely and accurate scientific, technical, and investigative support to the criminal justice system through forensic analysis.

Introduction

Oregon's first forensic laboratory was established on June 14, 1939 under ORS 181.080 and located at the University of Oregon Medical School in Portland.

Today the Forensic Services Division, a nationally accredited laboratory system since 1985, includes six (6) laboratories strategically located throughout the state. These laboratories are located in Bend, Central Point, Ontario, Pendleton, Portland, and Springfield.

The services of the forensic laboratories are available to all local, state, and federal law enforcement agencies in Oregon for the purpose of rendering assistance in criminal investigations and judicial proceedings. Casework will also be conducted for the defense upon court order. Normally, all laboratory examinations, court appearances, and travel expenses are available without charge.

The primary responsibility of the Division is to examine evidence collected from crimes. The Division is available to assist with the processing of major crime scenes on a 24-hour basis. Agencies are assured of proper collection and packaging of evidence in addition to the laboratory's forensic expertise in crime scene reconstruction, blood spatter analysis, and other forensic aspects of crime scene investigation. Expert consultation on lesser crimes is available by telephone 24 hours a day.

The Division will also provide expert testimony regarding evidence they have examined and in certain theoretical matters where either there is no evidence or the evidence has not been submitted. This testimony should not be requested if it is to be duplicated by another prosecution expert. The Division will not re-examine evidence previously examined by another prosecution expert.

3.0 LABORATORY LOCATIONS AND SERVICES

Forensic Services Division
Oregon State Police General Headquarters
400 Public Service Building
Salem, OR 97310
503-378-3720

Bend Forensic Laboratory
63319 Jamison Street
Bend, OR 97701
541-388-6150

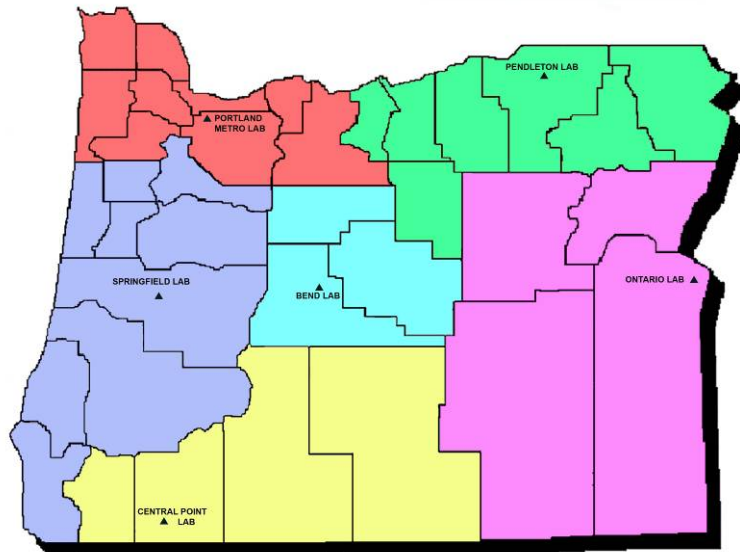
Pendleton Forensic Laboratory
700 SE Emigrant Street
Pendleton, OR 97801
541-276-1816

Central Point Forensic Laboratory
4550 Rogue River Highway, Suite B
Central Point, OR 97502
541-776-6118

Portland Metro Forensic Laboratory
13309 SE 84th Avenue Suite 200
Clackamas, OR 97015
971-673-8230

Ontario Forensic Laboratory
321 NE Goodfellow Street
Ontario, OR 97914
541-889-3831

Springfield Forensic Laboratory
3620 Gateway Street
Springfield, OR 97477
541-726-2590



SERVICES PROVIDED*

- Bend Lab: Drug analysis
Latent Print analysis
Crime Scenes
Physical Evidence screening
Video Image Capture

- Central Point Lab: Drug analysis
Clandestine Lab analysis
Crime Scenes
Latent Print analysis
Physical Evidence screening
Video Image capture

- Ontario Lab: Drug analysis
Crime Scenes
Physical Evidence screening
Firearms/Toolmark analysis
Video Image capture

- Pendleton Lab: Drug analysis
Crime Scenes
Physical Evidence screening

- Portland Metro Lab: Arson analysis
Blood Alcohol analysis
Clandestine Lab analysis
Drug analysis
Crime Scenes
Firearms/Toolmark analysis
DNA analysis
Latent Print analysis
Physical Evidence screening
Questioned Document analysis
Toxicology analysis
Trace Evidence analysis
Video Image capture

- Springfield Lab: Blood Alcohol analysis
Clandestine Lab analysis
Drug analysis
Crime Scenes
Firearms/Toolmark analysis
Latent Print analysis
Physical Evidence screening
Toxicology analysis
Trace Evidence analysis
Video Image capture

* The Forensic Services Division may move evidence from one lab to another in order to complete the work more efficiently.

4.0 GENERAL EVIDENCE HANDLING

In any criminal investigation the validity of information derived from examination of the physical evidence depends upon the care with which the evidence has been protected from contamination. In other words, if the evidence has been improperly collected, handled, or stored, its value may be destroyed and no amount of laboratory work will be of assistance. Therefore, it is important that items of evidence be collected, handled, and stored in a way that will ensure their integrity. In doing so, the likelihood is increased that useful information can be obtained by examination and that the item will be considered admissible in a court of law.

General Evidence Guidelines

- Protect yourself
- Protect the evidence
- Protect others
- Consider all types of forensic evidence
- Chain of custody starts at the crime scene – keep it short
- Document location with notes, sketches, and/or photographs
- Mark evidence and/or packaging with your case number, exhibit number, initials, date, and description of evidence or as required by your agency
- Package all evidence separately
- Allow wet biological stains to air-dry
- Obtain standards if needed for a comparison of evidence
- Use packaging that is appropriate for the specific type of evidence such as paper bags, envelopes, plastic bags, cardboard boxes, tamper-proof sealing, etc.

Triage and Prioritization Guidelines

(Refer to this Division's Triage and Prioritization Guidelines published under a separate cover.)

Customers of the Division should be aware that when demand for services out paces the availability of the Division to meet the needs of our customers, we will implement triage and prioritization guidelines to make sure we work the most important casework first. We will communicate to our customers when this occurs.

Evidence Collection

Packaging

There are a variety of packaging types that can be used for packaging evidence. The type you choose depends on the type of evidence, the condition of the evidence, and the examination(s) you want the laboratory to perform. Use the information in Table 1

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Revisions: 6

Last Revision: January 31, 2008

below or consult the section specific to the type of evidence you have to select the proper way to package it. All packaging types need to be clean and unused (e.g. no recycled grocery bags).

Table 1: Evidence Packaging

Packaging Type	Uses
Paper bags or envelopes	Any biological material that includes marijuana, psilocybin mushrooms, blood or semen stained items, condoms, etc. <i>If unable to air-dry prior to packaging, submit to the laboratory as soon as possible and notify them that it is a wet sample.</i>
Plastic bags or Ziplocs	A non-biological material such as powder drug samples
Metal cans	Arson evidence
Plastic buckets	Samples from clandestine laboratories that are individually packaged in glass vials and set in an absorbent material (e.g. vermiculite, kitty litter, etc.) in the plastic bucket.
Glass vials	Liquid drug samples, syringe contents, samples from clandestine laboratory, etc.
Paper folds ¹ and Post-It notes, then placed into a clean envelope	Small pieces of trace evidence, hairs, fibers, minute glass particles, paint chips, residue amounts of powder drugs, etc. Place inside a larger paper envelope. Use a Post-It note by placing the trace evidence on the adhesive and folding the Post-It in half to cover the adhesive.
Cardboard boxes	Firearms, knives, large pieces of plate glass, a piece of flooring with a shoeprint, etc. Offers protection from sharp edges and the depth protects one surface of the evidence from rubbing.

¹ See "Appendix A" for instructions on making paperfolds.

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Sealing

A proper seal ensures that evidence has not been accessed, altered, compromised, or lost during storage. A good seal is tamper-proof, is detectable if tampered with, and is initialed and dated across the seal.

The laboratory cannot accept evidence that is not sealed. This is a policy of the Forensic Services Division as stated in its Operations Manual.

Table 2: Evidence Sealing

Do Use	Don't Use
Evidence tape (tamper-proof)	Staples
Heat seals	Masking tape or Scotch tape
	Paper clips, binder clips, etc.



Figure 1: The bag shown at left is properly sealed with evidence tape. The bag at right is not; evidence could be lost or accessed through the portions that are not secured.

Chain of Custody

The chain of custody of evidence is very important and the court may require proof that the evidence presented in court is the same as that collected at the crime scene. A proper chain of custody offers this proof and maintains the integrity of the evidence by recording who had contact with the evidence, at what time, and what changes may have been made to the evidence. By following your police department policy on maintaining a chain of custody, along with the Forensic Services Division policies on submitting evidence, you ensure the integrity of the evidence.

Submission of Evidence to your Forensic Laboratory

All sealed evidence should be submitted to your local laboratory. An exception to this is a case with blood alcohol or toxicology evidence, which can be submitted directly to the appropriate tox laboratory. For example, although DNA analysis is only performed at the forensic laboratory in Portland, you should still submit all evidence needing DNA analysis, including standards, to your local laboratory.

Large and involved cases (such as homicides, sexual assaults, and other violent crimes) can contain dozens to hundreds of pieces of evidence that require different types of examinations. The analyst(s) in your local laboratory are trained to manage the evidence in your case by ensuring that the evidence gets to the appropriate person for examination. That person may be in another laboratory and the evidence will be transferred to them without any additional request by you. The analyst(s) that is managing your case evidence in your local laboratory will be your contact person for status updates.

Delivery to Laboratory

Sealed evidence may be submitted to the forensic laboratory by one of four methods: hand delivery (please call for an appointment before delivering to the lab), first class U.S. Mail, Federal Express, or United Parcel Service (UPS). The Department of Transportation has Federal Regulations on packing and shipping items. All persons who package, ship (regardless of the carrier), transport, or receive these items are responsible for following the Regulations. Title 49 parts 180-185 of the Code of Federal Regulations outlines the requirements that are to be met.

Some evidence that is shipped to the laboratories is considered hazardous material and must follow the Code of Federal Regulations. The Oregon State Police Forensic Services Division is currently developing new policy regarding the packaging and shipment of evidence to meet these criteria. Once the policy has been adopted, it will be disseminated to all law enforcement agencies statewide to ensure Federal compliance.

Forensic Services Request Form

All submissions should be accompanied by a Forensic Services Request (Form 49)². Form 49's are available through the local Forensic Laboratory or the local State Police Office. Much of the form is self-explanatory, however, an explanation of what each field in the form means is described below.

- **Additional Suspect Information Only and Previous Evidence Submitted to this/any Laboratory** – check if either applies.
- **Page Numbers** – fill in number of form pages you are submitting so lost paperwork can be detected.
- **Agency** – fill in your agency. List all involved agencies.
- **Agency Case #** – if more than one case number applies to the evidence being submitted, list all.
- **Offense** – fill in all offenses associated with the case.
- **Offense Date** – this is the date the crime occurred, *not* the date the evidence was collected or turned into an agency's property room.
- **County of Venue** – this is the District Attorney's Office that will receive a copy of the laboratory report. Fill in the county that the case will be prosecuted in which may not necessarily be the county your agency is in.
- **NCIC** – fill in your NCIC number.
- **Names of Involved Individuals** – list all victims, suspects, and other involved individuals. Including the date of birth and SID/FBI numbers is important for fingerprint examinations, and race can become important for hair examinations.
- **Investigating Officer and phone number** – this is the name of the individual the laboratory report will be mailed to in your agency. If a Deputy collected the evidence submitted, but a Detective is handling the case, put the Detective's name and telephone number in the appropriate spaces. Please make phone numbers direct lines, when possible.
- **Submitting Officer** – this is the individual that delivered, mailed, or shipped the evidence to the laboratory.
- **Agency Exhibit** – fill in your exhibit numbers for the evidence that is being submitted.
- **Description of Evidence** – describe the evidence that is being submitted. The list of evidence should be exactly the same as the evidence submitted. Do not list additional evidence that was not submitted, or submit evidence that is not listed. When possible, associate drugs, clothing items, or other evidence to the individual it came from or belonged to.
- **Exam Requested** – this is what you want the laboratory to do with the evidence. Be as complete as you can with your request. If you do not know what request is appropriate, or want help phrasing your request, please call your local laboratory for assistance.

² See "Appendix A" for a copy of the Forensic Services Request (Form 49).

The Laboratory Case #, Submission #, Laboratory Exhibit, and the bottom portion of the form should be left blank.

If the form is not available, a letter containing the following information should be submitted with the evidence:

1. The date of the letter
2. The originating agency name
3. The agency case number
4. The county of venue
5. The nature of the offense and the offense date
6. The victim or complainant (an establishment or individual) and the date of birth of individuals
7. The names of suspects and their dates of birth
8. The evidence submitted (described in detail)
9. The type of examination requested
10. The name of the officer submitting the report or investigating the case, and the officer's commission and telephone numbers.
11. Notations concerning accidental or intentional changes which the submitting officer has made in the exhibits

Rushes

If your request is a "Rush", indicate so in the appropriate location on the Forensic Services Request (Form 49), along with the date the request needs to be completed by, if known. Common reasons for "Rushes" are upcoming grand jury and trial dates, and an immediate need for investigative leads.

Laboratory Reports

The laboratory will issue a report written by the analyst(s) on all examinations performed. Copies of the report are mailed to the attention of the investigating officer. Additional copies may be sent to the District Attorney's Office or other involved agencies/individuals, if applicable.

Forensic Laboratory Evaluation Form

Periodically, the Forensic Services Division will mail out evaluation forms to its service agencies. These forms provide valuable feedback on our goal of providing quality and timely scientific, technical, and investigative support. Should you receive one of these evaluation forms, please fill it out completely.

5.0 ARSON AND FIRE DEBRIS EVIDENCE

Many times it is difficult to ascertain whether a fire was accidental or arson. This is especially true when simple ignition devices such as a match and paper were used to start the fire. Frequently, flammable liquids such as gasoline, lighter fluid, fuel oil, etc. are used as accelerants. If a fire's origin can be determined, it may be possible to detect and classify accelerants. Detection is not possible if the fire completely consumes the accelerant or if the samples are not from the fire's origin. Because flammable liquids readily evaporate, care must be taken in the collection and packaging of fire debris. Containers of arson evidence need to be air tight to prevent loss by evaporation and possible contamination. *Moisture is not a problem; do not dry arson evidence.*

Arson Scene Indicators

- Multiple fires in unrelated areas of the fire scene
- Odor of petroleum products, paint solvents, alcohol, etc.
- Stains on floor or other material
- Evidence of explosions not due to heat (shattered glass)
- Rapid spread of fire not explainable by structure, weather, or other conditions
- Smoke not explainable by building materials
- Fire trails such as cloth or paper trails, burn trails on carpeting, or deep charring in hardwood
- Removal of household property and valuable items
- Evidence of another crime which the fire might conceal (items stolen, evidence of violence)
- Recent similar fires in the vicinity

Evidence To Collect

- Charred debris and related material from the origin where the accelerant was placed
- Igniting devices (fuses, rags, candles, etc.) including mechanical and electrical devices
- Samples of upholstery, drywall, plaster, wood, or other material that may have been penetrated by flammable liquids
- Samples of soil that may have been penetrated by flammable liquids
- Trace evidence possibly left by the arsonist such as hairs, clothing fibers, matches, etc.
- Suspect clothing worn at time of crime, including shoes
- Liquids containing possible accelerants

- A sample of uncontaminated carpeting and/or padding, drywall, wood, etc. must be collected and packaged separately
- Material used as a wick (shirt, sock, towel, etc.) from an incendiary device. This material may be analyzed for DNA comparisons.

Packaging of Evidence

- Use airtight containers. Unused, clean metal paint cans are preferred. Lined or unlined cans work equally as well, but the lined cans will not rust through over time. Heat sealed bags manufactured for flammable evidence collection may also be used. *When these bags are used you need to submit an unused bag as a control.* Contact the laboratory for information on where to purchase these packaging supplies.
- Seal each collected item separately and securely.
- Mark all containers with appropriate identifiers.
- Document locations from which evidence samples were collected by notes, sketches, and/or photographs.

6.0 BIOLOGICAL EVIDENCE

Biological fluids such as blood, semen, and saliva are frequently encountered as physical evidence in many types of criminal investigations such as homicides, sexual assaults, assaults, and robberies.

Since blood, semen, and saliva originate as liquids, they quickly coat or penetrate surfaces they are deposited on, and when dried they are difficult to remove. Because no two humans are genetically the same (except for identical twins) these body fluids are unique to the person they originated from. By performing DNA analysis of these fluids or stains, a genetic marker profile can be obtained that is essentially specific to that individual.

Because DNA analysis lends itself to a computerized identification system, a Convicted Offender Database has been established which allows the forensic laboratories to enter DNA profiles from evidence samples for comparison to the DNA profiles obtained from other unsolved crimes or from convicted violent offenders. This database is one of the latest forensic technologies aiding in the identification of suspects in cases where no suspect has been developed.

The type of DNA analysis currently performed on biological material can yield much information. The table below lists those things that DNA analysis can determine and those it cannot.

Table 3: DNA Examinations

DNA analysis can:	DNA analysis cannot:
Associate evidence DNA to a person and give the frequency of occurrence in a random population	Determine the age or race of the person who donated the sample
Positively exclude a person from being the donor of evidence DNA	Determine how old the sample is
Determine the gender of an evidence DNA donor	Determine how the sample was deposited (see “Crime Scene Investigations – Bloodstain Pattern Analysis”)
Determine that the biological material is from a human	Determine whether or not force was used in a suspected rape from the analysis of semen evidence

Safety and Contamination Prevention

Current DNA technology allows for very small amounts of sample to be analyzed. For example, a blood stain the size of a sharpened pencil point may be enough to perform DNA analysis on, as would the residue amount of sweat and skin cells on the inside rim of a ball cap. Because of this, inadvertent contamination of the evidence is possible if you do not take precautions.

- Wear gloves and, if desired, a mask and eye protection while collecting biological samples.
- Change gloves frequently or anytime your gloves are contaminated with biological material.
- Do not touch the tips of cotton swabs with your fingers.
- Avoid contaminating your swabs by getting them dirty, talking over them, blowing on them to make samples dry faster, etc. Consider purchasing individually wrapped sterile swabs.
- Do not touch your water dropper bottle tip to any surface or evidence.
- Clean tools (such as scissors or tweezers) that you might use to collect evidence with a 10% bleach solution and dry thoroughly.

General Collection Guidelines

In general, wet or moist biological evidence should be dried if possible and packaged into paper containers. Paper packaging prevents the evidence from degrading, so wrapping the evidence first in plastic then placing that inside paper (or vice versa) defeats the purpose. Mark the packaging with a "BIOHAZARD" label.

Rules of thumb for long-term storage of biological evidence is refrigerate wet or liquid evidence and freeze dry evidence.

UV Light Searches

Many officers chose to use an ultraviolet (UV) light, Woods lamp, or other alternate light source to assist in the search for biological stains. Such devices can be helpful in a search, given that many biological stains such as semen and saliva may fluoresce, or appear bright, when viewed with UV light in a darkened room.

However, there are three important points to remember when using a UV light to assist your search for biological stains:

1. A number of other materials may also fluoresce, such as urine, stains from food or drink, laundry detergent, and many other substances.
2. Not all semen or saliva stains will necessarily fluoresce with a UV light.
3. Blood will *not* fluoresce when viewed with a UV light; rather, it will appear dark.

Blood Evidence

Blood evidence is common in violent crimes. In addition to DNA, blood contains cells and proteins that allow the laboratory to perform the following examinations:

- Testing can determine if blood is human or non-human in origin.
- The specific animal family can be determined for non-human blood.

Collecting Liquid or Moist Blood – Large Quantity

1. Saturate several (5 to 10) sterile cotton swabs with the blood. Allow swabs to air-dry.
2. Venous blood will coagulate so it is important to collect a good mix of clotted cells and serum.
3. The dried swabs can be placed in a paper container (e.g. paper envelope or bag).
4. Do not lick envelope seals, as this is a safety and contamination hazard.

Collecting Liquid or Moist Blood – Small Quantity

1. Limit the number of swabs. One-by-one use swabs to collect the blood, concentrating the blood onto each swab. Use as many swabs as needed until the entire stain is completely collected.
2. Allow swabs to air-dry.
3. The dried swabs can be placed in a paper container (e.g. paper envelope or bag).
4. Properly label and seal the container. Do not lick envelope seals as this is a safety and contamination hazard.

Collecting Dried Blood

If the stained object is transportable, submit the item intact. Dried blood may flake off an object, so be careful to seal all openings of a package. If it is not transportable, collect the blood by one of the following methods.

Swabbing

1. Moisten a sterile cotton swab using distilled water or tap water.
2. Shake the swab to remove excess water.
3. Gently swab the stain with the moistened swab tip until the swab thoroughly absorbs the blood. Continue collecting the stain until it is either completely collected or a sufficient number of swabs (at least 4-6) have been saturated.
4. Allow the swabs to thoroughly air-dry.
5. The dried swabs can be placed in paper container (e.g. envelope, paper bag) and sealed.
6. Select an unstained area adjacent to the suspected bloodstain and collect a sample in the same manner as described above. This sample will serve as a negative control.

Cut out the stain

This may be desirable when the dried bloodstain is on an object such as the upholstery of a car seat or on carpeting. Use a clean, sharp knife or scissors to excise the stained area. Include areas that are unstained in your cutting for use as a negative control. Package into a paper envelope and seal.

Remember that you may be liable any time you destroy property.

Saliva Evidence

Saliva stains are not usually evident from a visual examination. However, certain types of evidence frequently contain traces of saliva (e.g. cigarette butts, gummed surfaces of envelopes, chewing gum, bite marks, ski and/or nylon masks, etc.).

Collecting Saliva Evidence

If the stained object is transportable, submit the item intact. If it is not transportable, such as bite marks on a body, collect the saliva stain in the following manner:

1. Moisten a sterile cotton swab with distilled or tap water.
2. Shake the swab to remove excess water.
3. Gently swab the suspected saliva stain.
4. Allow the swab to thoroughly air-dry prior to packaging in a paper envelope and seal.
5. Select an unstained area and collect a sample in the same manner as described above. This swab will serve as a negative control.

Semen Evidence

When the perpetrator of a sexual offense is a male, semen stains may be found on the victim as well as on clothing, bedding, rags, upholstery and other objects.

Collecting Semen Evidence

Carefully recover all suspected stained material. Each item of evidence should be packaged separately and carefully to prevent loss of any trace evidence that may be present.

Air-dry all damp stains. Consider marking the location of a damp stain on the evidence itself, as it may not be visible when dry.

Clean paper should be spread under the item to catch any debris, which may be dislodged during the drying process, and between items hanging next to each other to prevent cross contamination. Package each item separately in paper bags or envelopes, along with any paper used.

If the semen stain is on an object that cannot be easily submitted to the laboratory, contact your local laboratory for instructions on how to recover the stain.

Sexual Assault Forensic Examination (SAFE) Kits

Biological evidence associated with the body of a sexual assault victim needs special attention. The victim needs to be transported to a medical facility for a sexual assault examination. This should be done as expeditiously as possible in order to preserve what remains of the biological evidence and to document any physical trauma. Consider having photographs taken of any physical trauma, as well. Attending medical personnel should collect the appropriate evidence by using the Sexual Assault Forensic Examination Kit provided to them by the Forensic Services Division.

In general, if more than 72 hours has elapsed from the time of the sexual assault to the time of the medical examination, the chances of finding semen evidence in the body of a living victim are greatly diminished. However, it may be prudent to collect a sexual assault kit if you have any doubts or concerns. Some guidelines go out to 84 hours for the collection of this type of evidence. This time range does *not* apply to deceased victims; it is recommended that you collect a sexual assault evidence kit from deceased victims regardless of the elapse time.

Bathing, showering, and douching by the victim does not necessarily eliminate the possibility of finding semen evidence in body cavities, so collect a sexual assault kit even under these circumstances. Showering or bathing may, however,

eliminate saliva, semen, and trace evidence deposited on the exterior of the body.

Undergarments, worn by the victim during and/or immediately after the assault, are also good sources for collecting semen and hair evidence. Package each clothing item separately.

Penile Swabbing Evidence Kits

If a male suspect is taken into custody within 18 hours of the incident and he has not showered or bathed, a Penile Swabbing Evidence Kit provided by the Forensic Services Division should be collected.

The suspect's underwear should also be collected as such evidence may provide an excellent source of the victim's DNA.

Standards

Standards need to be obtained from all individuals believed to be involved in the incident. This includes the victim(s), suspect(s), and in a rape situation, any recent (within 3 days) sexual partner(s). The DNA from the evidence is compared to those standards to determine who the donors are or are not.

Both blood and oral swab standards are currently acceptable for use as a DNA standard.

Blood Standards

1. Collect at least one tube of blood into a lavender top tube, which contains the preservative EDTA.
2. Label the tube with the individual's name and date collected, then seal it in a box or padded envelope to prevent breakage.
3. Never store liquid blood tubes in the freezer. Refrigerate them instead.

Oral Swab Standards

1. Vigorously swab the cheek and gums of the mouth, one swab at a time, until 4-6 swabs are collected. The individual may do this him/herself under your direct supervision.
2. Allow the swabs to air-dry.
3. Seal in a paper envelope labeled with the individual's name, date, and "Oral Swab Standard."

Human Remains

If the human remains are too badly decomposed, it may be impossible to obtain an adequate blood standard and it may be necessary to turn to an alternate type of tissue. Contact your local laboratory for instructions on types of evidence to collect and how to preserve it.

Touch Evidence

Touch evidence is a category of DNA evidence defined as:

“Limited casual contact by an individual with a surface or material. This would include primarily objects touched by an individual’s hand, such as cigarette lighters, keys, door handles, gun grips, triggers, light switches, drawer handles, countertops, gear shift knobs, steering wheels, etc”

Touch evidence will only be accepted if the case meets all of the following criteria:

1. The case is a rape or homicide (or attempted) and all avenues have been exhausted.
2. An association through DNA is necessary to identify or arrest a suspect.
3. There should be a reasonable expectation that the suspect handled the item.
4. The evidentiary DNA profile must be searched against the Combined DNA Index System (CODIS) database to identify or arrest a suspect.
5. Every possible effort has been made to collect elimination standards from individuals who have routine contact with these items.

If a case does not meet the above criteria, a private DNA laboratory may be of assistance if a suspect standard is also submitted. If there is no suspect, this may be of limited value, as the OSP DNA laboratory is currently unable to accept profiles generated by private laboratories for searching or entry into CODIS.

7.0 CONTROLLED SUBSTANCES

Controlled substance analysis is the identification of specific chemicals that are designated as controlled by the Oregon Administrative Rules. This analysis applies to the testing of powders, tablets, capsules, plant material, and drug paraphernalia. Clandestine laboratory samples are also analyzed to determine the method being used to manufacture the illegal drug and the possible drug yield given the quantity of chemicals and precursors seized.

Analysis of Controlled Substances

- Identification of controlled substances only. In general, non-controlled substances are not identified.
- Analysis is qualitative only. Oregon law requires only the presence of a controlled substance, not its purity.
- Quantitative testing is performed for federal sentencing in methamphetamine cases only.

Submission Policies

Each laboratory limits analysis to two items per defendant, so the investigating officer should use discretion and submit only those two items that are essential to the case. Exceptions can be made by District Attorney's Office request to the laboratory. In cases with multiple suspects, an indication should be made as to what evidence belongs to which suspect.

Large seizures of over a kilogram of powder or large amounts of marijuana should not be submitted directly to the laboratory. A small sample of the material should be removed, packaged, and submitted for analysis. Laboratory personnel can assist with the weighing of large submissions, however, the officer must maintain possession of the evidence. A small sample will be retained by the laboratory for analysis.

Syringes, razors, and other sharp objects ("sharps") will not be accepted unless the District Attorney's Office has given notice of their intent to prosecute the case. All sharp objects should be separated from other evidence that requires analysis.

Approved sharp objects that are submitted for analysis must be packaged in such a manner as to protect personnel during handling. The packaging must be protective enough to ensure *no* possibility of being injured or punctured. Commercially manufactured puncture-proof ("sharps") containers are available for purchase. Contact your local laboratory for information.

Collection and Packaging

Items removed from a body orifice as well as syringe contents should be labeled with a "BIOHAZARD" label.

Live plant material and other damp/wet evidence should be dried prior to submission. This includes marijuana, mushrooms, peyote, or opium poppies. Fresh plant material, when packaged in airtight containers such as plastic bags, decays rapidly and can inhibit or possibly eliminate the chance for detecting a controlled substance. Suspected fresh khat should be frozen and submitted as soon as possible.

Suspected LSD should be kept away from direct light. Potentially spiked liquids should be submitted in a timely manner.

Drug packaging that needs processing for latent fingerprints should be separated from the drugs when possible. The evidence for latent fingerprint processing is then submitted separately from the drugs.

Care should be exercised when packaging more than one exhibit in the same package. Cross contamination of evidence can occur, especially with bags that are open, leaking, or have cut corners. All submitted items must be written on the Form 49.



Figure 2: Marijuana leaves on a growing plant. If you encounter such evidence, uproot the plant and shake the soil from the roots, allow it to air-dry, and package.

Field Test Kits

When using commercially purchased field test kits, remember a positive result with the kit only indicates the possible presence of a drug. There can be other substances that give the same reaction. Generally, the colors of a positive reaction indicated on the test kit are very apparent and interpretation of the result is usually not necessary.

The field test kits should be discarded after use. Many of the kits contain concentrated acids that can leak, creating a chemical hazard. In addition, drugs tested in these kits cannot be further analyzed and therefore should not be submitted to the laboratory.

Officers using field test kits should not do so on a residue amount of drug. In cases where quantities are limited, omit the field test and submit the evidence directly to the laboratory for analysis.

Clandestine Drug Laboratories

Clandestine drug laboratories range from crude makeshift operations to sophisticated and technologically complex facilities. They can be set up anywhere and are often found in private residences, hotel and motel rooms, trailers, barns and outbuildings, and commercial buildings. At these locations sophisticated surveillance equipment and booby-traps may be set up to deter intruders and law enforcement personnel from entering.

Extreme care and caution should be exercised whenever investigating or processing a clandestine drug lab site. The chemicals and substances used in the manufacturing process can be caustic, explosive, carcinogenic, poisonous, irritating, and flammable. Laboratory and law enforcement personnel participating in clandestine drug laboratory investigations should have specialized training in the use of protective equipment and the appropriate health and safety procedures.

The processing of clandestine drug laboratories also involves the sampling, removal, and proper disposal of hazardous toxic chemicals. The transportation and disposal of these chemicals is regulated by state and federal environmental protection agencies.

There are usually two situations when a clandestine laboratory is encountered. The first is when police or fire agency personnel encounter a previously unknown lab. When this occurs the personnel should secure the scene, allow no unauthorized or unnecessary entry, and contact the local specialized unit or trained personnel to process clandestine laboratories.

When clandestine drug laboratory chemicals are detected during a vehicle stop, treat the site as a crime scene. Contact the local law enforcement unit trained to handle this situation for assistance.

The second situation would involve prior knowledge by the local law enforcement agency of the illegal activity. A raid is planned and personnel needed for the proper shut down and dismantling of the laboratory have been contacted.

8.0 CRIME SCENE INVESTIGATIONS

The Forensic Services Division provides crime scene assistance in cases where our scientific expertise will assist in the investigation. Such crime scenes are primarily death investigations. The laboratories are staffed and equipped to aid in the recognition, recovery, and preservation of physical materials that may have evidentiary value.

Crime scene assistance may be requested by any law enforcement agency, District Attorney's Office, or medical examiner. The request can be made during normal business hours by calling your local laboratory. After hours, call your local laboratory or your OSP Regional Dispatch Center at 541-776-6111 (Southern Regional Dispatch Center) or 503-375-3555 (Western Regional Dispatch Center) and they will contact the on-call forensic laboratory supervisor for you.

The supervisor or laboratory response team will need to talk with an individual who has been at the scene to assess what the needs are and to determine if any specialized equipment or additional personnel is required. Responding laboratory personnel will expect that a search warrant is available upon arrival (if required by the case circumstances) and that the crime scene to be protected and secured by your agency for the duration of the crime scene processing.

When laboratory personnel arrive, they will coordinate with the officer in charge on a proposed method to process the scene.

Crime Scene Services Offered

- Evidence identification, documentation, preservation, and collection
- Buried body excavation
- Crime scene photography
- Bullet trajectory determinations
- Blood spatter analysis
- Locating occult blood
- Alternate light source processing
- Impression enhancement, casting or lifting e.g., shoe or tire
- Metal detection
- Crime scene reconstruction
- Latent Print processing

Major Crime Scene Duties/Responsibilities

Protecting the Crime Scene

The first officer at the scene of a crime has several immediate responsibilities:

- Ensure your safety and the safety of others.
- Check the condition of the victim and render first aid if required.
- Protect the scene to keep conditions as they were when you arrived.
- Restrict sightseers.
- Protect the evidence until it is collected.

Team Leader Duties

- Evaluate the scene and any safety concerns. No one should enter the crime scene without the proper safety and personal protective equipment.
- Establish and define the boundaries of the crime scene using crime scene tape, ropes, barriers, etc. Start with expanded or enlarged boundaries; these may always be made smaller later in the investigation if they are determined to be too large.
- Identify principal investigator(s).
- Evaluate the legal authority for the crime scene search (e.g. scope of search warrant).
- Perform a preliminary survey of the scene to evaluate potential evidence.
- Provide a means of controlled entry and exit for personnel and equipment entering or leaving the scene. Look for shoe/tire impression evidence prior to establishing this route.³
- Give assignments to team members (e.g. evidence recorder/custodian, photographer, scene security, etc.).
- Coordinate with other law enforcement agencies, District Attorney's Office personnel, laboratory personnel, and others present at the scene.
- Ensure sufficient supplies and equipment are available.
- Continually reevaluate the requirements needed for a successful scene processing.

Safety

- The scene may be the source of contamination including blood and body fluids, tissue and human remains, chemicals, and explosive materials.
- Individuals should not be permitted to eat, drink, smoke, or apply makeup at the scene.
- Be on the alert for sharp objects such as hypodermic needles, razors,

³ See "Footwear and Tire Tread Evidence – Two-Dimensional Impressions/Prints."

- knives, broken glass, nails, and exposed or cut metals.
- Ensure proper ventilation if required.
- Search confined spaces with a flashlight and/or mirrors prior to inserting the hands.
- Handle all blood, body fluids, and tissue as if they contain bloodborne pathogens (e.g. hepatitis, HIV, etc.).
- Use gloves, protective clothing, and other universal safety precautions when there may be contact with blood or other potentially infectious material.
- Surgical caps, fluid-resistant protective clothing, face masks/shields, eye protection, shoe covers, gloves, and boots should be worn in instances when contamination is anticipated.
- The common routes of exposure are inhalation, ingestion, skin, eye, and mucous membrane contact. Protect these parts of your body.
- Change gloves when they are contaminated or prior to handling additional evidence.
- Do not touch or remove any suspected explosive device. A bomb technician should be called to the scene to check for safety.

Photograph the Scene

- Ensure that a progression of overall, mid-range, and close-up views of the scene is established.
- Use a scale device for size determination.
- When a scale is used, first take a photograph without the scale.
- Photograph evidence in place before collection.
- Photograph areas adjacent to the crime scene – points of entry, exits, windows, as well as the perimeter and access routes.
- Film is cheap so do not hesitate to photograph something. Digital photography is cheaper yet. Items that appear to have no apparent significance at the time may later prove to be a key element to the investigation.

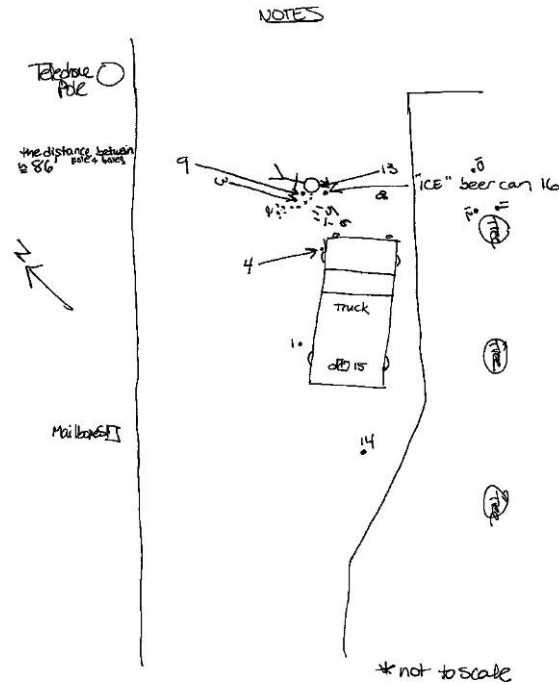


Figure 3: A rough sketch of a crime scene. The numbers correspond to a list of evidence items also documented. Rough sketches need not be a work of art; so long as the relevant information is recorded, a lack of artistic ability should not be a handicap.

Diagram/Sketch the Scene

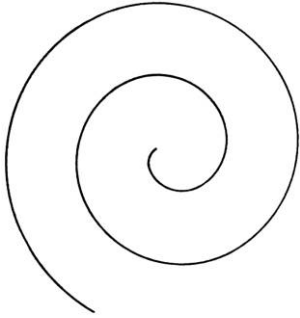
- Diagrams supplement photographs.
- A rough sketch is drawn at the scene and is normally not to scale.
- A sketch that is used to create a future scaled diagram must include all relevant measurements (e.g. dimensions of the room, measurements to all evidence from two independent points, heights of objects/evidence for a 3D computerized rendition of the scene, etc.). Consult your local laboratory or a crime scene text for additional information on taking measurements for a scaled diagram.
- Include on the sketch the location, date, time, case identifier, preparer, weather conditions, scale or scale disclaimer, compass orientation, evidence, measurements, key or legend.
- Major cases may require the assistance of a specialized team (major crime team, accident reconstructionists, survey crew, etc.) to provide the diagram.

Conduct a Detailed Search

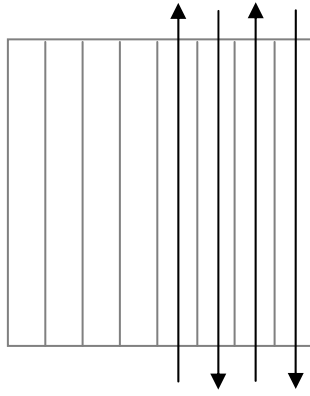
Conduct the search of the crime scene using one or more of the following systematic search approaches.

- **Spiral Search:** When this crime scene search method is used, the analyst will start the search at a selected point at the edge of the scene. The analyst will walk in a circular pattern to the center of the scene, with the circle getting smaller as they go. This search method is effective in small areas.
- **Strip (Lane) Search:** When this crime scene search method is used, the analyst will start the search at the southeast corner of the area to be searched. The analyst will walk north in a straight line, keeping parallel with the east edge until he/she reaches the north edge of the scene. At this time, he/she will take two (2) steps west and walk south in a line parallel to the first path until he reaches the south edge of the scene. This process is repeated until reaching the west edge of the scene. This search method works very well when there is a large area to be searched.
- **Zone or Grid Search:** When this crime scene method is used, the analyst will divide the scene to be searched into quadrants. Additional personnel may be used for this method, or the analyst can perform the search independently. The personnel searching each quadrant will use any method that they choose. This method works well with large areas to be searched. In very large search sites the quadrant may be subdivided to effectively search the crime scene and make use of all personnel available to perform the search.
- **Wheel Search:** When this crime scene search method is used, the analyst will begin the search in the middle of the scene. The analyst will pick out a landmark and walk in a direct line to it searching the area immediately in front of him/her. When the landmark has been reached then the analyst will turn and walk the same path to the originating point. Upon returning to the originating point they will choose another point of reference and repeat this search method until they have gone in a complete circle. For obvious reasons, this search method is effective in small areas.
- **Point to Point Search:** When this crime scene search method is used, the analyst will go to the first piece of evidence, process it, then go to the next apparent piece of evidence, repeating this process until all evidence has been processed and collected. This search method works well in small or confined areas.
- **Logical Association:** this method leads the investigator from one evidence item to another following a logical progression or evidence trail. Most used by investigators but requires patient thought, experience, and instinct. This method is frequently combined with one of the above listed search techniques.

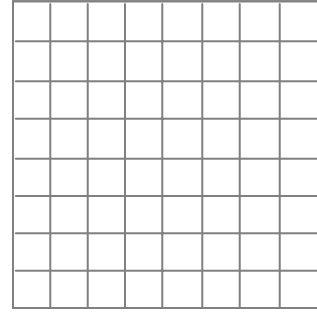
Examples-



Spiral Search Method



Lane Search Method



Grid Search Method

Documentation of Scene

An important responsibility of the crime scene investigator is note taking. Thorough note taking commits any observations to writing. A detailed record is created of what was seen and what processes/searches were performed, and it provides a basis for the investigator's future recollection of the scene. Crime scene notes should be clear, legible, detailed, and should be taken in chronological order.

Note following conditions:

- Doors locked/unlocked, open/closed
- Lights on/off
- Windows open/closed
- Shades up/down
- Temperature and weather conditions
- Odors

Note general conditions of victim if applicable:

- Position of body
- Apparent wounds present⁴

⁴ Note only what you see. Avoid interpreting or making conclusions about any wounds present; remember, a pathologist will do this during the postmortem examination of the body.

- Clothing
- Personal belongings

Note observable evidence (e.g. weapons, bloodstain patterns, attempts to modify scene, etc.)

Record and Collect Physical Evidence

- Photograph all items in place before collection, with and without a scale.
- When possible, have one person act as an evidence custodian. This individual will collect, package, and record all evidence.
- Focus first on the evidence that could be readily lost (e.g., loose fibers and hairs) and leave the least transient evidence for last. If a body is at the scene, move it last. Under Oregon law only the Medical Examiner or District Attorney can approve the removal of the body.
- Ensure collection and packaging is sufficient and appropriate for the evidence.
- Consider whether the evidence could have been moved inadvertently. Do not attempt to replace evidence if it was moved. Interview medical personnel or first responders to assess their movements in the scene and their possible effect on the position of evidence.
- Consider whether or not the scene and evidence appear intentionally contrived, staged, or otherwise altered.
- Do not handle evidence excessively. Allowing others to observe or handle the evidence simply to satisfy curiosity can compromise delicate evidence such as DNA, latent prints, or trace evidence.
- Evidence containing blood or other biological fluids should be completely air-dried before it is packaged and submitted to the laboratory.
- Evidence contaminated with wet blood or potentially infectious materials should be secured and transported in a leak proof container prior to air-drying. *Remember that packaging wet items (e.g. blood soaked clothing) may destroy useful bloodstain patterns if folded up wet.*
- Mark evidence packaging. If you mark the actual item be careful not to destroy, contaminate, or obscure forensically important detail on the evidence.
- Obtain the appropriate standards.
- Obtain the appropriate controls.

Conduct Final Survey

- Discuss the search jointly with all team members for completeness.
- Check to ensure all evidence, including film, is accounted for before departing scene.
- Make sure any possible hiding places or difficult access areas have not been overlooked during the search.

- Check to ensure all equipment is accounted for before departing scene.

Vehicle Examinations

Note the following information about the vehicle:

- Year
- Make
- Model
- License plate
- VIN
- Color
- Damage

Examine and take note of the following. It may help to divide the interior into quadrants and search each quadrant from ceiling to floor.

- Examine exterior of vehicle. Look for transfer evidence relevant to the case (e.g. paint from a hit and run vehicle, clothing impressions on the plastic of a front bumper, hair caught on the broken edge of windshield glass, etc.).
- Tire information for all tires including manufacturer, type, size, and tire pressure. Make an exemplar from each tire if it will be needed to compare to tire track evidence.⁵
- Position of seat(s), tilt wheel, and rear view mirror.
- Condition and position of windows (broken, rolled up/down, etc.).
- Vacuum or tape lift each quadrant for trace evidence.⁶
- Examine interior of vehicle.
- Examine engine compartment
- Examine trunk
- Examine undercarriage of vehicle
- Take known standards from the upholstery, carpet, or other vehicle for possible later comparisons if needed.

Postmortem Examinations

Photograph the following:

- Full body photographs of victim as delivered to the postmortem examination.
- Full body photographs of victim unclothed, before and after clean up.
- Mid-range and close-up photographs of exterior wounds and/or identifying marks (e.g. tattoos) with and without a scale.
- Photograph any body parts or evidence requested by the Medical Examiner (e.g. bullets, bullet tracks, etc.).

It is recommended that the following evidence be collected during a postmortem examination. Remember that the postmortem examination may be the only (or last) chance to collect this evidence, so it is prudent to collect more than you think you need, rather than less, in these situations.

- Blood standard. Collect at least one lavender/purple stoppered tube for a DNA standard.
- Blood sample for blood alcohol determination. Collect at least one gray stoppered tube.

⁵ See "Footwear and Tire Tread Evidence – Exemplars and Standards."

⁶ See "Fiber Evidence – Collection of Fiber Evidence."

- Urine sample
- Head hair standard. This should be pulled, not cut.
- Pubic hair standard. This should be pulled, not cut.
- Sexual assault evidence kit⁷
- Penile swabbing evidence kit⁸
- Fingernail scrapings
- Clothing, one item per bag
- Evidence items located in or on the body
- Finger and palm prints (for elimination print purposes and identification)

Allow any swabs to air-dry and then package each sample type separately into paper envelopes. *Do not enclose damp swabs in blood tubes or other airtight containers.*

Bloodstain Pattern Analysis

Analysis of bloodstain patterns can reveal significant information in some cases. In such cases, the relevant issue may be how the blood was deposited rather than whom the blood came from. When this is the situation, contact your local laboratory for a qualified expert to assist in the bloodstain pattern interpretation.

⁷ Consider collecting this evidence even when sexual assault is not immediately suspected. If it is not collected and becomes relevant later in the investigation, the samples may be difficult or impossible to recover. See “Biological Evidence – Sexual Assault Evidence Kits and Penile Swabbing Evidence Kits” for further information.

9.0 FIBER EVIDENCE

Fibers are easily transferred between individuals and between individuals and environments. Fiber evidence can be of value in cases such as homicides, assaults, robberies, and burglaries. Research has shown that with few exceptions the largest quantity of fibers on an object is from the last person to be in contact with it. Therefore, it is advantageous to consider collecting fiber evidence prior to processing for other types of evidence. Caution should be used to prevent cross contamination of evidence collected for fiber examinations, particularly when crime scene personnel will also be responsible for collecting suspect or victim clothing items or for the processing of related scenes or vehicles.

Laboratory analysts examine various physical, chemical, and microscopic properties of fibers when performing a comparison between evidence fibers and a potential source. Common conclusions include statements regarding the similarity or dissimilarity of the evidence fiber(s) to the possible source or standard. Fiber comparisons cannot, however, determine the source to the exclusion of all others.

Fiber Examinations

The following may be determined from fiber examinations:

- The type of fiber (e.g. natural or synthetic, animal fiber, glass fiber, etc.)
- The possible product uses for the fiber (e.g. carpet fiber, clothing fiber, etc.)
- The degree of similarity between evidence fiber(s) and a fiber source

Collection of Fiber Evidence

Fiber evidence can be collected in a number of ways. Table 4 lists various methods and when they are appropriate.

Table 4: Fiber Collection Methods

Method	Description	Packaging	When to Use
Adhesive lifts*	Use fingerprint tape, cellophane tape, or other clear adhesive substrate and pat over the item. Take care not to miss any areas or allow the tape to become "overloaded." Post-It notes may also be used for small areas.	Stick adhesive tapes onto a clear, colorless plastic sheet (e.g. transparency film). Place into a paper envelope or bag. Fold Post-It notes in half and place into a paper envelope.	For fibers you cannot see, or to be sure you have not missed any. Good on car seats, surfaces of clothing, and other medium to large surfaces.
"Pick" method	Using your fingers or tweezers, carefully retrieve the fiber taking care not to pinch, crush, or stretch it.	Place the fiber into a paperfold, in a folded Post-It note, or paper envelope.	For fibers you can see.
Vacuum sweepings	Use a portable vacuum cleaner equipped with special traps holding a piece of filter paper. <i>Lightly</i> vacuum the surface of interest. The goal is to collect fiber evidence that is on the surface of the object, not to clean it.	Carefully remove the filter trap, cover with the lid or cap, and package in a paper or plastic bag.	For fibers you cannot see, or to be sure you have not missed any. Good on car seats, sections of carpeting, and other large surfaces.

* Care should be taken to store adhesive lifting materials in such a way that they will not become contaminated prior to use.

Collection of Fiber Standards

Standards (or a possible source) are required when the laboratory is requested to perform a fiber comparison.

If the possible source can be packaged and transported to the laboratory with ease, submit the entire object (e.g. clothing items, throw rugs, etc.)

If the fiber source is believed to be from a large object or one not easily transported, such as car upholstery or carpeting from a dwelling or vehicle, cut representative samples from various areas of the carpeting. Be sure to collect samples from areas that are visually different (e.g. different colored areas, faded areas due to sunlight, worn sections, etc.). Samples should be about 1x1 inch unless you see variations in the carpet that would warrant a larger sample cutting.

Package the garment, object, or sample cuttings in paper envelopes or bags and clearly label with a description of where the standard came from.

Do not package standards with evidence fibers, or allow them to be near or in contact with each other. This could allow cross contamination to occur.

Adhesive lifts are NOT acceptable for collection of standards.

10.0 FINGERPRINTS (FRICTION RIDGE SKIN) EVIDENCE

Fingerprints (friction ridge skin) are a widely recognized means of personal identification and their individuality and permanence make friction ridge skin identification one of the most valuable forms of evidence. Most crime scene evidence has the potential to reveal identifiable latent print impressions so assume that latent prints are present on all objects handled by the perpetrator and process or collect these pieces of evidence accordingly.

By examining the evidence submitted, the laboratory will be able to:

- Determine the presence of latent, patent or plastic print impressions.
- Determine if these print impressions are identifiable.
- Compare and identify these print impressions with the known friction ridge print impressions of suspects and those of others for elimination purposes.
- Search for a possible latent donor by utilizing the Automated Fingerprint Identification System (AFIS) to establish a list of potential candidates.

The Latent Print Laboratories are currently located in Bend, Central Point, Portland Metro, and Springfield.

Collection, Packaging, and Submission of Evidence

Evidence collected from the crime scene for latent examination should be submitted as an analytical case using the Forensic Services Request (Form 49). Exhibits being forwarded to a laboratory should be initialed and dated when practical. Take care, however, when marking the items that these marks are not placed in an area which would likely obliterate any latent prints present. If insufficient space exists for initialing, place the item in a bag, seal and properly mark the exterior. The item should be packaged so that no rubbing action occurs as this may destroy latent fingerprints present on the object.

Evidence should be submitted for examination as soon as possible after its discovery. Exposure to water or dampness should be avoided. However, this exposure does not necessarily destroy all latent prints. Any wet or damp object must be air-dried before it is packed for shipment. Unless absolutely necessary, do not process items of evidence which are to be submitted for latent prints. If items have been processed prior to submission to a laboratory, package those items to prevent smudging of the latent prints or possible breakage. All chemical processing of items should only be done by trained latent examiner or technician in the laboratory setting.

Identify all evidence, whether an original article, a lift, photographic negative or image CD/DVD with a tag or a mark placed so it will not interfere with the latent

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examination. Any number of paper specimens may be placed in a single envelope for submission.

Any latent prints of identifiable quality will be imaged and the original lifts or evidence will be returned to the submitting agency. If the original lift is not available, non jpeg images of the latent, with a scale in the image, may be submitted. (See the Division policy on submitting digital images)..

After comparisons are conducted with any known suspect's prints or submitted inked standards, the remaining unidentified latent fingerprints will be evaluated for AFIS quality and may be searched against the AFIS database. Unidentified latent fingerprints of AFIS quality will be entered into the unidentified latent fingerprint database for future searches against the database. If identification is effected as a result of this search the submitting agency will be notified in an official laboratory report.

In the event the submitting agency should identify any latent fingerprints that should be cleared for any reason, the agency should notify the laboratory so these latent fingerprints can be purged from the unidentified latent fingerprint database.

Submission of Inked Prints for Comparison Purposes

The investigator should take inked prints from all persons known to have legitimately handled the evidence (elimination prints) to permit comparison with any latent prints, or if the individual already has inked prints on file, list their SID number on the Form 49 when submitting the evidence.

Often latent prints found at the scene of a crime involve areas of the palms, second and third joints of the fingers, and the finger sides and tips. For this reason the analyst may request that the investigator take complete inked prints (major case prints) of all ridges on the hands of suspects or 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.

Inked prints for comparison with latent prints should be submitted with the evidence itself.

Identifying the Deceased

The responsibility for identifying deceased persons rests with the State Medical Examiners (ME) Office. The Forensic Services Division often assists the ME in identifying decomposed remains. Requests of this type should be made through the State ME's Office.

Routine identifications for the purpose of clearing a Complete Criminal History (CCH) record should be made through the Identification Services Section of LEADS in Salem.

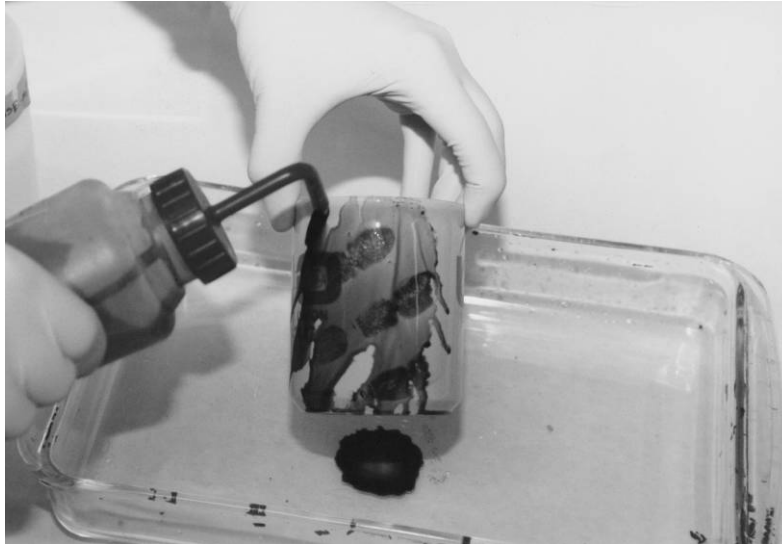


Figure 4: Chemical processing of latent fingerprints on a coffee mug using a protein stain.

Table 5: Latent Fingerprint Evidence DO'S

DO use cotton or latex gloves to pick up items of evidence being careful not to wipe possible latent prints off the surface.

DO minimize handling of evidence.

DO fasten down large articles containing latent prints with string or wire to a rigid surface to prevent shifting and contact with other items. Mark containers with the words "latent print evidence."

DO put developed latent lifts in envelopes and mark and seal.

DO place papers and documents containing latent prints in manila envelopes, seal and mail.

DO take complete and legible, inked prints of all of subjects without SID numbers.

DO include inked fingerprints and palm prints of all individuals who may have handled the items before or after the crime.

DO treat all inked print cards as evidence, seal and package with a completed Forensic Services Request (Form 49).

DO list all descriptive information of subjects being named for latent print comparison. This includes appropriate State Identification numbers (SID).

DO mark packaging with "Biohazard" symbol if item contains skin, blood or other biological stained evidence.

Table 6: Latent Fingerprint Evidence DON'TS

DON'T apply powder to obviously greasy, wet or bloody surfaces, or to prints left in dust or soft putty. Please photograph these prints.

DON'T wrap nonporous items in cotton or cloth as they may damage or destroy the latent impressions.

DON'T directly cover exhibits to be examined for latent prints with evidence tape.

11.0 FIREARMS EVIDENCE

Many crimes of violence involve the use of firearms, whose value as evidence can be as unique as a fingerprint. The underlying premise of firearm examinations is that marks or impressions result when two objects make contact with each other. These resulting impressions are characteristic of the “tool”, which is usually the harder of the two objects. A bullet, which is composed of relatively soft metals, travels through the harder barrel of a firearm causing the barrel to leave markings on the bullet. These markings are unique and can often be associated with a specific firearm. The same is true for markings left on cartridges and cartridge cases from the firearm or its components.

Firearm examiners conduct the following types of examinations:

- Determining firearm function and safety.
- Determining if a firearm discharged in a manner other than designed (e.g. accidental discharge, full automatic conversion, etc.).
- Generating a list of possible firearm(s) based on the rifling characteristics on fired bullets and cartridge cases.
- Comparison of bullets, cartridge cases, or fired shot shells to a firearm to determine if they were fired in a particular firearm.
- Cartridge comparisons to determine if they had been worked through the action of a suspect firearm.
- Determination of proximity, which is the distance from muzzle to target determined by powder or shot patterns.
- Crime scene reconstruction and trajectory analysis.
- Manufacturer and type of ammunition.
- Examinations and conclusions regarding the identification of gunpowder.
- Examination of wounds for the presence of firearms related evidence.

National Integrated Ballistics Information Network (NIBIN)

In the past, firearms examiners were greatly limited in their ability to associate fired bullets and cartridge cases from separate incidents unless an investigative lead was developed to warrant a comparison of the evidence. With NIBIN, the laboratory can provide leads to investigators that may not have been available or known in the past.

NIBIN is a system that captures and compares images of fired bullets and cartridge cases. These images are searched against a database. When similarities are observed, the evidence is referred to a firearms examiner for a comparison to confirm the positive association between the NIBIN images.

To request a search of NIBIN, contact your local Forensic Laboratory for information on how to submit.

Collection and Packaging of Firearms Evidence

The primary concerns when packaging firearms are safety and the preservation of the evidence including blood, trace evidence, and latent prints that may be present.

- Never insert anything into the barrel of a firearm.
- Minimize handling because it is possible to recover latent prints from firearms and ammunition.
- Do not remove cartridges from magazines, however, do remove the magazine.
- Absent special circumstances, recovered firearms and ammunition components should not be physically marked in any manner (see exception listed below). Label the packaging instead.
- Mark the position of the cylinder on both sides of the top strap before opening the cylinder of a revolver and make note of the position of fired and unfired cartridges in the cylinder. This is so the position of the cylinder, as recovered, can be determined after the cylinder is opened.
- Store and transport firearms unloaded and rendered safe. If unable to do so, hand-deliver the firearm to the laboratory and inform lab personnel immediately of the firearm's condition.
- Any evidence with possible blood or body fluids should be air-dried, then packaged in paper bags, envelopes, or cardboard boxes labeled with a "BIOHAZARD" label.
- Individually package fired ammunition in plastic bags or paper envelopes to prevent alteration or obliteration of microscopic markings.
- Recover any unused ammunition of the same brand and type for laboratory examinations.

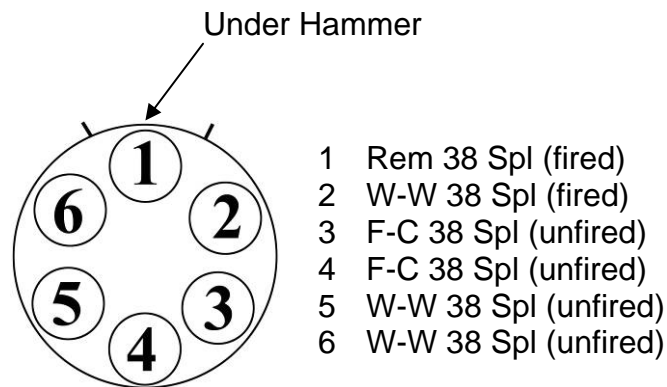


Figure 5: Example of how to note the positions of cartridges and cartridge cases in the cylinder of a revolver.

12.0 IMPRESSION EVIDENCE

Shoe, tire and fabric impressions are routinely present at crime scenes and are frequently overlooked by law enforcement personnel. In many instances the examination of these impressions can provide the investigator with valuable leads such as the type, make/model, and approximate size of the footwear or tire. If properly documented and collected, almost every impression left by a shoe or tire has value for forensic comparison to a suspected source. Even when suspect footwear is not available, images of impressions from scenes may be submitted to the laboratory for search in the SICAR (Shoeprint Image Capture and Retrieval) database for make/model determination and comparison to impressions from other scenes.

Impression Evidence General Guidelines

- Photograph the impression with and without a scale device. The scale should be a two dimensional ruler.
- Whenever possible, retrieve the original item containing the impression (e.g. paper, glass, flooring, door) for submission to the laboratory.
- Lift or cast the impression when it is in soil, sand, or snow, or when it cannot be sent to the laboratory.

Photographic Methods

- Photographs of the evidence should always be taken first before any attempt to collect it.
- Photograph the general scene that contains the impression evidence.
- Digital photography is acceptable; however, low resolution images may be of limited use in comparisons. If using a film camera, select a camera with a large negative format such as 35mm or 4x5 inch. Fine grain black and white or color film (ISO 125 or less) is preferred.
- Place the camera on a tripod with the camera directly over and perpendicular to the impression. It is important to avoid taking the photos at an angle to the impression. This can result in the inability to accurately enlarge the images as needed for comparison.
- Adjust the camera height so the impression and scale fill the frame.
- Use overlapping exposures to record elongated impressions.
- Use side lighting at various angles and from various directions to illuminate tread design more clearly. This may require shading the camera setup from high, bright sunlight with a makeshift tent and access to a detachable flash unit.

Three-Dimensional Impressions

Three-dimensional impressions are those that have a significant depth, in addition to the length and width of the impression. Commonly, they may be found in soil, sand, or snow and the detail within the impression may vary according to the substrate. Casting is an effective method of collecting these types of impressions. Impressions should always be photographed prior to casting. Photographs, however, are not considered substitute for a cast. If a lengthy tire track is encountered, an attempt should be made to cast a section at least three feet in length.



Figure 6: Representation of the camera and tripod setup for shoeprint photography

Casting Methods

Dental stone or die stone should be used to cast footwear and tire tread impressions in soil and sand. Plaster of Paris is no longer recommended as an acceptable casting material. Dental stone can be obtained from local dental supply houses or in pre-made ready to use kits at minimal cost.

If using bulk dental stone, two (2) pounds of dental stone may be placed into an 8x12 inch Ziploc plastic bag; this amount will cast an average sized shoe impression. In preparation for use at crime scenes, numerous two-pound bags can be prepared and stored.

When using a commercially prepared kit, follow manufacturer instructions for mixing. The following is the procedure for making a cast from a self-made dental stone kit:

1. Retrieve a two-pound bag, add about 10 ounces of water, and thoroughly mix in the closed bag. The mixture should have the consistency of thin pancake batter. If needed, add more water or dental stone to create the correct consistency.
2. Open the bag and with the bag at ground level, carefully pour the mixture into or next to the impressions, allowing it to gently flow into it. Fill the impression completely so that the mixture overflows out of the impression.
3. When the cast is firm but still soft, scratch identifying marks on the exposed surface or write identifying marks with a permanent marker when

- the cast is dry.
4. Allow the cast to dry for a minimum of twenty minutes in warm weather, longer in cold, wet conditions.
 5. Carefully lift the cast. Do not try to clean it; cleaning will occur in the laboratory.
 6. Package the cast in a large brown paper bag or cardboard box (not plastic) and allow to dry for an additional 48 hours.

Two-Dimensional Impressions/Prints

A two-dimensional impression is one where there is no significant depth to the impression. A thin deposit of dust, mud, blood, or other material from a shoe onto a hard surface may create these impressions.

- Floors, glass, desktops, doors, paper items, etc. can retain a dust or residue impression at a scene. Some impressions may be clearly visible while others may be partially or totally latent.
- Latent dust shoeprints can be located by turning out all lights and shining a flashlight across the surface of interest at a low angle. For example, to search for latent shoeprints on a vinyl floor, place the flashlight on the floor (or near it) and allow the long beam of light to shine across the floor.
- Photograph the impressions, as described above, before collecting.
- Attempt to enhance or lift the impression only if the entire item cannot be retrieved from the scene and submitted to the laboratory.
- Dust and residue impressions may be lifted with an electrostatic lifting device or gelatin lifter or adhesive lift. Contact the laboratory for information on where to purchase an Electrostatic Dust Print Lifter or lifts.
- Impressions made by wet or damp footwear can sometimes be enhanced by carefully dusting with fingerprint powder. A small portion of the impression should be dusted first to test the success of the powdering technique. The impression is then photographed and can be lifted with a contrasting gelatin or adhesive-lifting material. Contact the laboratory for information on where to purchase lifts.

Exemplars and Standards

Elimination Prints

There may be several people who have legitimately walked into a crime scene. These include first responders, medical personnel, members of the crime scene team, funeral home or Medical Examiner's Office personnel, individuals from the District Attorney's Office, etc. These people may leave their shoeprints at the scene and it can become difficult to distinguish evidentiary shoeprints from those that are artifacts of the crime scene processing.

Exemplars may be collected from people entering the crime scene in a number of ways. A good time to do this is have the person keeping the crime scene log require everybody entering the scene to give a shoeprint exemplar before proceeding into it. This may be accomplished by:

- Taking a photograph of the shoe sole.
- Having the person step onto a piece of aluminum foil which is on a flat piece of cardboard (leaving a rough impression of the shoe sole).
- Greasing the soles with a thin film of petroleum jelly and having the individual step onto a clean piece of paper. Dust the grease print with fingerprint powder for visualization.
- Using a commercially available kit consisting of an ink pad with non-visible ink and foot-sized pieces of paper for collection.

Shoe Standards

Shoes should be submitted to the laboratory as standards from all individuals thought to have left evidence shoe impressions at a crime scene.

Tire Exemplars

It is highly recommended that tires be submitted to the laboratory for the making of tire exemplars and comparison to unknown tire tracks. Whenever possible, tire exemplars should be made with the tire still in place on the vehicle. If it is not possible to transport the vehicle or to collect the tire, please contact your local laboratory for recommendations on how to proceed.



Figure 7: Photograph of a shoeprint. Notice the shoeprint fills the frame, a scale is present, and the camera is directly over the shoeprint, not at an angle. This is how your shoeprint photographs should look.

Collection and Packaging

- Whenever possible, collect the impressed item and submit it to the laboratory.
- Submit the photographs of the impression to the laboratory.
- Protect the impressed item so that the impression does not rub off.
- Package in a cardboard box or paper bag. Carefully securing the item to the bottom of a thin cardboard box is a good way to protect flat impressed items.

13.0 GLASS EVIDENCE

Glass is one of the more important types of physical evidence that is commonly overlooked. Glass is frequently encountered in burglaries and hit and run cases, and glass fragments may be found adhering to garments, shoe soles, or other property belonging to the suspect(s) as well as in hair combings.

Glass evidence cannot be individualized to a single source, however, there are some instances where two fragments can be physically matched together and a common origin can be conclusively established.

Glass examinations may reveal the following:

- Whether or not evidence glass is similar to glass from a known source
- The type of glass (e.g. tempered glass, container glass, etc.)
- The direction of force (from inside or outside) used to break a window
- The order of shots fired into a window or windshield

Consider that large glass pieces may have latent fingerprints present and the broken edges of glass may have other trace evidence present such as blood, hair, or snagged fibers.

Collection and Packaging of Glass Evidence

- Collect and submit *all* glass pieces if you believe numerous glass pieces were from the same object (e.g. a window, a bottle, vehicle headlights, etc.) and request the laboratory to attempt a physical match.
- Package glass pieces from different locations into different containers, clearly marking the outside packaging as to the location and description of the evidence.
- Label large glass pieces with orienting marks (e.g. up/down, inside/outside) when applicable.

Large Glass Pieces

Collect and package a large glass piece in a rigid container such as a cardboard box. Protect the broken or fractured edges of the glass from any additional damage or breakage.

Small Glass Pieces

Depending on the size, glass pieces can be packaged in envelopes, bags, paperfolds, or on Post-It notes. For very small glass particle(s), place the particle onto the adhesive of a Post-It note and use a pen to circle around it. Fold the note in half, covering the glass particle(s), and then put the folded Post-It note in a paper envelope.

Glass pieces that are a little bigger can be packaged in envelopes or bags, then secured in a padded envelope to protect from further breakage or injury to those handling the evidence.

Clothing Items

An individual who breaks a window with force may have very small particles of glass on his/her clothing. It is not uncommon to find minute glass particles on the soles of shoes, the tops of shoes, and the cuffs or lower portion of pants.

Collect such clothing items, taking care not to shake or handle the clothing more than necessary. Doing so may dislodge these small glass particles. If the clothing is not stained with biological material (e.g. blood), package in a paper bag carefully sealing all possible openings. If the clothing is stained with biological material, allow the clothing to air-dry on a clean, dry surface and package in a paper bag. If this is not possible, collect *and submit to the lab ASAP*.



Figure 8: Exterior view of a vehicle windshield with a bullet hole. Examination of the characteristic fracturing around the hole revealed the shot was fired from the inside of the window to the outside, not from outside to inside.

Collection and Packaging of Glass Standards

A comparison of evidence glass to a possible source requires the submission of glass standards. If possible, submit the entire item in packaging that reduces the chance for further breakage.

Large windows may require a sampling of glass from several different spots, as there may be variation of physical properties even within a single glass pane.

Vehicle windshields and some structural glass may be double paned, meaning that two different panes of glass are present. Standards must be collected from different areas on *both* glass panes. Package the standards from each pane separately.

For window glass standards, collect the glass that is still adhering to the window frame when possible. Collecting glass standards from the ground increases the likelihood of introducing contaminant glass into the standard.

Package glass standards similar to the guidelines discussed above in “Collection and Packaging of Glass Evidence.”

14.0 GUNPOWDER AND SHOT/PELLET PATTERNS

When fired, a mixture of burned and unburned gunpowder, vaporized primer, and bullet or shot material is blown out the firearm's muzzle along with the bullet or shot pellets and wad(s).

Examination of the evidence may reveal the following:

- Proximity, which is the distance from muzzle to target determined by powder or shot patterns
- Ammunition type
- Ammunition manufacturer
- Firearm condition
- Bullet or pellet entry angle
- Stipling or sooting around the entrance

Collection of Gunpowder Evidence

Submit the clothing or other object(s) that may have gunshot residue or bullet/pellet holes. Carefully handle and package the evidence to avoid losing deposited gunpowder and/or other residue(s).

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

15.0 HAIR EVIDENCE

Hair evidence is generally associated with crimes involving physical contact such as homicides, assaults, robberies, and hit and runs. A transfer of hair can occur between two individuals or an individual and a place or object. Such a transfer is valuable evidence, particularly in cases where the perpetrator is a stranger to the victim or an environment.

A hair examiner will examine and compare evidence hair to standards, basing his/her conclusion(s) on the microscopic features of the hair samples. Common conclusions include statements regarding the similarity or dissimilarity of the evidence hair to the standard, however, hair comparisons cannot determine identity to the degree that fingerprint or DNA analysis can.

The root of a hair may contain enough DNA to perform nuclear DNA analysis. Mitochondrial DNA analysis of hairs unsuitable for nuclear DNA analysis may be possible in some cases. The Forensic Services Division does not perform mitochondrial DNA analysis, but can facilitate the transfer of evidence to the FBI when necessary. The amount of DNA in a hair is very small and therefore contamination may occur if precautions are not taken. Do not touch hair evidence with your bare hands or contaminated gloves.

It is the policy of the Forensic Services Division to perform microscopic hair comparisons prior to DNA analysis when possible.

Hair Examinations

The following may be determined with hair examinations:

- The degree of similarity between evidence hairs and a hair standards
- Determination of human or non-human
- Determination of animal species
- Determination of human body origin (e.g. head hair, pubic hair, etc.)
- Determination of classic racial characteristics
- Whether or not a human hair was forcibly removed or not
- Alterations exhibited in a human head hair (e.g. bleached, dyed, etc.)

Whole human head hairs and pubic hairs (where the root is present) generally have enough microscopic features to allow for a meaningful comparison to a standard. Hairs from other parts of the body, or hair fragments (where the root isn't present), are typically *not* well suited for a comparison.

Collection of Hair Evidence

Hair evidence can be collected in a number of ways. The table below lists the various methods and when they are appropriate.

Table 7: Hair Collection Methods

Method	Description	Packaging	When to Use
“Pick” method	Using your fingers or tweezers, carefully retrieve the hair taking care not to pinch, crush, or stretch it.	Place hair into a paperfold, in a folded Post-It note, or paper envelope.	For hairs you can see.
Vacuum sweepings	Use a portable vacuum cleaner equipped with special traps holding a piece of filter paper. <i>Lightly</i> vacuum the surface of interest. The goal is to collect trace evidence that is on the surface of the object, not to clean the object.	Carefully remove filter trap, cover with the lid or cap, and package in a paper or plastic bag.	For hairs you cannot see, or to be sure you have not missed any. Good on car seats, sections of carpeting, and other large surfaces.
Adhesive lifts*	Use fingerprint tape, cellophane tape, or other clear adhesive substrate and pat over the item. Take care not to miss any areas or allow the tape to become “overloaded.” Post-It notes may also be used for small areas.	Stick adhesive tapes onto a clear, colorless plastic sheet (e.g. transparency film). Place into a paper envelope or bag.	For hairs you cannot see, or to be sure you have not missed any. Good on car seats, surfaces of clothing, and other medium to large surfaces.
Scraping	Use a clean spatula or long, flat tool to scrape the surfaces of an object onto a large, clean piece of paper. For this to work well, the object should be hanging or held up vertically over the paper, scraping downwards.	Carefully shake any trace evidence on the paper to the center and fold the paper. Seal the paperfold and place into a paper envelope or bag.	For hairs you cannot see. Works well on clothing or other pliable objects.

* Care should be used to avoid contamination prior to use.

Collection of Hair Standards

Collect hair standards in the following manner:

- Obtain standards from all possible sources (e.g. suspect, victim, and other individuals common to an environment).
- Obtain standards as soon as possible after the crime occurred. Hair naturally changes in its characteristics over time because it is constantly growing. The standards should reflect the individual’s hair as close to the date of the crime as possible.
- Obtain a minimum of 24 pulled and shed hairs from various areas around each body region (e.g. top of head, side of head, back of head, etc.) Shed hairs can be collected by combing the hair and collect the loose hairs onto

- clean paper.
- Gather all the hairs collected from a single body region and place into a paperfold or paper envelope.
- Seal and label the envelope with the individual's name and the body region it was collected from.
- Do not package paperfolds containing different individual's hair in the same envelope, or package hair standards with hair evidence. This could allow cross contamination to occur.



Figure 9: Microscopic view of two hair roots. The hair at left has a layer of translucent tissue surrounding the root (shown with arrow), indicating it was forcibly removed from the person's head. The hair root at right does not have this tissue layer, indicating it probably shed naturally from the head. The root with tissue on it is more likely to yield DNA results than the other one.

16.0 LAMP EVIDENCE

During a crash investigation it may become important to determine whether or not a headlight, taillight, or other light unit was on or off at the time of an impact. These determinations can usually be made if the lamp was cracked or broken, but in some instances may be made even if the glass was not broken.

During the investigation of crashes where operating conditions of lights are important, remember:

- *Never* attempt to turn on the lights to see if they are operational.
- Always check the position of the light switches.
- Question all suspects, victims, and witnesses as to their observations concerning the operating conditions of the lights involved.

Collection and Packaging of Lamp Evidence

Recovery of all parts of the broken lamp is of primary importance. Carefully remove the complete lamp unit if possible. Otherwise, remove all parts of the unit. The parts recovered should include the socket, glass fragments, filament supports, and filaments. The recovery of the filaments is of greatest value since more information can be secured from them than any other part of the lamp unit.

Broken lamp units and parts should be marked with the location of the lamp on vehicle and the orientation of the bulb in the socket. Package the components in a manner to prevent further damage during shipment (e.g. in a cardboard box or suspend the bulb in a Styrofoam cup). If the broken unit is one of a pair, attempt to remove and submit the other unit for comparison whenever practical.

17.0 PAINT EVIDENCE

Paints are used as surface coatings for a variety of surfaces such as vehicles, structures, and appliances. Many crimes, such as burglaries, hit and run vehicle investigations, and others involve forceful activities that can result in the transfer of paint from the original source to another place, person, or thing. Paints contain a multitude of components, many of which may be detected in very small samples such as those encountered as evidence. Analysis and comparison of paint samples can be successful even when they are extremely small in size.

Paint examinations can determine:

- Whether evidence paint sample(s) are similar to a paint standard
- The type of paint (vehicle, architectural, etc.)
- Possible make and model of a vehicle by using Paint Data Query (PDQ), a computerized database

Collecting and Packaging Paint Evidence

Be extremely careful collecting, packaging, and marking small paint chips. Small samples can be retrieved with forceps or tweezers and placed into a small paperfold or into a glassine envelope. If using a glassine envelope, take care in sealing the corners with tape to prevent loss of sample.

- Do not lift or stick small paint particles onto adhesive tape. It is sometimes not possible to remove small particles from tape adhesive.
- Do not place small paint particles in a paper envelope unless protected in a paperfold.

When paint is smeared onto large or immovable objects, the paint should be scraped in such a manner as to collect as much of the smear as possible. These scrapings should be collected in a paperfold and properly labeled.

In a situation where paint is smeared onto smaller or moveable objects e.g., prying tools, protect the smear by loosely applying a cover and placing the entire object into an appropriate container.

Collection of Standards

If the object believed to be the source of the paint can be transported, submit the entire object to the laboratory.

For objects or vehicles that are not easily submitted to the laboratory, collect standards from an area as close to the damage as possible. If a damaged vehicle is suspect, collect the paint standard from the edges of *all* damaged

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areas. This is true for structural and appliance paint as well. It may be possible to form a physical match between the evidence paint fragments and the standards.

Use a clean razor blade, scalpel, or knife to carve or chip the paint from the surface down to the foundation/substrate instead of scraping it off. This ensures that all layers of paint are collected, including any primer material. Remove paint from each damaged area in the same manner. Remember that the hood, trunk, roof, and fenders of vehicles may not be painted with the same paint.

Package paint standards in paperfolds or glassine envelopes and paper envelopes, carefully sealing to prevent loss. The paint standards must never be packaged together with evidence samples. This could allow cross contamination to occur.

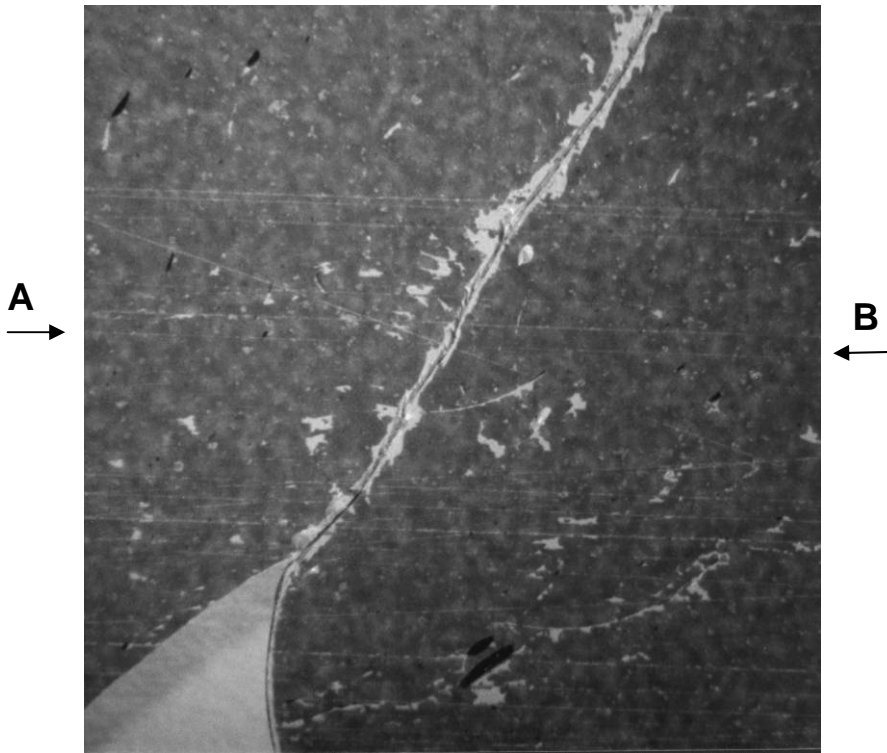


Figure 10: A physical match of two paint chips. Paint chip “A” was recovered from the scene of a hit-and-run; paint chip “B” was collected from the damaged area of a suspect vehicle. Note the microscopic scratches in the paint extending across the break.

18.0 PLASTIC AND TAPE EVIDENCE

Plastics are composed of polymers that are manufactured into a variety of different objects. Plastic evidence that may be encountered includes broken vehicle reflectors, smears on clothing, and small pieces of plastic from tapes and garbage bags.

Laboratory examination may be able to determine the type of plastic and whether or not it is similar to a suspected source. For large, rigid plastic pieces (e.g. broken reflectors), the laboratory can attempt a physical match.

Plastic fusion marks might be present on an individual's clothing as a result of a high-energy impact with a plastic component of a vehicle interior. Because a variety of different plastics may be present on the interior of the same vehicle, it may be possible to establish the position of the individual within the vehicle by comparing the plastic fusion mark to standards from the vehicle interior. Remember that a high-energy impact can cause a plastic component in a vehicle interior to have fibers or a fabric impression from the clothing, as well.

Collection of Plastic Evidence

Large, rigid plastic pieces may be collected and packaged into paper envelopes or bags, plastic bags, or cardboard boxes.

Small pieces of pliable plastic evidence (e.g. tape pieces, piece of garbage bag, etc.) should be placed into a paper envelope. Tape pieces that are adhesive should be affixed to a clear plastic sheet, *not* to a piece of paper, prior to packaging.

Clothing with possible plastic fusion marks should be packaged separately into paper bags.

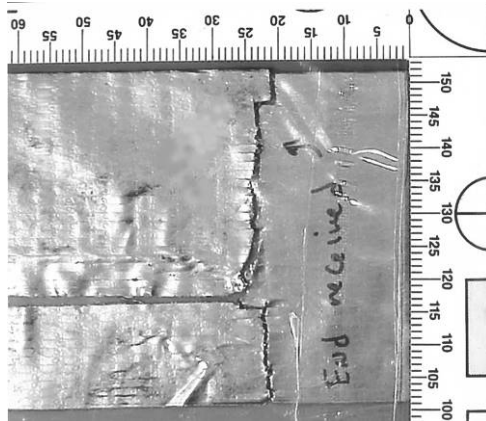


Figure 11: Physical match of duct tape pieces. The piece on the right was recovered from the suspect's possession; the pieces on the left were recovered from the crime scene.

19.0 QUESTIONED DOCUMENTS

A document is defined as anything upon which a mark is made for the purpose of conveying a message. Many seemingly insignificant documents involved in criminal investigations may offer conclusive proof of certain facts.

The following information can be determined from documents:

- Identification of handwriting or hand printing as the product from a certain individual.
- Determination of whether a specific typewriter was used in preparing a specific document.
- Determination of whether a particular document was prepared continuously or if certain portions were added later.
- Determination of whether two pieces of paper were at one time a single piece.
- Decipherment of erased, obliterated, altered, charred, or water soaked documents.
- Decipherment of indented writing.
- Determination of whether different inks were used to complete different parts of a document.

Submission of Questioned Document Evidence

The following are general guidelines when submitting questioned document evidence to the laboratory:

- Whenever possible, submit the original document(s). Send copies if the original(s) are not available.
- Document examinations should be performed prior to processing the evidence for latent fingerprints.
- Clearly identify on the Forensic Services Request (Form 49) which items are exemplars and which items are questioned.
- Call the Forensic Document Unit at 971-673-8230 for instructions regarding typewriter or other problems.

Collection of Exemplars

Never show the questioned document to the person while obtaining an exemplar. If you are unable to obtain exemplars, or the exemplars are incomplete, submit what you have because conclusions may still be possible. Always identify, sign, and date the exemplars legibly to maintain a proper chain of custody. The writer should use black ink; use different color ink for your notations.

When possible, obtain collected writing of the writer from other sources. This is writing that is already in existence and was not produced for the purpose of an investigation. One source can often be found in the writer's wallet or purse that may be copied if you have the proper permission and/or authority. These writings can help determine whether or not the writer has given you a naturally written exemplar.

Also obtain exemplars and/or collected writings from the victim for elimination purposes, especially in anonymous writing cases. Cancelled checks written by the victim are excellent in check cases and signature verifications.

Use the following procedure to obtain proper exemplars:

1. Use the Oregon State Police generic exemplar form (Form 76)⁸. Instruct the subject to fill out two forms, one in cursive and one hand printed. Both should be filled out completely.
2. Next obtain specific exemplars by dictating the questioned material to the subject several times. If the questioned material is lengthy, dictate portions of it. When obtaining requested signatures, having the subject write the signature several times on different pieces of paper.
3. Specific writings must be comparable. Cursive writing can only be compared to cursive and hand printing can only be compared to hand printing.
4. When obtaining specific writings, duplicate the questioned document as closely as possible by using the same type of writing instrument and the same format (e.g. personal check, prescription form, lined or unlined paper, etc.) used to produce the questioned document.

⁸ See "Appendix A" for a copy of the generic exemplar form (Form 76).

20.0 SERIAL NUMBER RESTORATION

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

Collection and Packaging of Evidence

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

21.0 TOOLMARK EVIDENCE

Toolmarks are impressions or marks produced when a tool comes into contact with an object; the tool is generally the harder of the two objects. Physical contact between a tool and the surface of an object produces marks not only characteristic of the type of tool used, but marks that may be unique to a single tool.

In the absence of a suspect tool, toolmark impressions can be examined in an attempt to determine the type of tool(s) that may have produced them. The following are types of tools that may be encountered are: hammers, screwdrivers, pry bars, knives, bolt cutters, pliers, tin snips, pipe wrenches, axes, and hatchets.

Do not attempt to determine if a found tool fits in the toolmark. This may alter or obliterate the toolmark and trace evidence may be lost or added.

Collection and Packaging of Toolmark Evidence

The recovered tool should be carefully packaged to prevent the prying blade or cutting edges from having contact with any other objects that may cause an alteration of the tool.

Send the whole object containing the toolmarks to the laboratory. If this is not possible, photograph the toolmark, then cut out the area with the toolmark or make a cast of the mark. Information about casting material that is appropriate for toolmarks may be obtained by contacting the laboratory.

Mark the cast or cut object with appropriate information indicating its orientation such as up/down, inside/outside, and left/right directions. Package the object containing the toolmark in such a manner as to prevent alteration or damage during shipment and storage.

22.0 TOXICOLOGY

During investigations when there is cause to believe that an individual may have been under the influence of alcohol and/or drugs, efforts should be made to obtain blood and/or urine for toxicological analysis. In cases where it is necessary to determine the level and effect of alcohol on the individual, blood is the specimen of choice. Urine may be tested for the *presence* of alcohol, however it is not a legally recognized testing medium for blood alcohol determinations and therefore a percentage of alcohol will not be reported. In cases where the use of controlled substances or other drugs is in question, urine is the specimen of choice.

Time is of the essence when examining blood for the presence of drugs; many drugs leave the blood very rapidly and may be difficult to detect or may yield negative results. Drugs are in greater abundance in urine and therefore more readily screened for than blood. When there is a question as to which medium is best, collect both blood and urine.

Blood Alcohol

The Forensic Services Division no longer recommends the collection of sequential blood draws. Testimony given at the time of trial will be exactly the same whether there is one blood draw or many.

The laboratory will normally not test blood for alcohol content if a breath test has been administered.

Collection, Packaging, and Storage

At least 10 milliliters (one tube) of blood should be collected in a commercially available gray-top tube that contains sodium fluoride and potassium oxalate or EDTA. Blood Alcohol Specimen Kits can be purchased for packaging and securing the blood tube. Contact the laboratory for information on where to purchase these kits.

Per OAR 333.13.026 (2)(c) a specimen labeling system must be employed which assures unequivocal matching of the specimen with the person from whom it was collected. The tube must be labeled with the individual's name, date, and time of the blood draw. Care should always be taken to maintain proper chain of custody by the sealing and labeling of evidence.

Blood should be submitted to the laboratory as soon as reasonably possible. Otherwise the blood sample should be refrigerated. Blood evidence returned to the submitting agency should be stored as indicated by the attached label. If no

label is attached, the sample can be stored per your agency's normal evidence handling procedures.

Urine

Quantitation of the amount of drug(s) in a urine sample is not performed because urine drug concentrations cannot be correlated to a level of impairment.

It is recommended that you include suspected drug information that is known and consider a Drug Recognition Evaluation (DRE) in conjunction with obtaining a urine sample.

Table 8: Drugs Tested in Routine Toxicological Analysis⁹

opiates (e.g. morphine, codeine, etc.)
amphetamine-like drugs (e.g. amphetamine, methamphetamine, MDMA, etc.)
barbiturates
benzodiazepines (e.g. Valium, Librium, etc.)
marijuana
cocaine
other basic drugs (e.g. methadone, antihistamines, etc.)
propoxyphene
other pharmaceutical drugs (e.g. Prozac, Soma, etc.)

Collection, Packaging, and Storage

Urine Collection Kits are provided by the Oregon State Police and should be available at all Intoxilyzer locations. These kits can also be obtained through the OSP stockroom by calling 503-378-4348.

Urine samples should be collected in the plastic screw-top container provided in the kit. Be sure the lid is *tightly* secured, and seal and label the container with the individual's name, date, and time the sample was collected, making note of the temperature of the urine specimen.

Secure the urine cup in the plastic bag provided to contain any possible leaks. It should be noted that urine that leaks into the plastic bag may not be analyzed. Urine should be submitted to the laboratory as soon as reasonably possible. Otherwise the urine sample should be refrigerated.

Urine evidence returned to the submitting agency should be stored as indicated

⁹ If you suspect a date rape drug (e.g. GHB, Rohypnol, ketamine, etc.), inhalants (e.g. paint thinner, gasoline, etc.), or LSD were used, this must be specifically noted on the Forensic Services Request (Form 49). These drugs are not routinely tested for in a toxicology analysis.

Adopted: May 2002

Revisions: 6

Last Revision: January 31, 2008

by the attached label. If no label is attached the sample can be stored per your agency's normal evidence handling procedures.

23.0 DIGITAL IMAGES (VIDEO)

The Oregon State Police Forensic Services Division current limits examination to retrieving still images from a video. Once the still image has been captured, it will be released to the submitting agency in either print or digital format. Please contact your local laboratory for assistance in submitting this type of evidence.

24.0 COMPUTER EVIDENCE

The Forensic Services Division does not examine this type of evidence. The Federal Bureau of Investigation (FBI) accepts this type of evidence at its regional laboratory in Portland, Oregon. Please refer to the FBI's NWRCFL website: <http://www.nwrcfl.org/>.

25.0 MISSING PERSONS

If a person who has been reported as missing has not been located within 30 days after the missing person report is made, the law enforcement agency that accepted the missing persons report shall attempt to obtain a DNA sample from the missing person or from family members of the missing person in addition to any documentation necessary to enable the agency to use the sample in conducting searches of DNA databases.

To identify the remains of a victim through DNA analysis, DNA from remains must be matched to DNA known to be from the victim or the victim's relatives. Thus it is necessary to collect DNA samples from family members and from personal items or prior medical specimens from the victim.

Secondary Victim Standards or Direct Reference Sample (DRS)- Agencies should attempt to obtain DNA samples known to be from the victim. Sources of DNA known to be from the victim may include:

- Previously collected medical specimens- Medical specimens may have been stored at a hospital or clinic. Please have the investigator check with the medical facility to see if the medically obtained samples have been stored in a fixative like formaldehyde or formalin. If it has, this would be the very last choice of samples that UNT would like to receive. The fixative places the chances of obtaining a usable DNA profile in question.

Personal items such as a toothbrush, lipstick, or other item containing saliva or blood are often good sources. It is very important that the personal items were used only by the victim or rarely used by anyone else. Note: Family reference sample will also need to be submitted to confirm the person item is from the missing person.

- Hairs-University of North Texas does not like to receive hair as a direct reference sample because of various concerns and contamination. They discourage hair submission if at all possible and ask agencies to work to get a better sample. Before they would accept the hair, a qualified hair examiner would have to examine the hair to determine if the hair was human and that roots were intact. The report and the examiner's credentials would need to be accompanying the submission from the agency.
- NO Clothing- The University of North Texas will not accept cloth as a direct reference sample because of contamination with other mitochondrial DNA. They need to get both a mitochondrial DNA profile and nuclear DNA profiles in order to have a match to any unidentified remains.

- Baby teeth are not very good because of mix ups with other children's teeth and the possible lack of mitochondrial DNA.

These items should be submitted directly to the University of North Texas. You local laboratory is available for questions.

DNA from the Victim's Relatives (Family Reference Standards):

When medical specimens and personal items (mentioned in paragraph above) are not available, DNA testing can be done on DNA samples from biological (blood) relatives. DO NOT collect the DNA from adoptive parents, adopted children, stepparents and other non-biological relatives. DNA from these relatives cannot be used to identify the victim. The closer the family relationship to the victim the more likely a match can be made. It is more difficult to make a match between victim remains and distance relatives. In some cases, it is useful to have DNA samples from specific relatives. If DNA from the victim's children is used, it is helpful to have DNA from the children's other biological parents.

Preferred Family Reference Samples in order of preference

1	Both Parents or Known identical twin
2	One parent, spouse and children
3	Children and spouse
4	One parent and sibling
5	Siblings (two or more)

Family Reference Standard kit (FRS)- This is the kit produced and disseminated by UNT to be used to collect oral swab DNA from family members of missing persons. Collection kits are available with instructions and supplies for retaining the DNA samples from family members. Each kit is for one family member. Several kits may need to be collected. The oral cells on swabs will be collected by the law enforcement agency involved using the Presidents DNA Initiative Collection kit or the FBI collection instructions. A signature of the person giving consent to the collection and testing of the DNA sample is required. A signature of the officer witnessing the collection is also required. Do not submit these collection kits to the OSP Forensic Laboratories. The kits will be sent directly to the FBI or UNT for Nuclear and Mitochondrial DNA analysis. The FBI and University of North Texas have the capability to enter the profiles into the appropriate CODIS databases. For more information on the CODIS

database go to the following website:

http://www.fbi.gov/hq/lab/codis/codis_brochures.htm

Contact information:

DNA Collection kits, University of North Texas, (1-800-763-3147)

26.0 UNIDENTIFIED REMAINS

Refer to ORS Chapter 146 - Investigations of Deaths, Injuries and Missing Persons.

Unidentified Remains:

- “Unidentified human remains” do not include human remains that are part of an archaeological site or suspect of being Native American. Archaeological remains are covered under ORS chapters 97 and 390 and OSR 358.905 to 358.961.
- All unidentified human remains will be initially processed by the Medical Examiner’s Office. The Forensic Laboratory will not accept human remains in any form from any agency other than the Medical Examiner’s office.
- Skeletal remains may be mailed to the Oregon State Medical Examiner’s Office for anthropological exam. All agencies must contact the OSP-ME Anthropology Section for instructions prior to sending the remains. Call 917-673-8200.
- All investigative processes (e.g. dental record comparison, pt. history/healed fracture comparisons, personal effects) will be utilized in order to identify remains before DNA analysis will be attempted. If the remains are not identified after these processes, they will be sent to either the FBI or UNT for Nuclear and Mitochondrial DNA analysis. The decision for DNA analysis will be made by the Oregon State Medical Examiner’s Office.

Contact information:

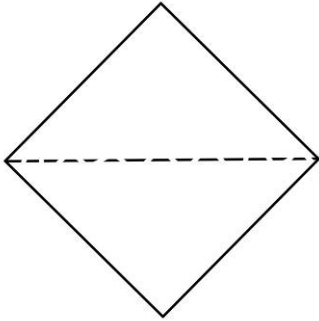
DNA Collection kits, University of North Texas, (1-800-763-3147)
Oregon State Medical Examiners Office.
13309 SE 84th Avenue, Suite 100
Clackamas, Oregon 97015
Phone 971-673-8200

Additional online resources:

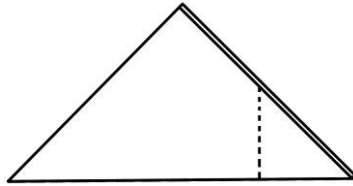
(<http://www.namus.gov/>) : This is a line to the National Missing and Unidentified Persons System, NamUs, is the first national online repository for missing persons records and unidentified decedent cases. It was [launched in July 2007](#) by the Office of Justice Program’s [National Institute of Justice](#).

27.0 APPENDIX A

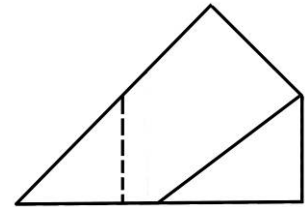
How to Make a Paperfold



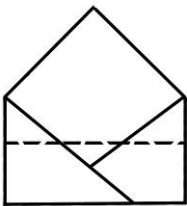
1. Fold a square piece of paper into a triangle. If using a rectangular piece of paper, make the same fold as above and then cut off the excess.



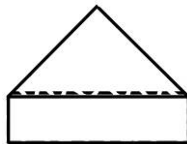
2. Take one corner at the folded edge and bring the corner just past the center point, keeping the two folded edges together.



3. Take the second corner at the folded edge and bring the corner just past the center point on the opposite side, keeping the two folded edges together.



4. Bring all folded edges up together to the point where the top of the paper starts to angle.



5. Take the top center point and tuck into the opening created by the folded edges.



6. Fold and tape seal along this opening.

Forensic Services Request (Form 49)

Oregon State Police Forensic Services Request						Page	of
Agency		<input type="checkbox"/> Restrict This Case <input type="checkbox"/> Rush Case - Reason & Date Due		Lab Case #		Sub #	
Agency Case #		<input type="checkbox"/> Additional Suspect Info Only <input type="checkbox"/> Previous Evidence Submitted					
Offense			Offense Date		County of Venue		
Last		First			Middle		
Breath Test Given? <input type="checkbox"/> Yes <input type="checkbox"/> No Result _____		<input type="checkbox"/> Suspect <input type="checkbox"/> Mentioned <input type="checkbox"/> Victim <input type="checkbox"/> Deceased	DOB	RACE	<input type="checkbox"/> Male <input type="checkbox"/> Female	SID #	FBI #
Last		First			Middle		
Breath Test Given? <input type="checkbox"/> Yes <input type="checkbox"/> No Result _____		<input type="checkbox"/> Suspect <input type="checkbox"/> Mentioned <input type="checkbox"/> Victim <input type="checkbox"/> Deceased	DOB	RACE	<input type="checkbox"/> Male <input type="checkbox"/> Female	SID #	FBI #
Last		First			Middle		
Breath Test Given? <input type="checkbox"/> Yes <input type="checkbox"/> No Result _____		<input type="checkbox"/> Suspect <input type="checkbox"/> Mentioned <input type="checkbox"/> Victim <input type="checkbox"/> Deceased	DOB	RACE	<input type="checkbox"/> Male <input type="checkbox"/> Female	SID #	FBI #
Last		First			Middle		
Breath Test Given? <input type="checkbox"/> Yes <input type="checkbox"/> No Result _____		<input type="checkbox"/> Suspect <input type="checkbox"/> Mentioned <input type="checkbox"/> Victim <input type="checkbox"/> Deceased	DOB	RACE	<input type="checkbox"/> Male <input type="checkbox"/> Female	SID #	FBI #
Investigating Officer (Please Print)				Phone # of Investigating Officer			
LAB COPY	Lab Exhibit	Agency Exhibit	Description of Evidence (Please associate evidence with appropriate individual)			Exam Requested (Please include officer report on all physical evidence)	
Submitting Officer (Please Print)			Submitting Officer's Signature			Date	
Description - Location: _____					LAB USE ONLY Evidence forwarded as: <input type="checkbox"/> Item or <input type="checkbox"/> Submission.		
Delivery Method/From: _____ <input type="checkbox"/> UPS <input type="checkbox"/> Mail							
Date: _____		Time: _____		Lab Staff: _____			

Blue and Yellow Copies - Lab

Green & White Copies - Agency

Form 49 Rev 11-04

Generic Exemplar Form (Form 76)

FORM 76 (REVISED 06/03)

OREGON STATE POLICE GENERIC WRITING SAMPLE				Case No.												
NAME		DATE OF BIRTH		Arthur Bob Charles												
STREET ADDRESS																
CITY	STATE	ZIP		Don Edwards Frank												
BIRTHPLACE		SOCIAL SECURITY NUMBER														
NAME OF MOTHER		NAME OF SPOUSE		George Henry Imig												
HEIGHT	WEIGHT	SEX		John Kenneth Lamb												
HAIR COLOR		EYE COLOR														
RIGHT OR LEFT HANDED		OCCUPATION OR TRADE		Mary Nan Olson												
NORMAL WRITING IF QUESTIONED WRITING IS CURSIVE - GET CURSIVE, IF HAND PRINTED - GET HAND PRINTED - IF BOTH GET ONE OF EACH NOTE SPECIAL INSTRUCTIONS BELOW*				Paul Quentin Robert												
Pay to the order of				Samuel Tom Umphrey												
For Deposit Only				Vernon Will Xavier												
CAPITAL, SMALL LETTERS AND SYMBOLS																
A	B	C	D	E	F	G	H	I	J	K	L	M	N	Yolanda Ziffman		
O	P	Q	R	S	T	U	V	W	X	Y	Z	&	%	Jan	Feb	Mar
a	b	c	d	e	f	g	h	i	j	k	l	m	n	Apr	May	Jun
o	p	q	r	s	t	u	v	w	x	y	z	\$	@	Jul	Aug	Sept
Numbers:	1	2	3	4	5	6	7	8	9	10	Oct	Nov	Dec			
One	Two	Three	Four	Five	Six	Dollars and Cents										
Seven	Eight	Nine	Ten	Eleven	no/100	Hundred & Thousand										
Twelve	Fifteen	&	Twenty	Numbers: 1 2 3 4 5 6 7 8 9 0												
Name - Print (Last, First, Middle Initial)				Witness Signature		Date										
Signature				Date		*COMMENTS										

Generic Exemplar Form (Form 76)

SPECIFIC WRITING SAMPLES

IF INVESTIGATING A CHECK CASE THE QUESTIONED WRITING ON THE CHECK(S) MUST BE DICTATED VERBATIM (NEVER SHOW THE WRITERS THE CHECK AND HAVE THEM COPY IT). FOR A COMPREHENSIVE EXAM ADDITIONAL BLANK CHECK FORMS SHOULD BE USED AND THE QUESTIONED WRITINGS REPEATED SEVERAL TIMES TO ESTABLISH A BETTER RANGE OF VARIATION.

QUESTIONED CHECK

Check No. _____

City _____ Date _____

Pay to Order of _____ \$ _____

_____ Dollars

For _____ Signature _____

QUESTIONED SIGNATURES

ENDORSE HERE: <u>X</u> _____ _____ _____	1 2 3 4	ENDORSE HERE: <u>X</u> _____ _____ _____	
DO NOT SIGN / WRITE / STAMP BELOW THIS LINE FOR FINANCIAL INSTITUTION USAGE ONLY		DO NOT SIGN / WRITE / STAMP BELOW THIS LINE FOR FINANCIAL INSTITUTION USAGE ONLY	

EXTENDED WRITINGS

THE FOLLOWING LETTER ONLY HAS TO BE WRITTEN ONCE IN CHECK CASES. IN OTHER CASES THIS LETTER IS MANDATORY AND CAN BE WRITTEN SEVERAL TIMES. IT IS TO BE WRITTEN ON A SEPARATE SHEET OF PAPER. VERBATIM WRITINGS FROM THE QUESTIONED MATERIAL SHOULD ALSO BE OBTAINED.

NORTHWEST LETTER

Dear Mr. & Mrs. V. Buck,

I'm in Portland, Oregon. You can reach me at Box 2458, Zip #97631. Don't blow me off! From here I will be traveling up thru Washington & Alaska. Then will shoot to California via Idaho on the X.Y.Z. Railroad Express. Dr. Underwood "Huck" LaGrande, from Salem & Albany will be traveling with Copper and me. No small bills. Cash, drugs and guns only. Just joking. Truman McQuin @ the Kilo Sucker Store, 807 Main St., had only a large bill (\$100.00) and change when he was killed by a bomb near the school. Robbery was suspected. Yours truly & Good-bye.
(Signed)

Revisions Table to Physical Evidence Manual

Date	Revision
February 2004	Removed references to Coos Bay Lab, added "gum seal" as ok for use as evidence sealer,
January 2006	Re-write to comply with ISO requirements; changes in programs
10/20/06	Removed gum seal w/ dye indicator as an acceptable method of sealing evidence.
12/11/06	Updated lab area service map to show all Douglas Co. to Springfield.
10/26/07	Added information regarding touch evidence to 6.0; added 25.0 Missing Persons and 26.0 Unidentified Remains. Deleted lab survey card from appendix. Slight changes/corrections/clarifications made to Fingerprints, Firearms
1/31/08	Updated/added information to Missing Persons 25.0. Also changed contact info in 25.0 & 26.0 to UNT.