**Raleigh/Wake City-County**

**Bureau of Identification**

**Investigations Division**

**TECHNICAL PROCEDURES MANUAL**



**July 2013**

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# Chapter 1: Note Taking

**1.1. Purpose**

To establish a list of actions to be taken to ensure that the crime scene is documented properly through note taking, a required portion of the crime scene case file.

**1.2. Administration**

Prior to entering and upon entering the crime scene, field notes may be taken indicating the condition of the scene as found, those present at the scene, and any other documentation necessary to complete a thorough investigative report. Field notes are legal documents, are discoverable for court purposes, and shall be maintained in the original case file or on the Investigative Request Form as appropriate. These notes shall not be destroyed or altered in any way.

Field notes should be created in any crime scene examination requiring extensive documentation to include major crimes, homicides, officer involved shootings, etc.

All conditions, observed events, and remarks directly related to the investigation made to CCBI personnel should be documented in field notes or the Investigation Report.

**1.3. Materials**

* Paper
* Writing implements
* Directional compass

**1.4. Procedures**

Complete and thorough notes of the crime scene should include, but are not limited to the following information where applicable:

1. Agency(s) requesting assistance
2. Agency case number
3. Physical address/description
4. Description of surrounding area
5. Description of scene
6. Weather conditions
7. Interpretation/observation of the scene
8. Position placement and description of deceased
9. Personnel assisting and assignments
10. Pertinent agency personnel present
11. Arrival/departure time and date
12. Vehicle(s) information (i.e., year, make, color, model, VIN)
13. Processing/chemical techniques utilized
14. Chemical test controls/lot/batch or set number information
15. Weapon(s) information (i.e., type, caliber, serial number)
16. Description and location of items of evidence
17. Person taking the notes

Notes must be legible and in ink unless environmental factors such as extreme cold or rain prevent the use of inks.

Pencils may be used for sketches and drawings.

Handwritten notes may be typed as long as the original notes are maintained.

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# Chapter 2: Crime Scene Digital Photography

**1.1. Purpose**

To provide guidelines to assist in the proper photographic documentation of a crime scene. Photographs serve as illustrative evidence to provide documentation of the scene, persons, and or evidence located.

**1.2. Administration**

Photographic documentation should be conducted for any crime scene involving a person crime, other investigations in which the employee feels that illustrative documentation of the scene, person, or evidence is necessary to assist or explain later testimony or as directed procedurally by supervisory staff.

Photographs shall be submitted to the Forensic Photography Unit in accordance with current procedures prior to the end of the shift. Exceptions to this requirement may only be made by Crime Scene Supervisors or their designees

**1.3. Materials**

* Camera (digital)
* Media cards
* Flash unit (detachable), sync cord
* CCBI Approved scales and measuring devices
* Tripod
* Level
* Batteries for both camera and flash unit
* Normal, macro lenses
* Shutter release
* ALS Lens Filter
* Number and letter placards

**1.4. Types of Photographs**

There are two types of images generally captured at crime scenes: documentation images and examination for comparison images (latent prints, tire impressions, tool mark, etc.).

Documentation images are captured in the highest quality JPG (Fine) format and Comparison Images are captured in the highest quality, TIFF or RAW format.

**1.5. Crime Scene Procedures**

The photographer should choose the appropriate camera equipment for each scene based on the scope of the crime scene, the available lighting, any weather considerations and any other special considerations.

The photographer should ensure that their digital camera is set to collect images in a JPEG (Fine) format.

The photographs should be captured on an approved media card with sufficient available memory to ensure proper collection and storage.

If possible, an initial photograph should be taken of a landmark near the crime scene to indicate the scene’s location.

The crime scene will be photographed prior to disturbing the position of any items except under exigent circumstance.

Crime scene equipment and crime scene personnel should not be included within a photograph documenting the crime scene.

Investigative and/or other extraneous personnel should not be included in photographs documenting the crime scene unless unavoidable due to scene conditions.

Crime scene photography should include overall, medium range and close-up photographs.

Overall photographs should be taken at the widest zoom and should encompass as much of the scene as possible. Overall photographs should also overlap to help provide a wide view of the scene from the photographer’s perspective.

Medium range photographs are designed to showcase an area of interest in the middle of the overalls. Medium range photographs may highlight an item but showcases the item in the overall scene and the relationship of the item to other items throughout the scene.

Close-ups are photographs that showcase the area of interest or item with minimal background exposure.

Crime scene photography will be captured in color.

Digital photographs will be taken of all areas that the Photographer believes are relevant throughout the crime scene.

**1.6. Comparison Procedure**

When the photographer identifies a latent print, shoe impression, tool mark or any other relevant evidence that a comparison or closer forensic examination may be needed, they will follow these steps.

1. The photographer should ensure that their digital camera is set to collect images in the highest resolution, TIFF or RAW format. The photographer may also collect the images in a JPEG format in addition to a high resolution, TIFF or RAW format but not for comparison purposes.
2. Identify the correct equipment needed for the task i.e. the correct camera lenses, the appropriate CCBI measuring device and scale, the appropriate lighting device and any other equipment (i.e. tripod) to ensure a proper 90 degree angle for the photograph.
3. Overall, midrange and close-ups with and without the use of a scale of each area of comparison.
4. Latent print images should be captured at a resolution of 1000 ppi (pixels per inch) or greater.
5. If a lens is incapable of focusing at a close enough distance to provide 1000 ppi (or greater) a different lens will need to be utilized.
6. The photographer should attempt to ensure that any scale is parallel with the surface of the comparison to ensure proper relationship. For comparison photographs, a metric scale is recommended.
7. If an impression is depressed into a surface, oblique lighting on minimal of three sides should be used to ensure proper exposure of the impression.

Footwear and tire impression images may be captured utilizing digital photography if the resolution of the digital camera is known to comply or exceed recommended SWIGIT guidelines for the use of digital photography in the documentation of footwear and tire impression evidence.

**1.7. Uploading Photographs**

The photograph will not be deleted, edited, altered, or transferred to a secondary media device or tampered with prior to uploading the images into the Crime Scene Photomanager System for storage.

The photographer can also submit the unedited media card to the CCBI Digital Image/Graphics Specialist for uploading to the Crime Scene Photomanager System.

**1.8. Limitations**

Some digital photography may not be suitable for examination quality photographs. The decision to use what type digital imaging should be based upon the equipment available and the experience of the staff member.

**1.9. Quality Control**

Operability of the photography equipment should be checked prior to any use at a crime scene. Maintenance should be performed when operability is an issue or whenever necessary to ensure that photography equipment is in proper working order. It is the employee's responsibility to ensure that their camera equipment is maintained in proper working order and that they maintain access to that equipment at all times while working.

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# Chapter 3: Impression Photography

**1.1. Purpose**

To establish a list of actions for the documentation and photography of three-dimensional impressions such as footwear, toolmarks, and tire impression evidence.

**1.2. Materials**

* Camera (digital – must have a raw/tiff resolution equal to or greater than six megapixels)
* Memory card
* Flash unit (detachable), sync cord
* Flashlight
* Metric measurement device
* Tripod
* Level
* Batteries for camera and flash unit
* Shading device (i.e., umbrella)

**1.3. Procedures**

All impression evidence should be, when at all possible, photographed using a tripod. The film plan should be parallel to the impression. A level is useful to determine that the film plane of the camera is parallel to the impression.

The proper preservation of three-dimensional characteristics requires oblique lighting to create highlights and shadows so as to capture minute changes in texture and contour while maintaining integrity.

A measurement device is placed along the length of the impression without covering any of the impression. The measuring device should be placed at the same depth as the bottom of the impression, not the surface where the impression is located which may be at a different level. (In the case of impressions in very rigid and immovable material such as metal, this placement may not be feasible.)

Label each impression with identifying data before photographing, which may include but is not limited to: direction/orientation, unique identifier, etc.

The f-stop or aperture on the camera should be set at f16 or f22 for the greatest depth of field possible.

To prevent movement of the camera during exposure, a shutter release able or automatic timer feature should be used while the camera is attached to a tripod.

Remove the camera from the tripod. If the impression is documented during daylight, an ambient light photograph should be taken of it first without any additional illumination.

Upon conclusion of the ambient light photograph taken in the day, a dark cloth, umbrella, or similar object may be used to block out the sun onto the impression. The direct sun may cause the detail to be “washed out” when using the flash.

The flash is held off the camera at a low angle or oblique lighting to capture the most shadow highlight/shadow detail. With regard to footwear and tire impressions, four photographs are taken with the flash moved at 90 degree increments in a 360 degree arc around the track. With regards to toolmark or other impressions, then multiple exposures can be taken with the light source placed at those positions which provide the best detail.

The impression, the measuring device, and the identifying label should fill the frame of the photograph.

**1.4. Limitations**

Individual characteristics will appear in some photographs that will not be revealed in others. Generally shadowed areas exhibit greater detail, but all angles of illumination must be considered.

**1.5. Quality Control**

Maintenance should be performed when operability is an issue or whenever necessary to ensure that photography equipment is in proper working order.

After 1 to 1 photograph has been taken, the staff member should enlarge the just taken impression on the camera LCD viewer to insure focus and proper capture of detail occurred.

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# Chapter 4: Video recording the crime scene

**1.1. Purpose**

To establish a list of actions in the utilization of the Video Recorder for crime scene documentation.

**1.2 Administration**

All Crime Scene Supervisors and Senior Crime Scene Investigators shall maintain issued video cameras. The Crime Scene Supervisor or his/her designee shall be responsible for completing a video recording of homicides and any other crime scene as deemed necessary.

Crime scene videos should be completed prior to the alteration or modification of a crime scene by CCBI personnel. Any media device utilized shall be cleared and formatted prior to use for each investigation. Crime scene videos shall be submitted to the Forensic Photographic Services Section prior to the end of the shift. Exceptions to this requirement may only be made by Crime Scene Supervisors or their designees.

**1.3 Materials**

* CCBI Video Recorder
* Mini DVD, SD Memory Cards or other Digital Storage Media

**1.4. Procedure**

Review the internal settings including date and time on the Video Recorder prior to recording.

If multiple locations or scenes, create a Photographic ID Card to differentiate between the different locations or scenes.

Notify all law enforcement personnel that you are about to start recording video and audio unless you can manually deactivate the audio recording.

Video recordings follow the same basic photographic principles, (overalls, midrange and close-ups).

Always record from a stationary position unless absolutely necessary.

When recording, slowly sweep the scene at a rate of about 45 degrees for every 5 seconds.

Upon zooming, slowly zoom in and out at a rate of 5 – 10 seconds from max to min zoom.

In low light situations, additional lighting may be needed. In some situations and if available, a built in night vision feature may be used but should be documented in your notes.

Upon completion of the recording of the overall scene, the video should be finalized based on the video recorder instructions.

**1.5. Uploading the video**

The video recording will not be deleted, edited, altered, or transferred to a secondary media device or tampered with prior to uploading into the Crime Scene Photomanager for storage.

Follow the manufacturer’s and/or CCBI Digital Image/Graphics Specialist instructions for the downloading of the collected data into the Crime Scene Photomanager.

**1.6. Safety Considerations**

Personnel’s vision may be impeded while recording and my increase the risk of fall.

**1.7. Limitations**

The video recorder has certain lighting and distance limitation.

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# Chapter 5: 360 Degree Panoramic Camera

**1.1. Purpose**

To establish a list of actions in the utilization of the 360 degree panoramic camera for crime scene documentation.

**1.2. Materials**

* Personal protective equipment
* 360 Degree Panoramic Documentation System
* Media Cards
* Sketch pad, pens, pencils, etc.
* Photographic ID Card

**1.3. Procedure**

Initial Setup

Pick a location to set up the instrument that maximizes the amount of the scene/evidence that will be in line of sight of the instrument.

Set up the unit in the area chosen by the Crime Scene Investigator to an approximately level position (utilize a bubble level on the top flat mounting surface of the base platform if it has one) after setting the legs into the ground. Make sure to set the height of the unit base platform so that when the mapping unit is placed on top of it, the eyepiece will be roughly eye level with the individual utilizing the instrument but without extending the center column.

A Photographic ID Card with the date, location, a detailed description of the camera’s positioning, and the camera’s angle should be completed and photographed prior to starting each series of photograph to allow the Forensic Photographic Section to distinguish each series.

Individual photographs are taken with the camera pointing upward at a 25 degree angle. These are taken in a 360 degree rotation.

Individual photographs are taken with the camera pointing downward at a 25 degree angle. These are taken in a 360 degree rotation.

A rough or final sketch should be completed indicating the general overall description of each scene being photographed and the approximately positioning of the camera system in each scene.

**1.4. Additional Positioning**

Since the camera system has a line of sight limitation, multiple positions in a room or crime scene may be required. If the camera system is moved to a new camera position, additional Photographic ID Card should be completed and photographed prior to the start of the series of photograph. This will assist the CCBI Digital Image/Graphics Specialist with orientation and sequence when creating the final product.

**1.5. Uploading photographs**

Follow the manufacturer’s and/or CCBI Digital Image/Graphics Specialist’s instructions for the downloading of the collected data into the Crime Scene Photomanager.

A copy of the rough or final sketch of the scene with the camera’s positioning throughout the scene should be submitted to the CCBI Forensic Photographic Section for the creation of the final computerized 360 camera sketch. The CCBI case number, date, requesting agency, initials of the Crime Scene Investigator, and the location of each camera’s positioning should indicated on the sketch.

**1.6. Limitations**

This is a line of sight device and will have the same limitations as conventional photography

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# Chapter 6: Sketching the Crime Scene

**1.1. Purpose**

To establish a list of actions to be taken to ensure that the crime scene is documented properly through sketching which may be used to create a final sketch.

**1.2. Administration**

A crime scene sketch should be made to assist an employee to accurately describe a crime scene, indicate scene related measurements, the location of evidence, and to aid in reconstruction of a scene.

Rough sketches will be completed for all homicide investigations. The information transcribed to the rough sketch shall be accurate and detailed enough to ensure that a final sketch can be completed at a later time. Final sketches will be completed on a case by case basis upon the request by the Office of the District Attorney or the investigating agency.

All original sketches created will be retained in the case file folder.

**1.3. Materials**

* Directional compass
* Paper (graph or plain)
* Writing implement(s)
* Measurement devices, (i.e., rulers, 25’ or longer tape, surveyor’s wheel, electronic measuring devices, etc.)
* Computer
* Computerized Drafting/Sketching Program

**1.4. Procedures**

The relative positions of the object(s) should be incorporated into a sketch.

The sketch should include the following information:

1. Measurements (either on the sketch or on a separate piece of paper)
2. Major items of evidence and critical items of the scene
3. CCBI case number
4. Requesting Agency case number
5. Date of sketch
6. Name or initials of the person creating sketch
7. Requesting Officer’s Name
8. Location of the scene/sketch
9. Compass direction (north arrow) or directionality indicator
10. Notation that sketch is not to scale or scale, if drawn to scale
11. Notation that sketch is a rough draft
12. Legend of items included on the sketch.

**1.5. Types of sketches:**

Rough sketch: Rough sketches are normally completed at the scene and should include all information to accurately and completely represent the scene, measurements, evidence items and directions.

Final sketches: Final sketches are neat and accurate sketches completed based upon the rough sketches.

**1.6. Measurements**

Objects measured for documentation purposes should be measured from two (2) fixed points. This will accurately locate the item's position for future reference. Fixed points are items that are permanently fixed or not easily moved such as: Utility poles, fire hydrants, the corner of a building, etc. The fixed points used should be documented in detail to include identifying numbers.

Commonly accepted measurement methods are:

1. Baseline (coordinate method): A line is designated between two fixed points and measurements are taken to objects at right angles from the designated line. A measurement along the designated line as well as the distance from the line should be documented. The direction along the line and from the line that the measurements were taken should be documented.
2. Triangulation: Two fixed points are designated and each item measured is done so in a straight line from each fixed point and documented accordingly.
3. GPS: In many outdoor scenes (woods, lake, etc.), items routinely used as fixed points are not available. In such circumstances, GPS latitude and longitude measurements made be used to designate fixed points as long as the measurements and fixed point designations are accurately described and documented.

Most GPS units only provide accuracy within 10-20 meters. As such, it is imperative for accurate measurements that additional recognizable points are determined. One such acceptable method of measuring is to drive two pieces of rebar into the ground to be used as fixed points. At the conclusion of the investigation, the rebar should be driven deep enough in the ground to prevent accidental removal. With the use of a metal detector, the rebar may be located in the event of a future need to identify the scene

**1.7. Limitations**

Measuring devices have a certain amount of variability due to manufacture and use.

**1.8. Quality Control**

Severely damaged or compromised measuring devices should be removed from service. Electronic measuring devices should be checked prior to each usage to ensure that they are operating within acceptable parameters.

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# Chapter 7: Latent Print Processing

**1.1. Purpose**

To establish a list of actions to be taken at a crime scene to detect, develop and preserve latent print impressions.

**1.2. Administration**

CCBI employees processing a crime scene for fingerprints should make every effort to process the points or attempt points of entry and exit. The employee will process all areas handled by the suspect that could yield latent prints. Any items that cannot be sufficiently processed at the scene will be properly collected and processed in the CCBI Laboratory as soon as practical. Employees conducting any crime scene processing for fingerprints shall be wearing gloves during the processing or when handling any items to be processed for fingerprints.

Latent prints collected shall be submitted to the Latent Examinations Services Unit prior to the end of the shift. Any exception to this requirement may be done only with Crime Scene Supervisor knowledge and approval.

**1.3. Materials**

* Powders (Magnetic, volcanic, fluorescent)
* Brushes
* Latent lift cards
* Lifting tape
* Gloves (cotton and surgical)
* Metric measurement devices
* Adhesive scales
* Alternate Light Source
* Flashlight
* Gelatin lifters
* Cyanoacrylate ester
* Small particle REAGENT (SPR)
* Rubber lifters (Microsil, Accutrans)
* Chemical dye stains (non-porous item applications)
* Ninhydrin, DFO, Iodine, 1,2 Indanedione

**1.4. Procedures**

The staff member will make a thorough visual search of all surfaces in the crime scene that have the potential of retaining/developing latent print impressions.

The staff member will give particular attention to the point of entrance and exit and obvious areas of activity by the perpetrator.

Gloves will be worn to prevent leaving additional prints, but care will also be taken to avoid touching items that may have latent prints.

Visible prints in blood, paint, grease, etc., should be photographed using proper techniques, as outlined in the Impression Photography procedure, if the item cannot be collected without damaging the impression.

Non-porous, hard, smooth surfaces should be processed using powders of a contrasting color. Lifts shall be placed on a card of a contrasting color to the powder or on a clear acetate sheet. It should be noted that the more time that has elapsed from deposition of the print, the less likely it is to develop a print on a porous surface with powder.

Cyanoacrylate ester fuming should be considered on non-porous surfaces such as glass, metal or plastic, if the object is not being transported to the laboratory for processing.

Use of an ALS to detect and develop prints should be considered under certain scene conditions.

Porous surfaces such as cardboard, paper or unfinished wood, should be collected if possible for processing in the laboratory.

**1.5. Labeling Lift Impressions**

Latent lift cards from the crime scene will be listed on theEvidence Collected portion of the report. Additionally, a separate Evidence Inventory Form shall be completed to include only Latent Friction Ridge Skin Impression Evidence. The rear of the lift card should include the following:

The CCBI case number.

The date of collection.

The initials of the collecting employee.

A written description and when practical, a drawn diagram indicating the precise location and item from which the print was collected.

Each lift card will receive a specific card number designated as Lift Card 1, Lift Card 2, etc.. (All latent lift cards collected in an investigation will receive a unique and sequentially designated Lift Card #).

Each Latent Lift Envelope shall be designated as an individual item of evidence, however, latent lift cards shall also be numbered inside each envelope as listed below. The Latent Envelope shall be labeled with the following information:

* The CCBI case number.
* The date of collection.
* The offense type.
* The victim's name.
* The address.
* The CCBI employee collecting the prints.
* The name of the investigating officer and agency.
* The Latent Lift card numbers as designated by the cards contained within the envelope (1-12, 23-41, etc.).

**1.6. Latent Submissions**

Prints being submitted to the Latent Examination Services Unit shall be secured in an appropriately labeled envelope and documented on the CCBI Evidence Tracker in accordance with applicable procedures. The collection of latent lifts impressions will be documented on a separate Evidence Inventory Form and all custody transfers will be documented in accordance with evidence transfer procedures. The latent impressions will be secured and submitted to the latent submission locker in the main evidence room with the original Evidence Inventory Form.

Any subsequent custody transfer of the prints shall be documented on an official CCBI chain of custody form.

**1.7. Safety Considerations**

The use of powders and chemicals used in processing for latent print impressions will be used in accordance with manufacturer’s instructions and Material Safety Data Sheets.

The ALS will be used according to the manufacturer’s instructions.

**1.8. Limitations**

Latent print evidence is very fragile and extreme care and patience is required to process a crime scene for latent print evidence.

**1.9. Quality Control**

When using chemical techniques to process for prints, a test print will be made on an object similar in nature to the evidence that was collected and treated to determine that the chemicals are effective. This test will be documented in the case file notes as to the results. The lot number/batch number or set number of the REAGENT used will be recorded in the case file notes.

Check ALS against known standard to ensure bulb intensity is sufficient to provide adequate fluorescence.

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# Chapter 8: Collection of Post Mortem Finger/Palm/Foot Impressions

**1.1. Purpose**

To establish a list of actions to be taken to ensure that proper collection of post-mortem prints are obtained for identification purposes.

**1.2. Administration**

Major Case Prints

Major case prints shall include all fingers and both palms of the decedent. Major case prints shall be collected on all homicide investigations. Major case prints may be collected on other death investigations at the direction of supervisory staff. Absent Medical Examiner approval, all major case prints shall be collected at the conclusion of the autopsy. Major case prints collected shall be assigned an evidence number and collected and retained in accordance with all CCBI evidence policies.

All major case prints will be transferred to the Latent Unit for the purposes of entry into SPEX.

Unknown Deceased Fingerprints

Death investigations involving unknown decedents may require the collection of fingerprints in an effort to identify the decedent. Any such collection of fingerprints shall be conducted only with Medical Examiner approval. Fingerprints taken for this purpose should be on a ten print card~~.~~

If the unknown decedent appears to be a non US resident or US Naturalized citizen, the ten print card may also be taken to the ICE Unit in the Wake County Public Safety Center Detention Facility to be searched. This unit operates twenty-four (24) hours a day, seven (7) days a week.

The use of electronic fingerprint capturing devices is not subject to this requirement and may be done at the scene after initial notification procedures have been conducted.

**1.3. Materials**

* Black ink pad or ink roller
* Black Volcanic Ash or Magnetic Fingerprint Powder
* Adhesive fingerprint strips
* Ten print card
* Fingerprint spoon
* Latex/protective gloves
* Hand cleaner

**1.4. Procedure**

Ink

The ridge detail on the fingertips of the hands of the subject are coated with black ink either from an ink pad or ink roller. If possible, the hands should be free of any substance on the fingertips in order to ensure the highest quality print possible.

Inked impressions of fingerprints should be collected from the individual being identified on paper strips with adhesive backing if possible. Each fingertip should be labeled indicating which hand and finger each print in collected from with the assistance of a fingerprint spoon if possible. All finger prints from the right hand of the individual should be collected on one strip, and prints collected from the left hand of the individual should be collected on a separate strip.

If a finger print spoon and adhesive strip are not available, a flat white surface should be used in which pressure can be applied to the finger to completely capture the ridge detail of the fingertip, also indicating the finger and hand from which the fingerprint was obtained.

Care should be taken to prevent the creation of air bubbles, wrinkles and overlapping ridges that may be caused with the paper being lifted slightly, shifted and reapplied.

The fingers should be printed individually.

As each finger is printed, the paper should be removed in one smooth motion. If using a paper strip with adhesive backing, the strip should then be applied to a ten print card in order to be secured as evidence. Prints collected using other methods should also be secured in a way to be stored as evidence.

All cards containing collected fingerprints will be marked with the appropriate identifying information.

Powder

The following guidelines should be used for the collection of post mortem prints using powder:

1. The ridge detail on the fingers and palms of the hands of the subject are coated with fingerprint powder through the application of black fingerprint powder or black magnetic powder.
2. For fingers, the application should include the tips and sides of the fingers to ensure all ridge detail are captured.
3. For palms, the application should include the edges and wrist areas of the palm to ensure all ridge detail are captured.
4. A section of adhesive lifting paper is cut so that the size of the section of paper exceeds the size of the finger or palm in order for all ridge detail present will be captured.
5. The paper is applied to the finger or palm with a slight amount of pressure to ensure that all ridges make contact with the paper.
6. Care should be taken to prevent the creation of air bubbles, wrinkles and overlapping ridges that may be caused with the paper being lifted slightly, shifted and reapplied.
7. The fingers should be printed individually.
8. As each finger is printed, the paper should be removed in one smooth motion and applied to a clear piece of acetate taking care to prevent the inclusion of any wrinkles or air bubbles. All lifted prints of the fingers may be applied to a single sheet of acetate if able; if not, then multiple sheets may be used.
9. Each finger number will be marked on the rear of the paper.
10. The palms should be treated as the fingers with the paper removed from the palm in a smooth motion and applied to a clear piece of acetate.
11. Each palm will be marked as to whether it is left or right on the rear of the paper.
12. All lift sheets will be marked with the appropriate identifying information.
13. Impressions of the feet may be needed in some types of investigations. The impressions taken from the decedent’s feet are completed using the same methods mentioned above.

**1.5. Safety Considerations**

The staff member shall wear gloves when taking post-mortem impressions.

**1.6. Limitations**

The flexibility of the hands of the subject has a great impact in the ability to take good quality prints. Extreme care and patience is required to ensure that quality of the impressions is preserved.

**1.7. Quality Control**

The age and condition of the materials used to collect the impressions should be considered prior to processing as old or degraded materials will have a negative impact on the quality of the impressions.

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| Revision History | | |
| Effective Date | Version Number | Reason |
| July 12, 2013 | 1 | New SOP structure |
| June 11, 2019 | 2 | Included statement in 1.2 for major case prints to go to Spex |
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# Chapter 9: Autopsy Protocol

**1.1. Purpose**

To provide guidelines for the proper documentation, examination for physical evidence, and collection of evidence from an autopsy.

**1.2. Administration**

A CCBI employee will attend autopsies involving a homicide. If the original case employee cannot attend the autopsy, the Crime Scene Supervisor will make arrangements for another employee to attend.

A CCBI employee may be required to attend autopsies for additional types of death investigations at the discretion of supervisory staff.

Known samples should be collected from the autopsy on all homicide investigations to include head and pubic (CH) hairs, postmortem major case impressions and a blood spot card.

**1.3. Materials**

* Personal protective equipment
* Camera with close up capability (digital camera)
* Other items for documentation (i.e., notepads, paper, pen, etc.)
* Memory card
* Evidence packaging materials
* Postmortem fingerprint kit and fingerprint cards
* Sexual Assault Evidence Collection Kit
* Gunshot Residue Kit (GSR)
* Adhesive lifting paper
* Acetate sheets
* Magnetic/volcanic powder
* Magnetic wand/powder brushes
* Latex/protective gloves
* Hand cleaner

**1.4. Procedures**

The autopsy is very individualized; each case dictates what autopsy evidence should be collected and what observations are essential in the case. The Medical Examiner will determine which examinations are to be conducted at the autopsy, however, each case is different and the employee may request the Medical Examiner to perform a specific examination. When such a request is made, the request will be documented in the report narrative.

The employee should coordinate with the Medial Examiner to obtain the desired evidence from the deceased.

The employee may receive projectiles or fragments from the Medical Examiner.

The employee may receive DNA standards from the Medical Examiner in the form of a blood card.

The employee may receive Sexual Assault Kits from the Medical Examiner.

The employee may receive Gun Shot Residue Kits from the Medical Examiner.

The employee may receive clothing or other miscellaneous items from the Medical Examiner.

The employee shall take fingerprint and palm print impressions of the deceased for identification, elimination, and/or comparison.

All evidence collected at the autopsy that is wet with blood or other fluids will be allowed to dry in the CCBI Putrid lockers, then will be properly documented, packaged, sealed, for submission to the laboratory or the investigating agency.

**1.5. Pathology Forms**

CCBI Pathology Forms have been designed to assist the Medical Examiner’s Office by providing initial crime scene observations to the Medical Examiner’s Office at the onset of the autopsy. CCBI Pathology Forms shall be completed on all deaths under the Medical Examiner’s jurisdiction to which CCBI responds. The original CCBI Pathology Form shall accompany the decedent to the Medical Examiner’s Office and a copy shall be placed in the CCBI original case file. Absent other documentation requiring a CCBI original case file, the copy of the CCBI Pathology Form shall be submitted to the employee’s Supervisor with the original Investigative Request Form.

Any official evidence requested from the autopsy shall be indicated on the CCBI Pathology Form.

**1.6. Safety Considerations**

Bio hazardous material collected from the autopsy will be marked as biological/biohazard material for the protection of any personnel handling the evidence.

**1.7. Limitations**

The autopsy dictates the limitations of the evidence to be documented and collected by the situation of the case itself. The communication between the Medical Examiner’s Office and the employee is critical to a thorough investigation. It is the responsibility of the Medical Examiner to document any remarkable evidence/wounds as it relates to the body.

**1.8. Quality Control**

The packaging containers must be clean and unused to avoid any cross-contamination.

Evidence must be properly air dried prior to any packaging to prevent destruction of evidence.

The package should be accurately marked and clearly indicate where the evidence was recovered. The chain of custody of evidence should be limited and documented.

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| July 12, 2013 | 1 | New SOP structure |
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# Chapter 10: Alternate Light Source

**1.1. Purpose**

To establish a list of actions utilizing an Alternate Light Source (ALS) at a crime scene.

**1.2. Materials**

* Alternate Light Source
* Personal protective equipment
* Protective filtered goggles
* Camera equipment/Lens Filters
* Other items for documentation (i.e., notepads, paper, graph paper, pens, etc…)
* Created known standards or manufacturer’s known standards of biological fluids

**1.3. Procedures**

The ALS enables the discovery of the potential evidence to be examined using different wavelengths of light not readily observable by other methods.

The evidence may be latent print impressions, trace material or body fluids such as semen, saliva, and urine.

Check ALS operability against a known standard prior to use in scene examination and indicate that this was done as well as the result in case notes.

Once discovered, the evidence should be documented through notes, sketches and photographs (where possible).

An ALS search may be conducted at the crime scene after Cyanoacrylate ester and powdering. (what type of search. Search for latent prints or any type of search) (CH)

**1.4. Safety Considerations**

The use of the ALS will be conducted in accordance with the manufacturer’s instructions.

Appropriate eye protection will be worn by the employee and others in close proximity of the ALS unit during the crime scene examination using the ALS.

**1.5. Limitations**

The ALS search should be conducted in a darkened area to enhance the visibility of the fluorescence.

**1.6. Quality Control**

Check ALS against known standard to ensure bulb intensity is sufficient to provide adequate fluorescence.

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# Chapter 11: Collection of Firearms Evidence

**1.1. Purpose**

To establish a list of actions to be taken at a crime scene to ensure that the collection of firearms related evidence is properly conducted.

To provide a list of considerations that will preserve evidentiary information and material related to firearm evidence recovered at a crime scene.

**1.2. Administration**

1.2.1. All firearms will be unloaded and rendered safe before collection. Unloaded being defined as all rounds being removed from the firearm. Staff members must do so in accordance with applicable training and procedures. Staff members being unfamiliar with the type of firearm or who feel unable to do so shall seek the assistance of a knowledgeable person to assist them with rendering the weapon safe. Prior to transport of any evidentiary weapon from the point of collection, a physical marker (i.e. zip tie, 14-gauge plastic-coated copper electrical wire) shall be placed inside the chamber of the weapon and shall remain physically within the chamber while in CCBI’s custody and transfer. Additionally, all weapons shall be physically/manually secured open when possible.

1.2.2. The safety of CCBI staff is paramount when dealing with firearms. It is the purpose of this procedure to ensure all firearms remain secure and in an unfireable condition throughout the entirety of evidentiary processing and while in the custody of the Investigations Division. Weapons unable to be secured as indicated or having been secured appropriately which are found to still contain rounds within the weapon will be brought to the attention of a CCBI Firearms Examiner or Firearms Instructor via notification for the purposes of coordinating the safe inspection and unloading of the firearm.

1.2.3. Exceptions to this requirement may be made by any staff qualified to perform and assigned to serial number restoration functions when necessary for the completion of this function.

1.2.4. Firearm evidence includes but is not limited to: bullets, cartridge cases, cartridges, shotshells and shotshell components, projectiles and projectile fragments, bullet/projective holes, strikes, wipes and abrasions, ricochet marks, powder patterns (on objects and clothing), handguns, long guns, and other ammunition/firearm components.

**1.3. Materials**

* Documentation material (i.e., photography, sketching, and note taking)
* Packaging materials
* Personal protective equipment

**1.4. Procedures**

Firearms

Overall, medium range and close-up photographic documentation should be completed prior to the handling or collection of firearm evidence.

Sketching and/or note taking should be completed prior to movement of firearm evidence if applicable.

Collection of firearm evidence should be completed to minimize loss or destruction of biological, trace or latent print evidence. Gloves will be worn to prevent leaving additional prints, biological, or other trace evidence.

All firearms will be rendered safe prior to collection if possible.

Prior to the collection or submission of the item to the laboratory, the firearm’s serial number as well as the make and model will be documented if possible.

While securing the firearm and rendering it safe, the employee should document any special notations like cylinder and bullet positioning in revolvers, the position of the hammer, if the slide on a semi-automatic handgun had failed to lock back into position, or any other factor that may help during the investigation.

All ammunition and components capable of containing striations and/or toolmarks should be packaged in a manner that will prevent the destruction of possible striations or the addition of accidental marks.

Samples of boxed ammunition (of similar type used in the crime) located at the crime scene should be collected.

Firearms discovered in water should never be removed from the water for collection unless unavoidable. The item to be recovered from water should be placed in a container of the same water and transported to the laboratory as soon as possible.

Gunshot Residue Evidence Collection Kits

Any CCBI employee conducting and collecting a Gunshot Residue Evidence Collection Kit shall do so in accordance with the instructions provided.

At the request of a law enforcement agency, Gunshot Residue Evidence Collection Kits will be conducted on all suspects or victims of crimes involving discharged firearms for which a reasonable belief exists indicating that the participant was in possession of a firearm. Requests for Gunshot Residue Evidence Collection Kits made on a significant number of individuals or for crimes limited to discharging a firearm inside the city limits shall be at the discretion of the Crime Scene Supervisor.

Gunshot Residue Evidence Collection Kits shall be conducted on all decedents in which the death is believed to be the result of a shooting and the decedent is believed to have been in possession of a firearm. Prior Medical Examiner’s authorization is required to conduct this examination at the scene.

**1.5. Safety Considerations**

All weapons will be rendered safe prior to processing and packaging following established safety procedures.

Prior to the handling of any firearm, staff members shall be aware of their surroundings. Once possession is taken of the firearm, staff members shall maintain the weapon pointed in a safe direction at all times and shall not pull the trigger of any evidentiary weapon for any reason.

Weapons that cannot be rendered safe in the field will be secured and transported in a manner to keep personnel safe from accidental discharge. Staff at a scene unable to render a weapon safe should make every reasonable attempt to do so including contacting any staff who may be able to assist prior to departing the collection point. Upon arrival at CCBI, the weapon shall be physically transferred to a CCBI Firearms Examiner or a CCBI Firearms Instructor to render the firearm safe prior to any further handling of the firearm.

If no qualified staff are immediately available to examine the weapon and the firearm is to be stored until normal hours or qualified staff are otherwise available, a notification email will be sent to the Investigations and Crime Laboratory Divisions Deputy Directors, the Evidence Custodian, all Crime Scene Supervisors, and the CCBI Firearms Examiners.

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| Revision History | | |
| Effective Date | Version Number | Reason |
| July 12, 2013 | 1 | New SOP structure |
| June 11, 2019 | 2 | Updated safety procedures regarding handling |
| 10/14/19 | 3 | Added zip ties and wire requirement |
| Sept. 3, 2020 | 4 | Modified 1.2 and 1.5 |
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# Chapter 12: Collection of Toolmark Evidence

**1.1. Purpose**

To establish a list of actions to be taken at a crime scene to ensure that the collection of toolmark related evidence is properly conducted and to provide a list of considerations that will preserve evidentiary information and material related to toolmark evidence recovered at a crime scene. The employee must determine the value of the collection of this evidence. The employee’s experience and training will determine when the collection should or should not be made, i.e., property crime vs. person crime.

**1.2. Materials**

* Documentation materials (i.e., for photography and note taking)
* Packaging materials (i.e., paper bags, envelopes, boxes, etc.)
* Personal protective equipment
* Cutting tools or implements
* Casting or duplication media designed to record and preserve gross and microscopic striations with the preservation of pertinent spatial relationships (must not shrink or warp during curing).

**1.3. Procedures**

The preservation of the toolmark evidence is paramount when documenting the evidence and therefore, should be made in the following order:

1. Documentation – The employee should note the prymark including any corresponding marks and the type of prymarks (i.e. flat, rounded, etc…).
2. Photograph – Photographs should be taken in overall, medium and close up ranges.
3. Comparison photographs – The employee should take photographs using a macro lens and a CCBI approved photographic scale in a high resolution format.
4. Casting – The Employee can use any CCBI approved casting material (e.g., Mikrosil, Accutran) to capture tool impressions.
5. Removal – If possible, the Employee can cut out around the pry mark for preservation of the actual tool impression for later examination.
6. Tool Collection – If available, the Employee should collect any potential tools or instruments used to create any pry marks or tool impressions. The evidence should be preserved in a manner to protect the edges believed to have created the prymarks or tool impressions from any potential damage and the potential loss of latent and DNA evidence from the handle.

**1.4. Safety Considerations**

Follow proper MSDS safety conditions.

**1.5. Limitations**

Individual characteristics will appear in some photographs that will not be revealed in others. Generally shadowed areas exhibit greater detail, but all angles of illumination must be considered.

**1.6. Quality Control**

Maintenance should be performed when operability is an issue or whenever necessary to ensure that photography equipment is in proper working order.

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# Chapter 13: Trace Evidence Collection

**1.1. Purpose**

To establish a list of actions for the collection of trace evidence.

**1.2. Materials**

* Personal protective equipment
* Paper bags/clean white paper for pharmaceutical folds/envelopes
* Disposable or clean forceps/tweezers
* Camera and equipment for documentation
* Trace tape with plastic bag
* Alternate Light Source
* Disposable or clean scalpel blades or other cutting implements/tools

**1.3. Procedures**

Necessary precautions should be followed to avoid the destruction and cross-contamination of any potential trace evidence.

The appropriate personal protective equipment should be donned prior to the collection of any potential trace evidence.

A visual examination should be conducted with the use of a high powered light source (i.e. flashlight) to potentially identify any visible trace evidence such as hairs, fibers and paint flakes.

Any visible trace evidence that is found should be collected with collection tools prior to trace taping and placed in a pharmaceutical fold or envelope with flaps taped shut.

An examination of the area with the use of an Alternate light source may be conducted to locate any additional trace evidence. The trace evidence collected should be noted on the packaging that it was collected using the ALS.

After the ALS examination, the employee may use Trace Tape to sweep across the examination area to locate addition non-visible trace evidence. The Trace Tape should then be placed in a plastic bag with the description of the location where the sweep conducted on the bag.

With the use of a clean and/or unused cutting tool, fiber evidence standards will be collected from examination area to be compared to the collected trace evidence for elimination purposes. (Examples: carpeting, couch, sofa, vehicle floor mats, and seat material from a vehicle.)

Paint standards should be collected using a clean scalpel. All the layers of paint should be collected from the surface to obtain a paint standard.

An alternate method may be used where a representative cross section of the area is collected for a paint standard by drilling out a plug of material. This can be performed as long as all layers of paint are collected and a clean tool is used.

Glass standards should be collected from the source. Information should be included to indicate orientation of where it was collected.

The location where the trace evidence was found will be documented through both written and photographic means.

**1.4. Safety Considerations**

Safety equipment will be worn for protection and to avoid cross-contamination of the evidence.

Extra care should be used when handling scalpels, blades as well as any other sharp instrument. A sharps container will be used for the disposal of such items where applicable.

The use of the ALS and/or ultraviolet light in the detective of trace evidence will be used with appropriate eye protection and according to manufacturer’s instructions.

Sharps will be covered with a puncture resistant cover when not being used.

All glass evidence collected will be packaged in a manner to preclude further damage to the sample as well as for the protection against possible cuts and punctures to those handling the item.

**1.5. Limitations**

Trace evidence is fragile and care must be taken to avoid contamination. Known standards must be collected for a comparison examination to be conducted.

**1.6. Quality Control**

Packaging containers must be clean and unused to avoid cross-contamination.

The package should be clearly and accurately marked indicating where the evidence was collected.

Check ALS against known standard to ensure bulb intensity is sufficient to provide adequate fluorescence.

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| July 12, 2013 | 1 | New SOP structure |
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# Chapter 14: Sexual Assault and Subject Evidence Collection Kits

**1.1. Purpose**

To establish the guidelines for the collection of Sexual Assault Evidence Collection and Subject Evidence Collection Kits.

**1.2. Materials**

* Sexual Assault Evidence Collection Kit
* Subject Evidence Collection Kit

**1.3. Sexual Assault Evidence Collection Kit**

The Sexual Assault Evidence Collection Kit will be collected by appropriate medical staff at an appropriate medical facility. Employees requested to collect a Sexual Assault Evidence Collection Kit will do so in accordance with the following procedures:

1. CCBI employees shall not collect Sexual Assault Evidence Collection Kits collected as a result of assaults occurring outside the geographical boundaries of Wake County or the jurisdiction of the District Attorney for the Tenth Prosecutorial District.
2. CCBI employees shall only collect a Sexual Assault Evidence Collection Kit for an investigation in which CCBI has actively investigated a crime scene. (Exceptions may be made only with supervisor approval.)
3. The Sexual Assault Evidence Collection Kit shall be labeled in accordance with CCBI evidence policies. The pink copy of the sexual assault information forms shall be maintained in the CCBI original case file while the additional forms shall be maintained as indicated on the forms.
4. The Sexual Assault Evidence Collection Kit and related evidence shall be sealed and initialed by the medical staff prior to taking custody of the kit.

**1.4. Subject Evidence Collection Kit**

Subject Evidence Collection Kits may be collected upon request by any Investigations Division employee and only under the proper legal authority. The responsibility for obtaining the legal authority for the collection of such evidence shall rest with the investigating agency.

1. It will be the responsibility of the requesting agency to make an appointment at a medical facility of their choosing. If the suspect is being held at the Wake County Jail, the requesting agency should make an appointment with the jail nurse.
2. The requesting agency must have a minimum of written consent prior to the Subject Evidence Collection Kit being collected. A copy of the written consent or the search warrant will be placed in the CCBI original case file.
3. The Subject Evidence Collection Kit shall be packaged and labeled in accordance with CCBI policies. The pink copy of the kit information forms shall be maintained in the CCBI original case file while the additional forms shall be maintained as indicated on the forms.
4. The CCBI employee shall seal and initial the Subject Evidence Collection Kit.

**1.5. Safety Considerations**

CCBI employees shall were the appropriate personal protective equipment during the collection of any evidence related to the Subject Evidence Collection Kit.

**1.6. Quality Control**

Employees must ensure that the Sexual Assault Evidence Collection Kit is sealed and labeled appropriately prior to receiving custody of the kit.

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| July 12, 2013 | 1 | New SOP structure |
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# Chapter 15: DNA and Biological Evidence Collection

**1.1. Purpose**

To establish a list of actions to be taken at a crime scene to preserve, collect, and transport biological evidence.

**1.2. Administration**

The development of DNA (deoxyribonucleic acid) matching has made a major impact on law enforcement and improvements in technology continue to advance this means of identification even with very small or old samples. The possibility of DNA evidence collection exists in the majority of crime scene investigations.

DNA may be located in a variety of cells found inside the body to include blood, semen, skin, saliva, and hair. The current scientific methods of DNA profiling from epithelial cells (skin) exponentially increases the possibilities of obtaining DNA evidence at a crime scene. As such, investigators must be aware that the possibility of obtaining DNA evidence exists in several forms from any item, area, or object for which an individual came in contact.

DNA evidence may be degraded by a variety of factors to include sunlight, heat, humidity, bacteria, fungus, yeast, and other factors. Employees responsible for DNA evidence collection should be familiar with these factors and follow proper evidence collection procedures to reduce the likelihood of DNA evidence degradation.

The possibility of DNA contamination is present anytime a living organism is present in or around the area suspected to contain DNA evidence. As such, CCBI employees should take all necessary precautions to prevent the contamination of DNA evidence.

Employees initially responding to a crime should consider the likelihood of the existence of DNA evidence and use proper care to ensure that such evidence is protected to the extent possible.

All CCBI employees responsible for the collection of DNA evidence shall receive appropriate training in the collection of such evidence during the initial Field Training Phase of their employment. CCBI employees may receive additional training through In-Service training courses.

CCBI shall only submit DNA evidence to appropriate accredited laboratories for examination. CCBI shall utilize the North Carolina State Crime Laboratory for all DNA examinations. Law enforcement agencies requesting DNA examinations to be conducted at other laboratories shall be responsible for the submission of such items to those laboratories and responsible for any costs associated with the evidence submission or examination to such a laboratory.

All DNA evidence submitted to the NC State Crime Laboratory for examination shall be done so in accordance with the policies and procedures set forth by the NC State Crime Laboratory. A North Carolina State Bureau of Investigation Physical Evidence Examination Request Form (SBI-5) shall be completed as instructed by the NC State Crime Laboratory guidelines and submitted with any items submitted for examination.

**1.3. Materials**

* Personal protective equipment
* Sterile swabs
* Sterile or distilled water
* Disposable or clean forceps/tweezers/scalpels/collection tools
* Subject Evidence Collection Kit
* Alternate Light Source
* Paper bags, small envelopes, other collection materials
* Camera and equipment for documentation
* Measurement device
* Writing markers to document stains using an ALS

**1.4. Procedures**

The employee, wearing appropriate personal protective equipment, will thoroughly examine the crime scene to determine specific areas of biological fluid evidence, especially those where bloodshed or sexual contact is suspected to have occurred.

The biological evidence may include such items as liquid or dried blood, semen, saliva, urine, perspiration, tears and possible contact DNA. The most commonly discovered are blood and semen.

1. The following procedures should be adhered to when the possibility of DNA or biological evidence collection is foreseeable:
2. Employees will limit unnecessary movement through and access to the crime scene or area being examined.
3. A record of all persons in contact with the crime scene or evidence shall be maintained.
4. Employees shall wear appropriate personal protective clothing to prevent DNA contamination. Gloves, shoe coverings, and/or protective suits should be changed each time the scene is re-entered.
5. The collection of DNA or biological evidence shall be done in such a manner to prevent contamination or degradation of the evidence.
6. The collection of DNA or biological evidence should be completed at the onset of the evidence collection portion of the examination to prevent unnecessary contamination.
7. Sterile or clean (new) collection and packaging instruments shall be used for each item of DNA or biological evidence collected.
8. DNA or biological evidence collected shall be packaged in a manner to prevent accidental contamination. (Packages shall be closed.)
9. DNA and biological evidence should always be packaged in paper. (Plastic bags promote bacterial growth.)
10. DNA and biological evidence collected at a scene shall be properly packaged prior to any removal from the scene to include the placement of such evidence in a CCBI vehicle.
11. Air dry all evidence and the evidence should be stored in a cool and dry location avoiding direct sunlight.

Biological Evidence with ALS

The utilization of an ALS or ultraviolet light may enable the employee to detect possible seminal fluid. The area should be marked for location and orientation on the item that is being collected to assist in the Serology examination. Care should be taken to mark the area specifically at the margin of the noted stain. Photograph the area if possible.

On non-porous surfaces, fluorescing stains that may be biological material should be collected using sterile swabs that are then placed into clean envelopes or swab boxes. On porous surfaces, the item should be collected and placed in a clean package. If the item has been removed from another source, such as a vehicle, the part should be labeled appropriately for future placement if needed.

Blood

The sampling of large amounts of liquid blood will be retrieved by using sterile swabs and then air-dry and package in paper bags/envelopes/swab boxes for biological examination.

When dried blood is encountered at a crime scene, the crime scene personnel should use sterile swabs moistened with sterile or distilled water to collect blood onto the swab. The dried blood may also be collected as flakes using sterile instruments.

The crime scene personnel should be aware of the location and/or path of the bloodshed to aid in the determination of possible subject/victim blood. Both subject and victim blood should be collected but the subject blood is critical for potential identification.

**1.5. Safety Considerations**

The use of the ALS and/or ultraviolet light in the detective of biological evidence will be used with appropriate eye protection and according to manufacturer’s instructions.

**1.6. Quality Control**

The ALS should be checked for operability using a known standard prior to each application in the field. Notation should be included in the case notes as to the results of this check.

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| July 12, 2013 | 1 | New SOP structure |
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# Chapter 16: Buccal Cells Collection

**1.1. Purpose**

To establish a list of actions to be taken at a crime scene to preserve and collect buccal cells for DNA examination utilizing safety precautions.

**1.2. Materials**

* Personal protective equipment
* Sterile swabs
* Manila envelopes/swab boxes
* Evidence tape
* Paper bags

**1.3. Procedures**

The employee, wearing protective safety equipment, will collect buccal cells from interior cheek walls of the subject in the following manner:

1. Two (2) sterile swabs should be rubbed several times on the inner side of each cheek for approximately 15 seconds for proper collection of the cells.
2. The swabs should be air-dried to minimize the chance of sample degradation.
3. The swabs will be properly packaged and marked as evidence.

**1.4. Safety Considerations**

New nitrile/latex gloves will be utilized during the collection of any buccal swabs.

**1.5. Limitations**

The swabs need to be air-dried to eliminate the growth of mold. The swabs need to be sterile and properly sealed after collection.

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# Chapter 17: Footwear and Tire Standards

**1.1. Purpose**

To establish a list of procedures for the proper collection of footwear and tire track examination quality standards.

**1.2. Materials**

* Camera
* Memory card
* Flash unit (detachable), sync cord
* Measuring devices
* Tripod
* Level
* Batteries for both camera and flash unit
* Normal, macro lenses
* Shutter release
* Fingerprint ink, printers’ ink, water-based ink, petroleum jelly, clear shoe polish, and WD-40
* Fingerprint powder(s), inkless pad
* Lifting tape, gelatin lifters, rubber lifters, transparent lifters, Handi-print sheets
* White paper, white cardstock, cardboard, white chart board, clear adhesive, roller transport film, acetate, chemical standard collection devices
* Casting materials, plaster, dental stone
* Soil, sand, mud, clay
* Bio-foam

**1.3. Procedures**

1.3.1. Footwear Standards:

With the shoe removed from the foot of the individual document the tread sole design photographically (refer to Impression Photography procedure for the appropriate technique) and note the brand, style, and size of the shoe.

Coat the outsole of the shoe with ink, black fingerprint powder or petroleum jelly to make two-dimensional standards. Once coated the image of the shoe is then transferred to a surface of contrasting color such as paper, chart board or transparent lifters by applying the tread pattern with an even firm application. Verify visually that the entire tread design has been transferred to the medium.

Mark the standard transfer with the case information to include: the case number, the date of creation, and the name or initials of the person creating the transfer. This standard will be treated as an item of evidence and packaged/labeled in accordance to CCBI evidence procedures.

1.3.2. Tire Track Standards:

Document the basic tread pattern of the tire photographically with the camera film plane parallel to the tread design. Include a scale and information card to include the following: the case number, the position of the tire, date of the documentation, name or initials of the employee or person taking the photographs.

Taking standards of tires mounted on vehicles requires the tires tread design to be wiped with a rag after a contaminant has been applied to the rag (such as, WD-40, clear shoe polish, petroleum jelly, etc.). In addition the tire may be coated with printer’s ink.

Care should be taken with the application of any material to prevent over application which could lead to pooling or dripping that would adversely affect the quality of the collected standard. Prior to the application of any material the tire should be wiped clean of all debris and contaminants.

Heavy white chart board or heavy butcher paper is placed on top of cardboard then under the tire and the vehicle is moved across the surface, leaving the contaminant. Where ink was not used, the contaminant is processed with magnetic fingerprint powder and can be sprayed with a silicone spray for preservation.

In the event that an entire revolution of the tire cannot be documented on one piece of paper then the tire should be marked with chalk and divided into segments. The segments are recorded on the chart board or other medium as the vehicle is moving across the surface.

The created standards should be marked with the following information:

1. Position of the tire on the vehicle (indicate the inside and outside of the tread design);
2. The direction of travel;
3. The manufacturer’s information on side of the tire (DOT numbers);
4. The date that the standards were created;
5. The initials of the employee;
6. The Investigating Agency case number; and
7. The CCBI case number.

Prior to the placement of the chart board or paper the floor should be swept to remove any dirt or material that could negatively affect the standard.

If the tires have been removed from the vehicle prior to the collection of standards proper standards may still be collected even without the accompanying weight of the vehicle on the tires. By partially deflating the tires the employee can personally apply force to the tire in order to simulate the compression of the tire as it would have been by the vehicle as it is rolled across the surface of the transfer medium.

1.3.3. Three-Dimensional Standards:

Three-dimensional evidence received in the laboratory for comparison purposes typically consists of photographs and/or casts of the unknown tracks or impressions. Casts are a positive reproduction of the shoe or tire having made the impression and therefore can be compared directly with the shoe or tire submitted for comparison purposes. Photographs representing the three-dimensional tracks, however, may require a like three-dimensional standard prepared. The test impression can also be photographed or cast for comparison purposes.

At times it may become necessary to make three-dimensional test impressions of a shoe or tire in order to adequately conduct an examination. This is due to the fact that three-dimensional questioned impressions may exhibit characteristics reproduced from both the raised and the depressed side of the sole and midsole as well as portions of the upper of the shoe as well as the sidewall of the tire. These can include identifying characteristics that provide as much detail and information as the outsole or tread design itself.

1.3.4. Sand/Soil Impressions

Sand or soil impression standards can be obtained by placing approximately one to two inches of fine sand or soil in a large box or tray or evenly poured on a flat, hard surface. Darker sand is preferred for photographic purposes.

Using a ruler or straight edge first level the dry sand/soil. The sand will need to be wet to retain the detail of the shoe or tire. It should be sprayed liberally with a fine mist of water until it is completely wet from the surface to the bottom. Care should be exercised to prevent the medium from becoming overly wet (soupy) or muddy. If the sand is not sufficiently wet, the impression will break apart when the shoe or tire is impressed.

The shoe should be worn when making the test impression in order to control the proper amount of weight and pressure needed to reproduce the questioned track. Likewise, the tire or tires would need to be mounted on the vehicle.

The test impression should be photographed immediately, using the same techniques as defined in the Impression Photography procedure, so that it does not dry out and break apart. The scale should be placed on the same plane as the bottom of the impression.

**1.4. Footwear Submissions**

Footwear impression evidence shall be packaged appropriately and returned to the investigating agency. Each footwear impression will be treated as a single item of evidence. Footwear impression evidence will be included on the Evidence Tracker in accordance with applicable procedures. Footwear impression evidence collected will be documented on the original Evidence Inventory Form included with the physical evidence collected from the scene and transferred to the CCBI Forensic Evidence Custodian in accordance with applicable evidence transfer procedures. Any subsequent custody transfer of the footwear impression evidence shall be documented on an official CCBI chain of custody form.

**1.5. Limitations**

Digital photography of footwear and tire track standards may not be suitable for examination quality photographs. The decision to use digital imaging should be based upon the equipment available and the experience of the employee.

It should be noted that it is best that the known standards be taken by the examiner who is performing the comparisons. As a general work process, CCBI Investigations Division employees should not get involved in the taking of known standards.

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| July 12, 2013 | 1 | New SOP structure |
| May 12, 2020 | 2 | All footwear impressions returned to investigating agency |
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# Chapter 18: Three-Dimensional Impression Casting

**1.1. Purpose**

To establish actions necessary to cast and recover three-dimensional impression evidence found at crime scenes.

**1.2. Materials**

* Casting medium (Dentalstone®, Labstone®, ShakinCast, etc.)
* Water
* Liquid measuring device
* Forming material
* Mixing bowl, bucket, zip lock bag

**1.3. Procedures**

The preferred method of three-dimensional casting is with the use of Dentalstone® or Labstone® or Shakincast. All three of these mediums are easy to work with, allow for pre-measurement of materials and are simple to mix in the field.

Preparing the Material: In the Laboratory for Later Use in the Field

1. Measure into a large zip lock bag approximately 700g of powder.
2. Seal the bag for later use.

NOTE: THE POWDER HAS A LONG SHELF LIFE PROVIDED IT IS NOT EXPOSED TO MOISTURE.

Preparing the Material: In the Field

1. Three-dimensional impression photographs should be taken of all impressions to be cast following the appropriate procedure as outlined within this manual.
2. Measure 10-12 ounces of water (volume will effect consistency of mixture).
3. Pour water into zip lock bag and seal.
4. Thoroughly knead the water and powder until all the lumps are removed (approximately three minutes) and the mixture is the consistency of pancake batter.
5. If preferred, the mixture may be prepared in a bucket/or other vessel instead of a bag.

Preparation of the Impression for Casting

Three dimensional Impression photographs should be taken of all impressions to be cast following the appropriate procedure as outlined within this manual.

1. If possible, carefully remove any debris surrounding the impression (sticks, leaves, trash). Do not remove any debris that will disturb the impression.
2. If the surface of the ground is uneven, a frame may be placed around the impression to retain the casting mixture. The frame should be adjustable to allow for irregularities in the impression shape. Carefully place the frame around the impression so as not to disturb the detail of the impression.

Pouring the Mixture

1. Determine how the mixture may flow across the impression (grade of the land, uphill, downhill).
2. Choose a side to start the pour.
3. Off the perimeter of the impression, start to slowly pour the mixture on the ground, building a small mound of the mixture.
4. Slowly move the pour into the impression allowing the mound of mixture to push itself into the impression. This will prevent damage of the impression from the stream of the mixture.
5. Continue pouring the mixture over the entire impression until all of the mixture has been used. Any stoppage of the pour will create a “pour line” in the cast and may obliterate detail.
6. The top of the pour can be smoothed, using a small ruler or your hand. This will also allow for perimeters of the impression to be filled with casting mixture.
7. Allow the cast to dry and mark the cast with the following information: Orientation (north arrow), unique identifier (photo marker number), CCBI case number, date and the name or initials of the employee.

Removing the Cast from the Ground

1. After it has dried, carefully pick up cast and transport, impression side up, to the laboratory. Make sure that the cast is packaged appropriately in order to prevent it from being damaged.
2. Do not scrub dirt from cast, as detail may be lost (preferably done by Footwear/Tiretrack Examiner).

**1.4. Limitations**

Impressions may be encountered that are submerged in water. The water should be left in place. Submerged impressions are processed as any other impression. Off the perimeter of the impression, start to slowly pour the mixture, building a small mound of the mixture allowing the mound of mixture to push itself into the impression. The casting material will sink to the bottom of the impression force the water out.

The alternative method is prior to pouring the cast, a small amount of the powder can be sifted into the impression to provide stability to the ground. To accomplish this task, scoop some powder into the hand and slowly and carefully sift the powder over the impression until a thin layer is covering the impression. This may take several attempts until the entire surface is “dusted”. After the surface is prepared, carefully pour the cast.

**1.5. Quality Control**

The age and condition of the materials used to cast the impressions should be considered prior to application as old or degraded materials will have a negative impact on the quality of the impressions.

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# Chapter 19: Electrostatic Lifting

**1.1. Purpose**

To establish a list of procedures to be taken at a crime scene for the detection, collection, and preservation of footwear and other impressions using an electrostatic lifting device.

**1.2. Materials**

* Electrostatic Dust Lifting Kit
* Camera (digital)
* Flashlight
* Flash unit (detachable), sync cord
* Measuring devices
* Level
* Other items for documentation (i.e., notepads, paper, graph paper, pens, etc.)
* Packaging Materials (cardboard box)
* Gelatin Lifter (rubber lifter)

**1.3. Procedures**

A search of the scene shall be conducted prior to using the Electrostatic Dust Lifting Kit.

Oblique lighting should be used to observe and discover dust mark impressions.

Any impressions that are observed should be photographed using the proper photographic procedures as outlines in the Impression Photography section of this manual.

Follow the manufacturer’s instructions when utilizing the electrostatic lifting device for the appropriate procedure of employing the device.

Check the device’s operability prior to use in scene examination and indicate that this was done as well as the result in case notes.

Upon collection of the dust impression and with the silver side of the mylar down, the mylar should be fixed to the inside of a box. The impression should be facing up. This lift and its packaging should be submitted to the photography section as soon as possible so that the impression can be preserved photographically. After documentation via photography, it is good practice to lift and preserve the impression through the use of a gelatin lifter. This lift will then become an item of evidence and will be packaged and labeled as such.

**1.4. Safety Considerations**

Accidental contact with the current may produce an uncomfortable shock, but the low amperage current is essentially harmless. The current, however, is sufficient to interrupt the normal pacemaker. The device must not be used by anyone with a pacemaker or near any individual dependent on one.

**1.5. Limitations**

Visible impressions must be photographed prior to any attempt at electrostatic lifting. Lifted impressions are fragile and should be photographed as soon as possible. The photographic images will be treated as evidence. This should only be used when the impression transfer is a dry transfer.

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# Chapter 20: Collection of Computer Evidence at the Crime Scene

**1.1. Purpose**

The purpose of this procedure is to secure digital evidence located at a non-laboratory location to preserve its integrity for further forensic processing.

**1.2. Administration**

An increasing number of criminals in Wake County use pagers, cellular phones, PDAs, and computers in the course of committing their crimes. In some cases, computers provide the means of committing the crime, as in child pornography, cyberstalking, and network intrusions. In other cases, computers and other computer related storage devices merely serve as a convenient storage device for evidence of a crime, including financial records, journals, and emails.

CCBI Investigations Division employees may be called upon to collect these items of evidence; however, the recovery of electronic data on such devices is extremely specialized and demands technical training. As such, CCBI's Forensic Computer Examiner should be utilized to recover such electronic data.

Any CCBI Investigations Division employees requested by the investigating law enforcement agency to view any data compiled on any electronic storage media should direct such a request to CCBI's Forensic Computer Examiner. In the absence of CCBI's Forensic Computer Examiner, the request will be forwarded to the employee's Supervisor and a determination whether or not to fulfill such a request will be made. The CCBI Supervisor should consider the benefits of the immediate examination of the evidence to the potential for damaging such evidence when making this determination.

It is the policy of CCBI that during investigations, only CCBI employees who have been trained in computer forensics shall process computers, recording devices or recording media for the evidence that they contain, unless other circumstances exist that someone else might need to seize the computer. Whenever possible, seizures should be done by the Forensic Computer Examiner.

**1.3. Materials**

* Digital camera
* Sterilized removable media
* Forensic computer or laptop
* Mobile device acquisition tools
* Tool kit (screw drivers, etc.)
* Evidence packaging materials
* Long, narrow stick-on labels
* Large antistatic plastic bags and/or boxes
* Clean metal paint cans or Faraday® type bags

**1.4. Procedure**

Upon arriving at the scene, ensure that the suspect is removed from the device and power supply and is not allowed access to them. If the computer to be searched is on a network, ensure that all computers on the network are secured and that no one is allowed access to these computers until the crime scene search is completed.

Regardless of the power status of the device, remove any modem or network cable from the computer. If networking appears to be wireless, turn off the wireless router or switch.

If the computer is turned off, do NOT switch it on. NOTE that a black screen saver or a computer’s “sleep mode” may give a false impression that the computer is turned off; instead, look for lights on the computer case to indicate power status.

If the device is turned on, the Forensic Computer Examiner or the CCBI Investigations Division employee should photograph or make note of what appears on the monitor screen, including documents, open programs, and/or images. If there is no indication of active destruction of digital evidence, allow any print devices to complete printing. The Forensic Computer Examiner may choose to capture data contained in volatile memory. For a desktop or tower computer, remove the power cable **from the back of the computer, not from the wall plug**. For a laptop, remove the power cable from the back of the computer and remove the battery. Consider the possibility of latent or trace evidence on the device.

**1.5. In the event of active digital evidence destruction**:

If at any point while securing the computer, the CCBI Investigations Division employee or Forensic Computer Examiner believes that evidence may be being destroyed on a desktop or tower computer, the power cable should immediately be pulled from the **back of the computer, not from the wall plug**. If the computer is a laptop, the battery should be removed in addition to the power cable being pulled from the back of the computer.

Indications of data destruction include, but are not limited to, the following situations: data deletion program running; disk wipe program running; Windows Add or Remove Programs dialog box open or application running; or Windows Disk Defragmenter dialog box open or application running

**1.6. In the event of networked computer(s):**

If computers are connected to an external network, safely remove any computer to be searched from the network. Because unplugging a suspect computer from a network can cause data loss and damage to the network, assistance in safely removing the computer from the network should be sought from the system administrator so long as the system administrator is not a suspect in the case. If the system administrator is a suspect in the case, assistance should be sought from other personnel knowledgeable in the network’s operations.

**1.7. Scene Assessment:**

Document the condition of all relevant devices with notes. Note the hardware connections to the computer, including mouse, keyboard, phone cable, network cable, external data storage drives, print devices, scanners, other peripheral devices, etc.

Photograph any open files on the monitor screen.

**1.8. Scene and Suspect Search:**

The suspect, area around the digital device, and wider crime scene should be searched for at least the following items:

Digital devices such as PDAs, digital still cameras and video cameras, CD/DVD duplicators and labelers, GPS devices, cellular telephones, pagers, and digital answering machines.

Removable storage media such as external hard drives, CDs, DVDs, Zip disks, Jaz disks, floppy disks, SD expansion cards, ultra compact and compact flash cards, multimedia cards, memory sticks, USB drives, magnetic tape cartridges, and smart cards (plastic cards with an embedded electronic chip).

Removable hardware such as dongles, PCMCIA and PCIExpress cards, wireless network cards, and password/encryption keys.

Passwords, account numbers, login names, user IDs, or other pertinent information that may be written down. Also search for diaries or notebooks with notations that may be related to this type of information.

“Hard copy” evidence contained on/in peripheral devices such as print devices, fax machines, and scanners.

Software or hardware manuals, owners’ guides, quick set-up guides, etc.

**1.9. Evidence Packaging and Transport**

The power cable should be seized and packaged with the seized device.

The seizure of keyboards, mice, monitors, and peripheral devices that do not store data (e.g. print devices, scanners, speakers, webcams, modems) is left to the discretion of the CCBI Investigations Division employee or Forensic Computer Examiner. However, the CCBI Investigations Division employee or Forensic Computer Examiner should document what devices were present and not seized in the event that their later seizure becomes necessary. This documentation should include all identifying characteristics for the item: type, version, product name, product number, and serial number.

**1.10. Seized computers** should be marked and packaged in the following manner:

Assign an individual number to each cable attached to the back of the computer, and list those numbers and their corresponding cables in the employee/Forensic Computer Examiner notes (example: 1-keyboard; 2-mouse).

If the cable is seized along with the computer, write each cable number on two stickers. Wrap the first sticker securely around the cable that it identifies. Place the second sticker across that cable’s connection port on the back of the seized computer. A sticker marked “empty” should be placed across each connection port on the back of the seized computer that had no cable attached to it at the time of the seizure.

If the cable is not seized along with the computer, do not place a sticker around the cable.

Instead, place a sticker with the cable number across that cable’s connection port on the

back of the seized computer. A sticker marked “empty” should be placed across each

connection port on the back of the seized computer that had no cable attached to it at the

time of the seizure.

It is preferred that the device be packaged in its entirety in a paper bag, paper box, or paper wrapping. If this is not possible, packaging or evidence tape should be placed across each drive slot in such a way that media can neither be removed nor added without breaking the tape. In addition, packaging or evidence tape should be placed across each end of the computer’s power cable in such a way that the cable cannot be plugged in to the wall or plugged into a computer without breaking the tape. Finally, evidence tape should be placed across the computer case in such a way that it cannot be opened without breaking the tape (e.g. taping the locking rings together, taping the removable case cover shut, etc.).

If the computer and/or power cable have been contaminated with body fluids or any other hazardous material, the outer packing should be marked appropriately.

**1.11. Seized Cellular Phones and PDAs** (Personal Data Assistants) should be marked and packaged in the following manner:

If the PDA is on, **do not turn it off, or data may be lost**. If possible, package the "on" cellular phone or PDA in an unlined arson can; close the lid to the arson can securely, and then seal it with evidence tape. Submit any devices collected in such a manner immediately due to the battery power limitations. If the cellular phone or PDA is off, **leave it off** and seal it in a paper bag or paper envelope. *Because data contained in cellular telephones and PDAs is so volatile, the Investigations Division employee should alert the Forensic Computer Examiner as soon as reasonably possible that a cellular phone or PDA has been seized.*

Assign an individual number to each cable attached to the device and list those numbers and their corresponding cables in the employee/examiner notes (example: 1-power; 2-ear piece).

If the cable is seized along with the device, write each cable number on two stickers. Wrap the first sticker securely around the cable that it identifies. Place the second sticker across that cable’s connection port on the back of the seized device or cradle. A sticker marked “empty” should be placed across each connection port on the back of the seized device and cradle that had no cable attached to it at the time of the seizure.

If the cable is not seized along with the device, do not place a sticker around the cable.

Instead, place a sticker with the cable number across that cable’s connection port on the

back of the seized device or cradle. A sticker marked “empty” should be placed across

each connection port on the back of the seized device and cradle that had no cable

attached to it at the time of the seizure.

If the cellular phone, PDA, cradle, and/or power cable have been contaminated with body fluids or any other hazardous material, the outer packaging should be marked appropriately.

**1.12. Seized Media:**  Should be marked in the following manner:

Count and package similar storage media (i.e., floppy disks, CDs and DVDs, ZIP disks, etc.) and itemize by type on the evidence inventory form.

Media removed from digital devices at time of seizure should be listed separately on the evidence inventory form and clearly marked as having been removed from the digital device.

DO NOT USE BALLPOINT PENS WHEN MARKING FLOPPY DISKS AND OPTICAL DISCS AS DAMAGE TO DATA CAN OCCUR. USE FELT MARKERS ONLY (SUCH AS SHARPIES).

Media should be packaged in paper envelopes or paper bags. If possible, optical media such as CDs and DVDs should be placed in sleeves or cases to protect against damage while in evidence.

**1.13. Evidence Transport:**

Place the device on the floor of the vehicle, not on the seat, to minimize the potential for damage. DO NOT place the device or any data storage devices near magnets, radio transmitters, or in the trunk of a vehicle.

**1.14. Safety Considerations**

Computers are delicate electronic equipment and must be protected from sudden shocks, dirt, magnetic fields, and other environmental factors. Computers should be secured in such a manner as to prevent shifting during transport.

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# Chapter 21: Bloodstain Pattern Documentation

**1.1 Purpose**

To provide guidelines for the proper documentation of bloodstain evidence at the crime scene.

**1.2. Administration**

The examination of bloodstains at crime scenes can provide investigators with information, such as the type of bloodstain patterns, the type and number of forceful impacts, the type and number of cast off bloodstains, the handedness of cast off bloodstains, the relative speed and directions of travel of individuals issuing blood in the scene and the sequence of events. The proper documentation of bloodstain evidence at the scene is instrumental in the proper analysis.

**1.3. Materials**

* Memory card
* Tripod
* Measuring devices (2,3 or 6cm adhesive/magnetic scales, six-inch rule, yard or meter stick, and tape measure)
* Sketch paper
* Writing implements
* String
* Protractor with the reference line at 0 and 180 degrees
* Magnifier

**1.4. Procedures**

All photography of bloodstain patterns should be accomplished with a parallel film plane and as close as possible to the subject matter.

In all photography, a scale of appropriate size should be included in the subject matter.

Subject matter should be labeled or a photo log should be kept.

Overall photographs on the crime scene and the subject matter should be taken. Medium shots should be taken of the central areas of the bloodstain patterns. Close-up photographs should be taken of pertinent bloodstains to show the angularity of the blood spots or any unusual characteristics.

The close up photographs should be taken to cover areas of a maximum area of 20 x 16 inches and the 2, 3, or 6cm adhesive/magnetic scales should be in the center of as close to the center of the photograph as possible with notation made on the scales as to the orientation of the photographs (up vs. down; left vs. right).

Overall, midrange and close-up photographs will scales of the suspected bloodstained areas of the scene will be taken so that one-to-one enlarged photographs can be made for analysis.

Overall, midrange and close-up photographs with scales of the victim(s) to include all their injuries should be taken if possible.

Rough sketches of each suspected bloodstained surface with the appropriate measurements (horizontal and vertical taken from the center of the small scales in the pattern) of the location of the measuring devices used in the documentation; 2, 3, or 6cm adhesive/magnetic scales or any other scale may be created for use in analysis. In the event that the sketches are to be used for analysis then the originals will be maintained in the crime scene case files and copies of the notes will be sent with the other items to be used for analysis.

Notes and/or descriptions of the suspected bloodstained areas may be created. In the event that the notes are to be used for analysis then the originals will be maintained in the crime scene case files and copies of the notes will be sent with the other items to be used for analysis.

A finished sketch (floor plan) to show the orientation or the layout of the rooms in the house may be created for use in analysis.

A copy of the Medical Examiner’s report and any autopsy photographs as well as any reports generated by Medical Personnel that describe the injuries to a living victim should be collected if possible.~~.~~

Representative samples of bloodstain patterns used for the reconstruction will be collected.

General interpretations as to bloodstain patterns located at crime scenes may be offered by Crime Scene Investigators who have completed an approved bloodstain pattern analysis course.

**1.5. Safety Considerations**

Personal safety equipment should be utilized when possible biohazard exposure is present.

**1.6. Limitations**

The rendering of opinions based upon examination and analysis of the bloodstain patterns encountered at crime scenes will be limited to Crime Scene Investigators who have been granted authority to do so by the department.

**1.7. Quality Control**

Maintenance should be performed when operability is an issue or whenever necessary to ensure that photography equipment is in proper working order.

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# Chapter 22: Bullet Path Documentation

**1.1. Purpose**

To provide guidelines for documentation of bullet holes, projectile indentations, and bullet paths at the crime scene.

**1.2. Materials**

* Digital Camera
* Memory card
* Tripod
* CCBI approved measuring devices
* Clipboard with sketch paper
* Writing implements
* CCBI approved dowel rods for illustrative purposes only

**1.3. Procedures**

The proper documentation and examination of bullet holes and/or indentations at crime scenes can assist the reconstruction of a shooting incident scene and can provide investigators with an investigative tool.

Identify the bullet holes and indentations if possible.

Entrance holes should be labeled to correspond with the appropriate exit holes, but labeled in such a way as to differentiate them from exit holes.

Example: Entrance hole as #1 and corresponding exit hole as #1a.

Document the direction of travel if possible.

Document the crime scene

1.4. Photography

The following photographs should be taken:

1. Overall photographs of the room(s) or object(s) with the bullet holes and/or indentations.
2. Overall photographs of the surface(s) with the bullet holes and/or indentations.
3. Midrange photographs to show the relative locations of the bullet holes and/or indentations in the surface(s) and their relative locations to each other.
4. Close-up photographs with the use of an “L” shape centimeter scale or the use of 3 or 6-centimeter adhesive rulers at the top of bottom of each bullet hole or indentation to document their sizes and shapes.

The film plane must be parallel to the surface with the bullet holes or indentations when taking the close-up photographs.

The photographic image of each bullet holes should be as large as possible.

Photographs should also be taken if possible when measuring the location of each bullet holes or indentations.

1.5. Rough Sketches

Sketches should include:

1. The overall measurement of the room or object being sketched.
2. The overall measurements of the surfaces with the entrance bullet holes or indentations.
3. The overall measurements of the surface with the corresponding exit bullet holes.
4. The height of the center of each entrance bullet hole or indentation.
5. The height of the center of each corresponding exit bullet hole.
6. The horizontal distances from the center of each entrance bullet hole or indentation to the left or right corner/edge of the surface.
7. The horizontal distances from the center of each exit bullet hole to the left or right corner/edge of the surface.
8. The best orientation of each entrance bullet hole or indentation in the surface.
9. The best orientation of each corresponding exit bullet hole in the surface.

1.6. Notes

Notes should include:

1. A description of the room or object involved in the shooting incident.
2. A description of the surface with the bullet holes or indentations.
3. A description of the appearance of each bullet hole or indentation.
4. The measurements and positioning of each bullet hole and indentation on each surface.

**1.7. Limitations**

This procedure is to help ensure that the proper documentation is collected from a shooting incident scene that may allow a shooting incident reconstruction to be performed at a later date if needed.

The rendering of opinions regarding any shooting reconstruction performed at crime scenes or in the laboratory will be limited to the Crime Scene Investigators who have been granted the authority to do so by the Department.

**1.8. Quality Control**

The rendering of opinions by the Crime Scene Investigators is subject to peer review. Any conflicting findings will be brought to the attention of the Crime Scene Investigator. If necessary, a quality review panel may be convened to correct any problems. All qualified Crime Scene Investigators will take an annual proficiency test.

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# Chapter 23: Surface Skeletal Remains

**1.1. Purpose**

To establish a list of actions to be taken in crime scenes involving the search for and recovery of surface skeletal remains.

**1.2. Materials**

* Personal protective equipment
* Directional compass
* Camera (digital camera)
* Other items for documentation (i.e., notepads, paper, graph paper, pens, etc.)
* Memory card
* Measurement devices (i.e., rulers, 25’tape, surveyor’s wheel, electronic devices, etc.)
* Sifting screens/saw horses
* Brush cutters, pruning shears, saws
* Metal detector
* Packaging containers (i.e., paper bags, boxes, envelopes, etc.)
* Evidence markers/flags
* Surveyors’ tape
* Surveyors’ stakes
* Plastic buckets
* Shovels, rakes, trowels
* Paint brushes

**1.3. Procedures**

Determine the search area and ensure that the area is secure.

Photograph the scene prior to the search.

Begin written documentation of the scene.

Perform a systematic search of the area and begin flagging evidence and remains.

Perform a search utilizing the metal detector.

Ensure that notification of the Medical Examiner is made when suspected human remains are located. Set up a grid around the majority of the remains/evidence; multiple grids may be necessary.

Take measurements of the evidence both in and outside the grid area.

Note and collect any vegetation that may provide information on the time of death, if the situation warrants (depth and nature of leaf cover or stage of growth of associated vegetation).

Collect soil samples if the situation warrants.

Cut the vegetation and clear the site.

Photograph, measure, and sketch the evidence.

Collect the remains/evidence in paper bags and label the packages as to their contents.

Remove the soil below the remains and sift the soil.

Use a metal detector on the excavation site and excavate areas of positive responses.

**1.4. Safety Considerations**

Crime scenes involving skeletal remains should be considered bio-hazardous.

Appropriate personal protective equipment should be worn during the recovery process.

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# Chapter 24: Buried Bodies

**1.1. Purpose**

To establish a list of actions to be taken in crime scenes involving the search for and recovery of buried bodies.

**1.2. Materials**

* Personal protective equipment
* Directional compass
* Camera (digital camera)
* Other items for documentation (i.e., notepads, paper, graph paper, pens, etc.)
* Memory card
* Measurement devices (i.e, rulers, measuring tape, surveyor’s wheel, electronic devices, etc.)
* Sifting screens/saw horses
* Brush cutters, pruning shears, saws
* Metal detector
* Packaging containers (i.e., paper bags, boxes, envelopes, etc.)
* Evidence markers/flags
* Surveyor’s tape
* Surveyor’s stakes
* Plastic buckets
* Shovels, rakes, trowels
* Paint brushes
* Probe rods

**1.3. Procedures**

Photograph the scene prior to the search.

Begin written documentation of the scene.

Determine the search area through visual indicators, probe search the area, etc.

Set up a grid around burial site (preferably 10’ x 10’).

Perform a systematic search of the area flagging evidence on the surface.

Perform a search of the area utilizing metal detector.

Note and collect vegetation that may provide information on determining time of death, if situation warrants (depth and nature of leaf cover or stage of growth of associated vegetation).

Cut the vegetation and clear the site.

Excavate the soil in 2-4 inch increments utilizing shovels and trowels.

Screen or sift all soil removed from the suspected gravesite.

Notify the Medical Examiner when suspected human remains are located.

Photograph, measure and sketch evidence, record depth of evidence and size and depth of the actual gravesite.

Collect the remains/evidence; place the remains in a body bag and evidence in paper bags ensuring that each bag is labeled as to contents.

Probe the area beneath the remains for further indications of disturbance in the soil (if noted continue with excavation process if not continue below).

Collect a soil sample from under body if the situation warrants.

Remove approximately six (6) inches of soil below the remains and dry sift the soil.

Use a metal detector on the bottom of the excavation site and excavate those areas of positive responses.

**1.4. Safety Considerations**

Crime scenes involving buried bodies should be considered bio-hazardous.

Appropriate personal protective equipment should be worn during the recovery process.

Evidence obtained from the gravesite that may be bio-hazardous will be labeled as such.

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# Chapter 25: Entomology

**1.1. Purpose**

To establish a list of actions to be taken in crime scenes involving the documentation and collection of entomological evidence for examination by qualified personnel in an attempt to establish time and location of victim’s death.

**1.2. Materials**

* Personal protective equipment
* Camera (Digital Camera)
* Other items for documentation (i.e. notepads, paper, graph paper, pens, pencils, etc...)
* Memory card
* Ruler
* Paper labels and pencil (for samples)
* Traceable Thermometer
* Styrofoam cups and lids
* Collection vials
* Featherweight forceps
* Killing jar
* Vermiculite
* Small shovel
* Liver/canned cat food
* Butterfly net
* Paper towels
* Aluminum foil
* Rubber bands
* Solutions to kill and preserve specimens
* Adhesive labels
* Sifter

**1.3. Procedures**

Document the scene with photographs to include, overall photographs for orientation, medium range to depict insect activity and location and close up photographs of the areas of infestation. The location of the collected sample should be noted. Also take photographs from the body looking directly up as well as 360 degree photographs from the location of the body.

A video recording of the scene can also be taken.

Begin documentation of the scene using notes. Note current environmental conditions to include;

1. Moisture in the area (rain fall, humidity, dew)
2. Sun exposure vs. shaded area

Temperatures readings must be taken of the following:

1. Ambient
2. Ground interface with body
3. Maggot mass (each one)
4. Ground surface
5. Soil Surface
6. Soil 1”-2” deep

If evidence is being stored in an evidence locker for ANY amount of time before being shipped, take the temperature of the interior of the locker and the amount of time the evidence spent there.

Sketch the scene to include the location of the remains, the location of the remains of maggot masses, egg masses, etc. Note on the sketch possible area of trauma on the remains.

Begin collection of the samples from the remains:

Flies

Collect a representative sample of all the flies present by either using adhesive tent traps or net catching.

Some can be placed into a kill jar while in net (can use Ethyl Acetate in kill jar).

Preserve those in the kill jar in a vial with preservation solution.

If flies are observed with crumpled wings, do not preserve in solution. Place in a vial, allow to dry completely, and labeling as newly emerged.

Place labels on the outside of the sample containers and one label on the inside of the sample container with the following information (USING PENCIL):

1. Geographic location
2. Date and hour of collection
3. CCBI case number
4. Location on body where collected
5. Name of collector

Beetles

Collect a representative sample of those species that are visible with blunt forceps/small paint brush/spatula/hands.

Place in preservative solution.

Place labels on the outside of the sample containers and one label on the inside of the sample container with the following information with a pencil:

1. Geographic location
2. Date and hour of collection
3. CCBI case number
4. Location on body where collected
5. Name of collector

Eggs

Collect a sample size about half the size of a dime (~100) with featherweight forceps (if there are multiple egg masses collect from each separate area).

Preserve half of the sample for examination and place them in a preservation solution.

Keep half of the sample live so as to observe development.

Moist paper towel prevents desiccation.

Food source if stored for a prolonged period

.

Cover to allow air to circulate.

Place labels on the outside of the sample containers and one label on the inside of the sample containers with the following information:

1. Geographic location
2. Date and hour of collection
3. CCBI case number
4. Location on body where collected
5. Name of collector

Maggots

Collect the largest maggots that are visible (most developed).

Collect a representative sample from each maggot mass observed with blunt Featherweight forceps or plastic spoon. : (~100 to 200).

Preserve half for examination.

Place in boiling water prior to placement in solution (if possible)

Place in preservative solution.

Keep half live to observe development.

To do this, create maggot motel by:

* Place on a piece of liver or spoonful of wet cat food in a foil enclosure. Do not seal the tin foil, leave loosely closed and place inside plastic container with holes in the top so that samples can breathe. Put 1”-2” of dirt at the bottom of the plastic container and place tin foil on top
* Place absorbent material around for excess fluids.
* Cover to allow air to circulate.

Place labels on the outside of the sample containers and one label on the inside of the sample container with the following information using a pencil:

1. Geographic Location
2. Date and hour of collection
3. CCBI case number
4. Location on body where collected
5. Name of collector

Pupae

Visibly examine the remains to observe these hard seed looking cases.

Collect a representative sample.

Collect using blunt forceps/paint brush/hands.

Collect a sample of the underlying vegetation and soil from under the body after removal.

In the case of Pupae do not preserve collected samples in solution, keep alive.

Place in vial with moist paper towel to prevent damage.

No need for food.

Cover opening with dry paper towel.

Place labels on the outside of the sample containers and one label on the inside of the sample container with the following information:

1. Geographic location
2. Date and hour of collection
3. CCBI Case number
4. Location on body where collected
5. Name of collector

Puparium

Visibly examine the remains to observe these hard seed looking cases.

Collect a representative sample.

Collect using paint brush/hands being very careful as these are very fragile.

Collect a sample of the underlying vegetation and soil from under the body after removal.

Keep dry in a vial and cushion to prevent damage.

Puparium are not alive.

Place labels on the outside of the sample containers and one label on the inside of the sample container with the following information with pencil:

1. Geographic location
2. Date and hour of collection
3. CCBI Case number
4. Location on body where collected
5. Name of collector

Gather information as to the previous weather conditions at the site for the preceding two weeks (climate data from nearby weather stations) and for the following 3 to 5 days.

The evidence must be delivered to an entomologist as soon as possible. If this is not possible, an entomologist must be contacted for instructions on how to rear the larvae and record their life cycle.

\*\*THE FOLLOWING DEPENDS ON THE ENTOMOLOGIST THAT YOU ARE GOING TO BE WORKING WITH AND WHAT THEY PREFER\*\*

CCBI uses a Denatured Ethyl Alcohol solution, however, blanching is usually preferred first (and with 12 hours of the collection), followed by a preservation solution.

Ingredients for solutions:

1. 75-80% Ethanol

Used to kill and preserve adult specimens. This solution preserves larvae specimens after they have been stabilized in KAA or Kahle’s solution.

1. 90-95% Ethanol

Preserves most eggs, larvae and pupae of aquatic insects.

1. 80% Ethanol

Used to kill and preserve adult specimens. This solution preserves larvae specimens after they have been stabilized in KAA or Kahle’s solution.

1. KAA (KAAD)

80 – 100 ml 95% Ethanol 20 ml Glacial Acetic Acid 10 ml Kerosene

This solution is used for killing larvae specimens. The specimens should be removed from this solution within 12 hours and preserved in Ethanol or Ethyl Alcohol.

1. Kahle’s

30ml 95% Ethanol

12 ml Formaldehyde

4 ml Glacial Acetic Acid 60 ml water

This solution can be used for killing and preserving adult insects and for the preservation of larvae specimens.

1. XAA

60 ml Isopropyl Alcohol 40 ml Xylene

50 ml Glacial Acetic Acid

This solution can be used as a substitute for KAA

1. Carnoy Fluid

30 ml 30% Chloroform 60 ml 95% Ethyl Alcohol 10 ml Glacial Acetic Acid 90-95% Ethyl Alcohol

Used as a killing Crime Scene Investigator and preservative for most soft-bodied aquatic insects.

**1.4. Safety Considerations**

In all scenes where entomological evidence is encountered, adhere to all precautions regarding biological hazards and chemical warnings.

Refer to appropriate Material Safety Data Sheets~~.~~

**1.5. Limitations**

The entomologist or record will critique the proper collection of samples in the absence of an entomologist.

**1.6. Quality Control**

All thermometers used must be traceable and should be calibrated annually.

**1.7. Literature References**

Entomology and Death, Catts and Haskell

Forensic Entomology: The Utility of Arthropods in Legal Investigations, Byrd and Castner

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# Chapter 26: Metal Detector

**1.1. Purpose**

To establish a procedure for the use of a metal detector at a crime scene to search for items of evidentiary value.

**1.2. Materials**

* Metal Detector
* Personal protective equipment
* Camera (digital camera)
* Other items for documentation (i.e., notepads, paper, graph paper, pens, etc.)
* Memory card
* Forensic markers/flags
* Known metallic standard
* Shovels and rakes

**1.3. Procedures**

Metallic items are common forms of physical evidence that may be located at a crime scene.

The metal detector should be utilized whenever there is a potential for metallic evidence at a scene.

The metal detector will normally be used at an outdoor scene where evidence may be below the surface or is difficult to be seen.

The area to be searched should be photographed before the metal detector is utilized.

The metal detector will be used to scan the search area in an organized manner.

Check the device’s operability against a known standard prior to use in scene examination and indicate that this was done as well as the result in case notes.

Once the metal detector has alerted the employee to an area, a forensic marker or flag will be placed at the site. The marker will enable the employee to return to the site for closer examination for potential evidence.

Any evidence located should be photographed long-range and close-up for documentation.

The evidence will be collected, packaged, and transported to the laboratory.

**1.4. Limitations**

The metal detector alerts to metallic items that may or may not be potential evidence, such as soda cans, rebar, and utility wires.

**1.5. Quality Control**

The metal detector may be checked against a known standard similar to the specific object of the search, (i.e., cartridge case vs. cartridge case). During a general search for anything metal, a variety of objects may be used to set the sensitivity of the detector.

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# Chapter 27: Serial Number Restoration

**1.1. Purpose**

To provide quality service in restoring serial numbers on items of evidence for local, state, and federal law enforcement agencies.

To provide testimony in courts of law as to the documentation of the evidence and the processes used restoring or attempting to restore the serial number of item of evidence.

To establish guidelines and procedures for the documentation of the evidence as received.

To establish guidelines and procedures for the restoration process of the evidence.

To ensure that any deficiencies noted in this service is documented and that corrective actions are initiated.

**1.2. Materials**

* Personal protective equipment
* Camera
* Rotary grinding tool
* Cotton swabs
* Clear fingernail polish
* Acids and REAGENTs (i.e. Fry’s REAGENT, Acidic Ferric Chloride, 25% Nitric Acid, etc…)
* Magnet
* 5 volt DC power supply
* Reference material (i.e. Firearms Reference Table, ATF Serial Number Restoration Guide, etc…)

**1.3. Procedure**

Determine that the firearm is safe and unloaded.

Make note of the position of the serial number area on the firearm.

Photograph the firearm and the area of the serial number.

Search for areas on the firearm that may have duplicate or hidden serial numbers.

Use available reference material such as the Firearms Reference Table and Firearm Serial Number Structure Guide (contained in the BATF Serial Number Restoration Course Manual) to assist in locating any duplicate or hidden serial numbers and in determining the possible serial number format (i.e. number and type of characters expected).

Examine the obliterated serial number and note any discernible characters and the position of these characters prior to any processing.

Note the method of obliteration.

* Scratched
* Gouged
* Ground/sanded/other abrasive
* Drilled
* Engraved
* Punched
* Peened/hammered
* Other

If necessary, use a rotary grinding tool with a soft polishing stone attached (or other appropriate method) to polish/smooth out the obliterated area. Note any discernible characters and the position of these characters after polishing/smoothing.

Determine the serial number medium physical property (i.e. magnetic or nonmagnetic) and select the appropriate restoration method to use:

Chemical Processing Method

For Use on Magnetic Media (i.e., steel):

Fry’s REAGENT

Turner’s REAGENT

Davis REAGENT

25% Nitric Acid

For Use on Non-Magnetic Media (i.e., aluminum):

10% Sodium Hydroxide

Ferric Chloride

Acidic Ferric Chloride

25% Nitric Acid

Dilute the chemical solution with distilled water as necessary depending on metal composition and hardness. Test the strength of the chemical solution in an area adjacent to the polished serial number area. Ideally, the solution should not bubble or fizz when it comes in contact with the metal, but the area should slowly darken due to oxidation. Increase or decrease the concentration of the solution as appropriate.

Apply the solution slowly by pipette, cotton-tipped swab, or other appropriate method. Gently rub across the area with a cotton-tipped swab as necessary.

If characters appear, distilled water may be applied to the area to slow and/or stop the oxidation process and allow for examination. Clear fingernail polish can be applied to protect the area after the acids have been washed off with water.

The use of a DC power supply (no more than 5 volts) may be needed to accelerate the etching process.

Note the method(s) used any characters that become discernible, and the position of these characters.

Continue processing until the complete serial number is restored or the examiner concludes that no serial number or no complete serial number can be restored.

Photograph results of the restoration.

Complete a record of findings in the records management system.

**1.4. Safety Considerations**

Refer to Material Safety Data Sheets for specified chemicals.

Use proper ventilation.

Avoid contact with skin or eyes.

Wear suitable protective clothing, gloves, and goggles.

**1.5. Limitations**

Serial number restoration exams may only be conducted by authorized CCBI lab personnel.

**1.6. Quality Control**

All REAGENT and acid solutions will be quality control tested at the time they are prepared and recorded in the REAGENT Log. They will be tested prior to use on actual evidence and on a biannually basis.

All restorations will verified by another person authorized to perform serial number restorations.

**1.7. Literature References**

Serial Number Restoration Guide, US ATF

Firearms Reference Table, Royal Mounted Canadian Police

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**Chapter 28: Full Spectrum Photography**

## Purpose

* + 1. To establish a list of actions in the utilization of an infrared digital camera that can capture images of light spectrum from approximately 380nm to 1000nm. All physical evidence suitable for full spectrum photography (fingerprints, biological fluids, blood, GunShot Residue, bruising, bite marks, tattoos, and inks) should be viewed and photographed with conventional, fluorescent, reflective infrared, and reflective ultraviolet techniques.
    2. Light energy is measured in nanometers, on a spectrum from 1nm to 12,000nm. There are wavelengths and colors of light human eyes cannot observe without the aid of specialized equipment. The specialized camera is able to filter visible light so that only light of a selected wavelength will pass through the lens. The camera is sensitive enough to record images at this specific wavelength.
    3. Physical evidence will be observed at differing wavelengths; the wavelength references in this chapter are to be used as a guide and the user may adjust accordingly. This camera may be used to document crime scenes, items of evidence, and individuals.

## Materials

1. Personal protective equipment, protective eye wear
2. UV-IR digital camera
3. Normal, macro lenses
4. Flash unit
5. Tripod
6. Batteries for camera, flash, and camera’s external battery
7. Alternate Light Source (ALS)
8. Incandescent, halogen light sources
9. Barrier filters
10. Media cards
11. Scales

## Procedure

* + 1. Wear suitable protective clothing, gloves, and goggles.
    2. The photographer should choose the appropriate camera equipment and light source for each scene based on the type of physical evidence to be documented.
    3. The photographer should follow the crime scene photography guidelines as outlined in this manual, reference Chapter 2. Photographs should be taken of the item or area in visible light, with general orientation photographs, before using specialized photography.
    4. The photographer should follow Alternate Light Source guidelines as outlined in this manual, reference Chapter 10: Alternate Light Source.
    5. Physical evidence will be observed at differing wavelengths; the wavelength and filter references in this chapter are to be used as a guide and the user may adjust accordingly.
    6. Filter reference

1. Digital Filter PECA 900 (wratten filter #18A)
2. Digital Filter PECA 904 (wratten filter #87) -- 780nm
3. Digital Filter PECA 906 (wratten filter #87A) -- 1000nm
4. Digital Filter PECA 908 (wratten filter #87B) -- 850nm
5. Digital Filter PECA 910 (wratten filter #87C) -- 830nm
6. Digital Filter PECA 914 (wratten filter #89B) -- 695nm
7. Digital Filter PECA 916 (IR & UV blocking filter for visible light)
   * 1. UV LIGHT : Bruising
8. Reflective ultraviolet (UV) photography for bruises and bite marks in the top layers of skin records the reflection and absorption of long-wave UV light by the subject matter excluding exposure of the film by all visible light.
9. Adjust camera settings, and adjust as needed:
   * ISO 400
   * shutter speed 1/60s
   * flash synchronization is set for electronic flash
   * tripod
10. If necessary, use a tripod to ensure that the camera’s film plane is parallel with the subject. Position the subject approximately 12 – 14 inches from the lens. The subject must keep their movement to a minimum during photography.
11. Re-check the camera focus. Place the UV filter on the camera. Take several exposures, using f-stops f-5.6, f-8, and f-11. Adjust the camera’s settings accordingly as needed. If documenting evidence in the UV-range, add the camera’s UV filter to the lens.
12. To document bruising, make sure there is enough light provided to the area of injury. Point the flash in the direction of the injury.
    * 1. UV LIGHT : Fingerprints with Fluorescent Powders
13. Adjust camera settings, and adjust as needed:
    * ISO 400
    * aperture priority mode
    * f/16
    * tripod
    * Badder filter
    * UV light source
    * Tripod
14. Re-check the camera focus. Place the Badder filter on the camera. Take several exposures, using f-stops f-5.6, f-8, and f-11. Adjust the camera’s settings accordingly as needed.
    * 1. UV LIGHT : Semen, Urine, and other Biological Fluids
15. Adjust camera settings, and adjust as needed:
    * ISO 400
    * aperture priority mode
    * f/16
    * #916 Visible Pass filter
    * UV light source
    * Tripod
16. Re-check the camera focus. Place the #916 Visible Pass Filter on the camera. Take several exposures, using f-stops f-5.6, f-8, and f-11. Adjust the camera’s settings accordingly as needed.
    * 1. UV LIGHT : Blood
17. Adjust camera settings, and adjust as needed:
    * ISO 400
    * shutter speed 1/60s
    * aperture f/11
    * Badder filter
    * UV light source
    * Tripod
18. Re-check the camera focus. Place the Badder filter on the camera. Take several exposures, using f-stops f-5.6, f-8, and f-11. Adjust the camera’s settings accordingly as needed.
    * 1. IR LIGHT : Bruising and Tattoos
      2. Reflective infrared (IR) photography for tattoos and bruises in the deep layers of skin records the reflection and absorption of infrared light by the subject matter excluding exposure of the film by all visible light.
19. Adjust camera settings, and adjust as needed:
    * ISO 400
    * shutter speed 1/60s
    * flash synchronization is set for electronic flash
    * tripod
20. If necessary, use a tripod to ensure that the camera’s film plane is parallel with the subject. Position the subject approximately 12 – 14 inches from the lens. The subject must keep their movement to a minimum during photography.
21. Re-check the camera focus. Take several exposures, using f-stops f-5.6, f-8, and f-11. Adjust the camera’s settings accordingly as needed.
22. To document bruising, make sure there is enough light provided to the area of injury. Point the flash in the direction of the injury.
    * 1. IR LIGHT : Blood
      2. For use of documenting possible blood stains on dark-colored or patterned clothing.
23. Adjust camera settings, and adjust as needed:
    * ISO 400
    * shutter speed 2”
    * aperture f/22
    * incandescent/halogen light source
    * #916 Visible Pass Filter
    * Tripod
24. Re-check the camera focus. Place the barrier filter on the camera. Take several exposures, using f-stops f-5.6, f-8, and f-11. Adjust the camera’s settings accordingly as needed. Use additional barrier filters to bracket the exposures.
    * 1. IR LIGHT : Questioned Documents
25. Adjust camera settings, and adjust as needed:
    * ISO 400
    * shutter speed 1/4s
    * aperture f/22
    * incandescent/halogen light source
    * tripod
      1. Re-check the camera focus. Place a barrier filter on the camera. Take several exposures, using additional barrier filters to bracket the exposures.
      2. 22.11 IR LIGHT : GunShot Residue
      3. For use of documenting possible GSR on dark-colored or patterned clothing.
26. Adjust camera settings, and adjust as needed:
    * ISO 400
    * shutter speed 2”
    * aperture f/22
    * incandescent/halogen light source
    * #916 Visible Pass Filter
    * Tripod
27. Re-check the camera focus. Place the barrier filter on the camera. Take several exposures, using f-stops f-5.6, f-8, and f-11. Adjust the camera’s settings accordingly as needed. Use additional barrier filters to bracket the exposures.

## Safety Considerations

* + 1. Follow proper safety precautions. Eye protection must be worn when using an ALS by the operator and any other persons in the same room or area.
    2. Do not look directly into the light source. Do not expose the light source to skin as it may have long term effects with prolonged exposure.
    3. Wear suitable protective clothing, gloves, and goggles.
    4. Avoid handling the light source itself. When used or recently used, the lamp can cause serious burns. When not in use, fingerprints can be burned onto the surface of the lamp potentially reducing the life of the lamp and increasing the possibility of an explosion.

## References

Brown, K., and et al. “The New XT-1 Fuji UV-IR Digital Camera”.

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# Appendix A

Definitions

**Ammunition:** (1) One or more loaded cartridges consisting of primed case, propellant, and with or without one or more projectiles. Also referred to as FIXED or LIVE AMMUNITION. (2) Compressed gas cylinders used in air guns as a means of propelling projectiles.

**Employee Notes:** Hand and/or typewritten documented observations, conversations, actions and information relevant to the case.

**Archive**: To copy files to a long-term storage media.

**Archive Image**: Either the primary or original image stored on media suitable for long-term storage.

**Archiving**: Long-term storage of film, prints, or digital images.

**Artifact**: Any information not present in the primary or original image that was inadvertently introduced.

**Authentication**: The process of substantiating that the data is an accurate representation of what it purports to be.

**Automated Fingerprint Identification System/Biometric Identification Solution (AFIS/BIS):** A computerized individual characteristic database which contains reference samples utilized as a search tool for unidentified latent and inked fingerprints. These samples are not considered evidence. This database is property of the CCBI.

**Best Evidence:** The most desirable form of evidence for laboratory analysis.

**Biohazard:** Any substance that may pose the risk of biological infection.

**Biological Hazard:** Evidence contaminated with blood or body fluids which may carry disease.

**Bloodstain Pattern Analysis:** The examination of bloodstain patterns in a crime scene and/or on items collected for examination to determine the sequence of actions that produced the patterns.

**Buccal Swab:** A swab of the inside of the cheek for the purpose of obtaining a DNA standard.

**Caliber:** (1) Firearms: The approximate diameter of the circle formed by the tops of the lands of a rifled barrel. (2) Ammunition: A numerical term, without the decimal point, included in a cartridge name to indicate a rough approximation of the bullet diameter.

**Capture**: The process of recording an image.

**Capture device**: A device used in the recording of data.

**Cartridge:** A single unit of ammunition consisting of the case, primer, and propellant, with or without one or more projectiles. Also applies to a shotshell.

**Casting:** A method of recovering three-dimensional impressions with dental stone or other non-shrinking substances for the purpose of documentation, preservation, transporting and comparative examination.

**CD (compact disc)**: Optical disc formats designed to function as digital storage media.

**CD-R:** Compact Disk-Recordable. A disk to which data can be written but not erased.

**CD-RW:** Compact Disk-Rewritable. A disk to which data can be written and erased.

**Chain of Custody:** A documented record of all individuals who have maintained unbroken control over the item since its acquisition and return to the submitting agency.

**Characteristics**: The pattern design formed by friction skin and the individual details of ending ridges, bifurcations and dots and the unique marks present on items of footwear and tires as a result of design, manufacture and usage.

**Chemi-luminescence**: The generation of electromagnetic radiation as light by the release of energy from a chemical reaction.

**Class Characteristics:** The traits that define a group of items collectively

**Comparison Quality Photograph:** An image that when enlarged is a true 1:1, or actual size; is of such quality and resolution that a comparison can be made; representation of such quality and resolution that a comparison can be effected.

**Compression**: The process of reducing the size of a data file.

**Confirmatory test:** A test that can positively prove the presence of the substance being tested for; often used after a presumptive test.

**Contamination:** The alteration of an item by the introduction of foreign material; to make impure by contact or mixture

**Court Charts**: Photographic enlargements in a side by side relationship of latent print/inked print or questioned track/known track (or item of footwear or tire). Identifying characteristics are plotted in such a manner as to assist the employee in demonstrating the method of identification to members of a court during legal proceedings.

**Crime Scene:** A physical location where a crime has occurred and/or where any physical evidence related to a crime may be located.

**Lead Employee:** The employee in charge, accountable and will be authoring the report on the scene responded to. The Lead coordinates the scene, organizes searching, processing and collection, directs assistants, documents, detects, collects and preserves evidence, and converses with the requesting agency and the laboratory employee involved.

**Crime Scene Examination:** An investigative inspection and processing of a crime scene to determine sequence of events and/or to document, identify, collect and preserve physical evidence.

**Crime Scene Search**: The structured and organized survey of a crime scene.

**Crime Scene Services**: The service provided by the Crime Scene Section to law enforcement agencies in the collection of evidence and processing of crime scenes.

**Digital image**: An image that is represented by discreet numerical values organized in a two-dimensional array.

**DVD:** Digital versatile disc/digital video disc; Optical disc formats designed to function as digital storage media

**DVD-R:** Digital Versatile Disc-Recordable. A disk to which data can be written but not erased.

**DVD-RW:** Digital Versatile Disc -Rewritable. A disk to which data can be written and erased

**Elimination:** A significant disagreement of discernible class characteristics and/or individual characteristics.

**Enhancement**: Digital imaging processing using digital imaging editing software to increase the visual usefulness and quality or more clearly define pertinent image detail for comparison purposes.

**Epithelial cells:** The cells covering most internal surfaces, organs and the outer surface of an animal’s body.

**Evidence:** Anything detectable by sensory, physical, chemical, optical, or electronic means, including those things in a digital or multimedia form, which provides factual information about a crime.

**Existing Image**: An image received in the laboratory that is already in a digital format. Images on a disk, CD or DVD that is submitted as evidence are considered Existing Images.

**File format**: The structure by which data is organized in a file (e.g. RAW, BITMAP, TIFF, JPEG, etc.).

**Final Sketch:** A completed sketch, using either drafting techniques or a computer aided drafting program, containing all elements necessary for presentation in court.

**Firearm:** An assembly of a barrel and action from which a projectile is propelled by the products of combustion.

**Fluoresce:** To produce, undergo, or exhibit fluorescence

**Fluorescence**: Luminescence that is caused by the absorption of radiation at one wavelength followed by nearly immediate re-radiation, usually at a different wavelength, and that ceases almost at once when the incident radiation stops

**Footwear Impression:** A reproduction of the outsole of an item of footwear.

**Forensic Archaeology:** The systematic recovery of surface skeletons or buried human remains.

**Griess Test:** A chemical test for the detection of nitrites. Technique used to develop patterns of propellant residues (nitrites) around bullet holes.

**Gunshot Residue:** The term applied to the minute particles of metal and metal compounds derived from the exploded primer material and the projectile emitted by a discharged firearm.

**Gunshot Residue Kit:** A standardized collection kit designed to recover Gunshot Residue from the hands of a person suspected to have been in an environment containing gunshot residue. The kit consists of multiple adhesive-coated aluminum Scanning Electron Microscope sample stubs that are generally used to sample the hands of a single subject.

**Identification:** Agreement of a combination of individual characteristics and all discernible class characteristics where the extent of agreement exceeds that which can occur in the comparison of toolmarks made by different tools and is consistent with agreement demonstrated by toolmarks known to have been produced by the same tool

**Image**: An imitation or representation of a person or thing, drawn, painted, photographed, etc.

**Image Analysis**: The extraction of information from an image beyond that which is readily apparent through visual examination.

**Image Enhancement**: Any process intended to improve the visual appearance of an image.

**Image Output**: The means by which an image is presented for examination or observation.

**Image Processing**: Any activity, which transforms an image by application of tools, enhancement, or restoration techniques into an output image.

**Image Transmission**: The act of moving images from one location to another.

**Image Verification**: A process by which an individual identifies an image as being an accurate representation.

**Imaging Technologies**: Any system and/or methods used to capture, store, process, analyze, transmit, or produce an image. Such systems include but are not limited to film, electronic sensors, cameras, video devices, scanners, printers, and computers.

**Impression:** A mark which has retained the characteristics of other objects or materials as the result of contact with one another, such as a latent print, tool mark or footwear or tire impression.

**Individual Characteristics:** The traits that define and identify an item as unique, exclusive to all other items.

**Inked Print:** A deliberate and intentional recording of the friction ridge details present on the fingers, hands or feet for the purpose of comparison to the latent prints or for personal identification records.

**Integrity Verification**: The process of confirming that the data is complete and unaltered since the time of acquisition.

**Intermediate Storage**: Any media or device on which an image is temporarily stored for transfer to permanent or archival storage.

**Investigative evidence:** Items that may not have forensic value, yet may aid in resolving the case.

**Known Sample:** A material whose original source is established.

**Latent Print:** An unintentional transfer by contaminants, natural body substances or pressure of friction ridge details present on the fingers, hands and feet when an object is touched. These prints may be visible or be made visible by special lighting or the application of physical and chemical techniques.

**Lift:** An adhesive or other medium on which recovered friction ridge detail is preserved.

**Lifting Materials:** Materials with transference qualities used to recover two-dimensional latent prints from a surface for the purpose of preservation, transportation, and comparative examination.

**Lossless Compression**: Compression in which no significant image data is lost and the image can be retrieved in its original form.

**Lossy Compression**: Compression in which image data is lost and the image cannot be retrieved in its original form.

**Luminescence:** Emission of light by energy from non-thermal sources (i.e., chemical, biochemical, electrical), including both fluorescence and phosphorescence; the low-temperature emission of light (as by a chemical or physiological process);

**Major Case Prints:** A systematic recording of all the friction ridge detail appearing on the palmar sides of the hands. This includes the extreme sides of the palms, joints and sides of the fingers.

**Native File Format**: The file format of the primary image.

**Negative Control:** A sample, tested along with the questioned samples, which contains none of the substance tested for.

**NIBIN:** National Integrated Ballistics Information Network - an automated computer database that uses digital images of fired cartridge cases and bullets to link fired cartridge cases or bullets from one shooting scene to fired cartridge cases or bullets found at other scenes, or to a recovered firearm.

**Non-porous:** Non-absorbent

**Non-recoverable evidence:** Latent prints which are developed or noted on items of evidence which cannot be permanently preserved, as is, on the evidence or will be destroyed by additional processing, handling or examination.

**Non-Recoverable Image**: Image(s) developed on items of evidence as a result of forensic processing by methods which are considered Non-Recoverable, i.e., development by powders; chemicals; light source enhancements; shoe tracks; tire tracks; and test impressions.

**Oblique Lighting:** Placing the source of illumination at an angle of less than 45 degrees in order to reveal detail by creating shadows in the subject surface as well as to reveal texture of the object when it is being photographed.

**Original Image:** An accurate and complete replica of the primary image, irrespective of the media. For film and analog video, the primary image is the original image.

**Patent Print:** Friction ridge impression of unknown origin, visible without development.

**Peer: A**n individual having expertise in a specific functional area or discipline gained through documented training and experience.

**Personal Protective Equipment (PPE):** Protective clothing, gloves, helmets, goggles, or other garment designed to protect the wearer's body or clothing from injury by electrical hazards, heat, chemicals**,** and infection, for job-related occupational safety and health purposes. It can also be used to protect the working environment from contamination from the worker.

**Physical Evidence:** Any type of evidence, which encompasses any and all objects that can establish that a crime has been committed or can provide a link between a crime and its victim or a crime and its perpetrator, which has an objective existence

**Porous:** Absorbent

**Positive Control:** A sample that is tested along with questioned samples, which contain a known substance or type; serves as a test of the technique and REAGENTs and as an aid in the interpretation of the results obtained from questioned samples.

**Preservation:** A method by which a latent print is recovered for examination and to obtain a permanent record or documentation of the print.

**Presumptive Test:** A test that will indicate, but not confirm, the presence of the substance being tested for.

**Primary Image:** Refers to the first instance in which an image is recorded onto any media that separate, identifiable object or objects. Examples include a digital image recorded on a flash card or a digital image downloaded from the Internet.

**Propellant:** In a firearm, the chemical composition, which when ignited by a primer, generates gas to propel a projectile. Also called Powder, Gunpowder, or Smokeless Powder.

**Questioned (unknown) Sample:** A material whose original source is not known.

**REAGENT**: A substance that produces a detectable result when mixed with or applied to certain samples.

**Recoverable evidence:** Latent prints which are noted on items of evidence and can be recovered or observed on the evidence in the future.

**Recoverable Image**: Image(s) developed on items of evidence as a result of forensic processing by methods that are considered Recoverable i.e., latent lifts, and inked standards.

**Rendered Safe:** A firearm that has been made temporarily inoperable due to the removal of ammunition or mechanically blocking the firing pin.

**Resolution**: Term used to describe the amount of data, or color information, in a scan, a stored image file, a screen display, or a printed image.

**Restoration:** Various methods used to restore obliterated serial numbers and other markings found on firearms and other metal objects (VIN plates, bicycles, etc).

**Rough Sketch**: A sketch completed at the scene containing all information necessary for the creation of a completed sketch.

**Sensitivity**: The limit of a test's ability to detect small quantities or concentrations of a substance.

**Service Area:** Geographic area of jurisdictional authority as assigned to provide assistance.

**Sharps Container:** A container that is impervious to punctures used for the disposal of sharp implements.

**Sodium Rhodizonate Test:** A chemical testing method used to detect primer and lead bullet residue patterns.

**Specificity:** The degree to which a test will identify a substance to the exclusion of all other substances

**Start Date:** The date the examination began on the case.

**Storage:** The act of preserving an image.

**Storage Device**: A piece of equipment capable of storing data. The term usually refers to mass-storage devices such as disk and tape drives.

**Storage media**: Any object on which an image is preserved, i.e., silver-based film; write  
once Compact Disk Recordable (CD-R); and Digital Versatile Disk Recordable (DVD-R).

**Test-fired Bullets/Cartridge Cases:** Ammunition test-fired in the laboratory using a specific firearm that is treated as a known or representative sample of that firearm. Often called Tests.

**Test-firing**: The term used to designate the actual firing of a firearm in a laboratory to obtain representative bullets and cartridge cases for comparison or analysis.

**TIFF**: (Tagged Image File Format) A standardized image file exchange format that is widely supported by hardware and software manufacturers, platform independent, and can be lossless or lossy.

**Tire impression:** A reproduction of the tread of a tire.

**Tool Mark Identification:** Tool Mark identification is a category of testing in forensic science that has as its primary concern to determine if a tool mark was produced by a particular tool.

**Trace Evidence:** material that may be transferred in small quantities between persons/objects when they come into contact with one another.

**Track:** A mark left by an item of footwear or a portion of a tire when it comes in contact with a receiving surface. The track may be two or three-dimensional depending on the nature of the substrate.

**Working image:** Any image subjected to processing, usually the final image after processing.

|  |  |  |
| --- | --- | --- |
| Revision History | | |
| Effective Date | Version Number | Reason |
| July 12, 2013 | 1 | New SOP structure |
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# Appendix B

Abbreviations and Symbols

**PURPOSE**

The purpose of this document is to clearly document the meaning of the abbreviations and symbols specific to the laboratory that are used in the examination documentation and REAGENT logs for the Crime Scene discipline.

NOTE: Abbreviations can be any combination of uppercase or lowercase letters with or without periods, slashed, or dashes. Some members may speed-write (write words without vowels).

**LIMITATIONS:**

Employees and/or forensic technologists who record information in the case record are not prohibited from using abbreviations and symbols commonly used and recognized outside the laboratory setting. However, the listed abbreviations in this procedure are the only approved abbreviations for the terms listed.

Employees and/or forensic technologists shall use the abbreviations for packaging and/or containers that have been approved by the Evidence Intake Section.

Any abbreviations used in a case file that are not listed in this section may be used if an explanation is provided within the file.

|  |  |
| --- | --- |
| Symbol / Abbreviations | Meaning |
|  |  |
| SYMBOLS | |
| p | After |
| q | Every |
| s | Without |
| #, #’d | Number, numbered, pound(s) |
| $ | Cash, money, dollar bills, subject |
| % | Percent |
| & | And |
| ∞ | Infinite, infinity |
| < | Less than, containing (when describing packaging) |
| > | More than, containing (when describing packaging) |
| ≠ | Not equal to |
| = | Equal to |
| - | Negative, subtraction, none, through (as in exhibits A – E) |
| (+), +, + with a circle around | Positive, addition, and |
| X | Multiplication, times, by |
| / | Divided by |
| ? | Not sure, unclear, question, questionable, don’t know, an unidentified character or number in serial number restoration |
| @ | At |
| ~ | Possibly, approximately, similar, Approximately equal to |
| ‘ / | Foot |
| “ // | Inches |
| “ “ | Duplicate the line above |
| ± +or- | Plus or minus |
| √ | Check, affirmative |
| ↑ | Up, increased, above, or from the bottom |
| → | Right, or from the left |
| ↓ | Down, decreased, under, below, or from the top |
| ← | Left, or from the right |
| ║ | Parallel |
| ┴ | Perpendicular |
| ¢ | Cent |
| © | Copyright |
| ® | Registered trademark |
| ™ | Trademark |
| ° | Degree |
| ♀ | Female |
| ♂ | Male |
| 0.12 | One-eighth |
| 1° | Primary |
| 2° | Secondary |
| 3° | Tertiary |
| 1x | One time |
| 2x | Two times |
| 3x | Three times, etc. |
| â | About |
| ć | Contain(s)(ed)(ing) |
| ċ | With |
| c/o | Care of |
| ᴓ | None |
| \* | Represents an undistinguished character or number in serial number restoration that could be \_\_\_ or \_\_\_ |
| ABBREVATIONS | |
| A | Apex, Crime Scene Investigator, Asian |
| AA | African American |
| Abbrev., abbr. | Abbreviation, abbreviate |
| AC, A/C | Air conditioner |
| Acad | Academy, academics |
| ACD | Agency Case Number |
| Adm, Admin | Administration |
| ADA | Assistant District Attorney |
| AED | Automated External Defibrillator |
| AFIS | Automated Fingerprint Identification System |
| AFT, Aft | After |
| AG # | Agency case number |
| AIC | Crime Scene Investigator in Charge |
| AIM | Automated Investigative Management System |
| AKA | Also Known As |
| Alc | Alcohol |
| ALE | Alcohol Law Enforcement |
| ALS | Alternate Light Source |
| Alt | Altitude, Alternate, Alternative, Alternative Light Source |
| AM, A.M. | Amplitude, modulation, ante meridiem (before noon) |
| Ammo | Ammunition |
| Anon | Anonymous |
| AP | Acid Phosphatase |
| App | Apprehend, appendix, appointed, apparent |
| Approx | Approximate |
| Appt | Appointment |
| Apt | Apartment |
| Arr | Arrive |
| Arr’d | Arrived |
| ASA | Assistant State Attorney |
| ASAP | As soon as possible |
| ASCLD | American Society of Crime Laboratory Directors |
| ASCLD/LAB | American Society of Crime Laboratory Directors/Laboratory Accreditation Board |
| Assn | Association |
| Assoc | Association |
| ASSY | Assembly |
| ATB, atb | Appears to be |
| ATF | Alcohol Tobacco and Firearms |
| Atm | Automated teller machine |
| Att | Attempt, Attempted |
| Attny | Attorney |
| ATV | All-terrain vehicle |
| AUSA | Assistant United States Attorney |
| Ave. | Avenue |
| AWOL | Absent without leave |
| B | Back, bound |
| B&E, B/E | Burglary or Breaking and Entering |
| b. | Born |
| b/c | Because |
| B/M, BM | Black male |
| B/R | Bedroom |
| B/W | Black and White, Between |
| B+W | Black and White |
| BAL | Blood alcohol level |
| BEAST | Barcoded Evidence Analysis Statistical and Tracking |
| Bdrm | Bedroom |
| BF, B/F | Boyfriend |
| Bib | Bible |
| Bio | Biology, biohazard |
| Bk | Bank, block, book |
| Bl | Black, blue |
| Bldg | Building |
| Blk | Black |
| Blu | Blue |
| Blvd | Boulevard |
| BPA | Blood Pattern Analysis |
| Bpb | Brown paper bag |
| Br | Bedroom, brown, brother |
| Bro | Brother |
| Brwn | Brown |
| BS | Bloodstain, blood spatter, Bluestar |
| Btl | Bottle |
| Btn | Between |
| Btw | By the way, Between |
| Burg | Burglary |
| Bus | Business |
| Bwen | Between |
| C | Celsius, Cary, cup, centigrade |
| c. or ca. | Circa (approximate date) |
| C/O or CO | Corrections Officer |
| C: | Containing |
| CA | Superglue |
| CAL | Caliber |
| Capt | Captain |
| Cas | Casing |
| Cast | Casting |
| CC, cart case | Cartridge Casing, carbon copy, credit card |
| CCBI | City – County Bureau of Identification |
| CD | Compact Disc |
| CEIM | Common Evidence Intake Module |
| Cell | Cellular, cellular phone |
| CER | Computer Evidence Recovery |
| Ch | Chief, child, children, chapter, check, church |
| Chem | Chemistry, charge |
| Chevy | Chevrolet |
| CI | Correctional Institute, confidential informant |
| Cig | Cigarette |
| Cir | Circle |
| CJ | Criminal justice |
| Ck, Cked | Check, checked |
| CL | Clear, Crime Laboratory |
| CLA | Crime Laboratory Crime Scene Investigator |
| CLAS | Crime Laboratory Crime Scene Investigator Supervisor |
| CLAT | Crime Laboratory Crime Scene Investigator Trainee |
| CLT | Crime Lab Technician |
| CM | Certified Mail, centimeter |
| CO | Correctional, Corrections Officer |
| CO, Co | County, Company, Correctional Officer |
| Coc | Cocaine |
| COD | Cause of Death, Collect or Cash on Delivery |
| CODIS | Combined Offender DNA Index System |
| COF | Chief of Forensics |
| COI | Chief of Investigations |
| Col. | Colonel |
| Com, Comm | Commerce, commission(er), comedy, commend, common, community, commercial, communications |
| Comp | Compartment, complainant, computer, complete(d) |
| Conf | Conference |
| Cont | Containing, container, contains, continued |
| Corp | Corporation |
| Cos | Cosine function |
| Cpl | Corporal |
| CPR | Cardiac Pulmonary Resuscitation |
| CPS | Child Protective Services |
| CPT | Captain |
| CR | County Road |
| Crim | Criminal, criminology, crime |
| CS, C/S | Crime Scene |
| CSI | Crime Scene Investigator |
| CST | Crime Scene Technician |
| CSU | Crime Scene Unit |
| Ct | Court |
| CTF | Case Tracking Form |
| Ctr., ctr | Center |
| Ctrl | Control |
| Cty | County |
| Cu | Cubic |
| D | Date, daughter, days, dad, dead, democrat, density, diameter, deed, Durham |
| DA | District Attorney |
| DC | Durham County |
| DD | Deputy Director |
| D/R, DR | Dining Room |
| D/S, DS | Deputy Sheriff, driver side |
| DDS | Doctor of Dental Surgery |
| DE | Digital Evidence |
| DEA | Drug Enforcement Agency |
| Dec | Deceased, decrease |
| Deg | Degree |
| Delk | Dust Mark Electrostatic Lift Kit |
| Dep | Deputy, depart |
| Depo | Deposition |
| Dept | Department |
| Det | Detective, detect, detector |
| Dia | Diameter |
| Diag | Diagram |
| Diff | Different, difference |
| Di | Digital |
| Dir | Director, direction, directory |
| Dis | District |
| Disc | Discover, discount |
| Disp | Dispatcher, dispatch, disposition |
| Dispo | Disposition |
| Dist | Distance, disturb(ed), district |
| Div | Division, divide, divorce, dividend |
| Dk | Dark |
| DMV | Department of Motor Vehicles |
| DNA | Deoxyribonucleic Acid |
| DOA | Dead on Arrival |
| DOB | Date of Birth |
| DOC | Department of Correction |
| Doc | Document(s) |
| DOD | Date of Death |
| DOT | Department of Transportation, direction of travel |
| Doz | Dozen |
| DR | Drive, doctor, driver’s side, dining room |
| DS, D/S | Destain, Dental Stone |
| DSS | Department of Social Services |
| DSTF | Domestic Security Task Force |
| DT, dt | Detective, date |
| DTP | Damage to property |
| DUI | Driving under influence |
| DVD | Digital Video Disc |
| DWI | Driving while intoxicated |
| Dx | Diagnosed, diagnosis |
| E | East |
| e.g. | Exempli gratia (for example) |
| Ecol | Ecology, ecologist |
| Ed | Edition, Editor, edited |
| ED | Emergency Department, education |
| EKG | Electrocardiogram |
| Elect | Electrician, electricity, electric, electrical |
| Elev | Elevation |
| EMS | Evidence Management System, Emergency Medical Services |
| EMT | Emergency Medical Technician |
| Eng | Engineer, engraved |
| Ent | Entrance, entomology |
| Entom | Entomology, entomologist |
| Ent/W | Entrance wound |
| ER | Emergency Room, Evidence Room |
| ESDL | Electrostatic Dust Lifter |
| Est | Established, estimate |
| Et al. | El alia (and others) |
| ETA | Estimated Time of Arrival |
| Etc | Etcetra |
| ETOH | Alcohol, intoxicated |
| ETS | Evidence Tape Sealed |
| Ev | Every |
| Evid | Evidence |
| Ex | Example, exhibit |
| Exam | Examine, examined, examination |
| Exec | Execute, executive |
| Exh | Exhibit |
| Exh # | Exhibit number |
| Ex/W | Exit wound |
| Exp | Expert, exposure, expire(s), expiration date |
| Exp date | Expiration date |
| Ext | Exterior, external |
| F | Fiber, Fahrenheit, front, female, fatality, friend |
| FA, F/A | Firearms |
| Fax | Facsimile |
| FBI | Federal Bureau of Investigation |
| FCC | Fired Cartridge Case |
| Fem | Female, feminine |
| Fgr prt | Fingerprint |
| FI, F/I | Follow-up investigation |
| Fin | Finance |
| Flr | Floor |
| Fm | From |
| FNU | First Name Unknown |
| FO | Field Office |
| FP, fp, F/P | Fingerprint, Florescent powder |
| Fr | From |
| Fri | Friday |
| Fridge | Refrigerator |
| FRM | Fracture Match |
| FRO | First responding officer |
| FRT | Forensic Response Team |
| Frt | Front |
| F/U | Follow-up |
| FV | Fuquay Varina |
| FSQM | Forensic Science Quality Manual |
| FSS | Field Shift Supervisor |
| Ft. | Fort |
| Ft | Foot, feet |
| Ftwr | Footwear |
| FW, F/W | Footwear |
| Fxn | Function |
| G | Gram, girl, Garner |
| Ga | Gauge |
| Gal | Gallon |
| GF, G/F | Girlfriend |
| Gen | General |
| Gov. | Governor |
| Gov’t | Government |
| GPR | Ground Penetrating Radar |
| GPS | Global Positioning Satellite |
| GC | Granville County |
| Gr | Green |
| Grp | Group |
| GSR | Gun Shot Residue, gun shot residue kit |
| GSRK | Gun shot residue Kit |
| GSW | Gun Shot Wound |
| H | Hour, hair, Hispanic, homicide |
| H/F, HF | Hispanic Female |
| H/M, HM | Hispanic Male |
| HD LHT, HDLT | Headlight |
| Hgt, ht | height |
| H/G | Handgun |
| Hisp | Hispanic |
| Hist, hx | History |
| HS | Holly Springs |
| Hom | Homicide |
| hosp | Hospital |
| HC | Harnett County |
| HP | Highway Patrol |
| Hr | Hour |
| Hrs | Hours |
| H/R | Hit and run |
| Hwy | Highway |
| I | Indian, Interstate |
| i.e. | Id est (that is) |
| ICU | Intensive care unit |
| ID | Identify, Identification |
| Illus | Illustrator |
| Imp | Impression, imperative, imperial, imports |
| In | Inch |
| In re | In the matter of |
| Inc. | Incorporated |
| Inch | Inches |
| Inf | Infinity |
| Inj | Injury, injection |
| Insp | Inspector |
| Int | Interior, internal |
| Intl, Int’l | International |
| Inv | Investigator, investigation |
| IR | Investigative Report, Inferred |
| IS | Investigative Supervisor |
| ISO | International Standards Organization |
| Jour | Journal |
| Jr | Junior |
| Jud | Judicial, judge |
| K | Kelvin, kilo, Knightdale, kitchen, thousand |
| KH | Keyholder |
| Kit | Kitchen |
| L | Left, Liter, lift |
| L, lg | Large |
| L/G | Long gun |
| L in a circle | Left |
| L/R, LR | Living Room |
| Lab | Laboratory |
| Lac | Laceration |
| Lat | Latitude, latents, latent prints |
| Lb, Lbs | Pounds |
| LC | Lift card |
| LEO | Law Enforcement Officer |
| LF/L/F | Left Front |
| LFA | Larceny from auto |
| Lht, lgt | Light |
| Lib | Library |
| LIMS | Laboratory Information Management System |
| Lit | Literally, literature |
| Lk | Lake |
| Ln | Lane |
| LNU | Last Name Unknown |
| Loc | Location |
| Lon, long | Longitude |
| LPN | Licensed Practical Nurse |
| LR, L/R | Left Rear, Living room |
| Lrg | Large |
| Ls | Long sleeve |
| LSA | Last seen alive |
| LST | Last spoken to |
| Lt, LT, Lt. | Light, Lieutenant, left |
| Ltd | Limited |
| M | Meridian, mile, meter, male, married, minute, month, medium, Morrisville |
| Mach | Machine |
| Mag | Magazine, Magistrate, magnetic, magnetic powder |
| Mag pow, mag powder | Magnetic powder |
| Maj | Major |
| Man env | Manila envelope |
| Mas, masc | Masculine |
| Mbath | Master bathroom |
| Max | Maximum |
| MBR | Master bedroom |
| MD | Medical Doctor, Master Deputy |
| Mdse | Merchandise |
| ME | Medical Examiner, manila envelope |
| Med | Medium, medication, medical, medicine |
| Mem | Remember, memory |
| Memo | Memorandum |
| Merch | Merchandise |
| Met | Meter |
| Meth | Methamphetamine |
| Mfr | Manufacture, manufacturer |
| Mgr | Manager |
| Mi | Mile(s) |
| Micro | Microanalysis, microscopic |
| Min | Minute, minimum |
| Misc | Miscellaneous |
| Mj | Marijuana |
| Mm | Millimeter |
| MN | Midnight |
| MO, Mo | Modus Operandi, Master Officer, month |
| MOD | Manner of death |
| Mon | Monday |
| M/P | Magnetic Powder |
| MPH | Miles per hour |
| Mt | Mount, mountain |
| Mtn | Mountain |
| Mult | Multiple, multiply |
| Mus | Museum, music, musician |
| MV | Motor Vehicle |
| MVA | Motor vehicle accident |
| MVC | Motor Vehicle Collision |
| N | North, no |
| n.n. | No name |
| N.S. | Nothing significant |
| Narr | Narrator, narrated by |
| Nav | Naval, navigation |
| NCIS | Naval Criminal Investigative Service |
| NC | North Carolina |
| Neg | Negative |
| Nm | Nanometer |
| NMN | No Middle Name |
| No. | Number |
| NRT | No responding |
| NTS | Not to Sale |
| NW | Northwest |
| Obit | Obituary |
| Obj | Objective |
| OCME | Office of the Chief Medical Examiner |
| Ofc., off | Office, officer |
| Off | Offense, officer |
| Offdt | Offense Date |
| OK | Affirmative |
| Op | Opinion, Overall photographs |
| OPS | Other Personnel Services, Office of Professional Standards |
| Orig | Original |
| OTC | Over the counter |
| Oz | Ounce |
| P | Perpetrator |
| P, pg | Page |
| P.M. | Post meridian (after noon) |
| P/S | Passenger Side |
| PS | Passenger side, public safety |
| P/U, P-U | Pickup |
| Par | Paragraph, parallel |
| Para | Paragraph |
| Pass | Passenger |
| Pat, patd, pat’d | Patent, patented |
| PC, pc, pcs | Personal Computer, piece, pieces |
| Pct | Percent |
| PD | Police Department, Physical Developer |
| PDA | Personal Digital Assistant |
| Pen | Penetration, penetrated |
| Perf | Perform, performer, perforated |
| Perp | Perpetrator |
| Photo, photo’ed, photo’d | Photography, photographed |
| Phys | Physical, physician, physicist, physics |
| PIO | Public Information Officer |
| Pkg | Package |
| Pl, pls | Plastic, plate, plural |
| Plbg | Plastic bag |
| Plt | Plate, plastic |
| PM | Photo maker |
| PMI | Post mortem interval |
| PO | Police Officer, Probation Officer, point of |
| POC | Point of contact |
| POE | Point of Entry/Point of Exit |
| Poly | Polymers |
| Pop | Population |
| Pos | Positive |
| Poss | Possible |
| Pow | Powder |
| Pp, P/P | Palm print |
| Ppd | Prepaid, postpaid |
| PPE | Personal Protective Equipment |
| Prod | Produced by, production |
| Prof | Professor |
| Prop | Property |
| Prt | Print |
| Pseud | Pseudonym (pen name) |
| Psych | Psychology, psychological |
| Pt, pt, pnt | Paint, point, print, pint |
| Pub, publ | Public, publisher, publication, published by |
| Px | Phone number |
| Qr, qtr | Quarter |
| QP | Quarter panel |
| Qt | Quart, quiet |
| Qtd | Quoted |
| R | Raleigh, right, rear |
| R in a circle | Right |
| RAC | Resident Crime Scene Investigator in Charge |
| RAM | Random Access Memory |
| RB$, RBS | Reddish brown stain |
| RCPT | Receipt |
| Rd | Road |
| RDU | Raleigh Durham |
| Re | Regarding |
| Rec | Received, recreation |
| Rec’d | Received |
| Ref | Reference |
| Rep | Report |
| Req | Requested, requesting |
| Res | Residence, resident, reserve, residential |
| Ret | Return, returned |
| Rev, Rev’d | Revised, review, revision, reviewed by |
| RF, R/F | Right Front |
| RFA | Request for Assistance |
| Riv | River |
| RM | Registered Mail, room |
| RMV | Recovered motor vehicle |
| RN | Registered nurse |
| RO | Registered owner |
| ROL, Rol | Rolesville |
| R/P | Reporting person |
| Rpm | Revolutions per minute |
| Rpt | Reprint, repeat |
| RR, RXR | Railroad, railroad crossing |
| RS | Rough sketch |
| RSV | Recovered stolen vehicle |
| Rt, rt | Right |
| RTSA | Return to submitting agency |
| RUW | Return Unworked |
| RX | Prescription |
| S | Small, south, suspect, Saturday, Sunday |
| S in a circle | Suspect |
| S&W | Smith & Wesson |
| SA | Special Crime Scene Investigator, Senior Crime Scene Investigator, Semi-automatic |
| SAC | Special Crime Scene Investigator in Charge |
| SAE | Sexual Assault Evidence |
| SAK | Sexual Assault Evidence Kit |
| SAS | Special Crime Scene Investigator Supervisor |
| Sat | Saturday |
| SBI | State Bureau of Investigation |
| SBOX | Sealed Box |
| SBPB | Sealed Brown Paper Bag |
| Sc | Scene |
| SCAN | Sealed Can |
| Sch | School |
| Sci | Science |
| SD | Senior Deputy |
| SE | Southeast |
| Sec | Second, Secretary |
| SECK | Subject Evidence Collection Kit |
| Semi-Auto, S/A | Semi-Automatic |
| S/A | Sexual Assault |
| Sgt | Sergeant |
| SHP | State Highway Patrol |
| Sig | Significant |
| Sin | Sine Function |
| Sing | Singular |
| Sis, sr | Sister |
| SKIT | Sexual Assault Kit |
| Sm, sml | Small |
| SME | Sealed Manila Envelope |
| SO | Sheriff’s Office, Senior Officer |
| SOP | Standard Operating Procedure |
| SOT | Special Operations and Tactics |
| SPKG | Sealed Package |
| SPLB | Sealed Plastic Bag |
| Sun | Sunday |
| Sq | Square |
| Sr, sr | State Road, Senior |
| Ss | Short sleeve |
| SSN, SS # | Social Security Number |
| St | Street |
| Sta | Station |
| STB | Said To Be |
| STC | Said To Contain |
| Std | Standard |
| Ste | Suite |
| STUBE | Sealed Tube |
| SU | State University |
| Sub | Submission, subject |
| Surg | Surgery, surgeon |
| Susp | Suspect, suspected |
| SUV | Sport Utility Vehicle |
| SVU | Special Victims Unit |
| SW | Southwest, sweep |
| SWBOX | Sealed white box |
| SWE | Sealed white envelope |
| Syn | Synonymous, synonym |
| T | Temp |
| Tan | Tangent Function |
| TA | Traffic Accident |
| TA-F | Traffic Accident involving a fatality |
| Tat | Tattoo |
| Tbs, Tbsp, Tblsp | Tablespoon |
| Tech | Technologist, technician, technical |
| Tel, Tele | Telephone |
| Temp | Temperature |
| Terr | Terrace |
| TH | Townhouse |
| THI | Traffic Homicide Investigation |
| Thur | Thursday |
| TI | Traffic Investigation |
| TM, T/M | Toolmarks |
| TOT | Turned Over To |
| TK | Truck |
| TL | Transfer lockers |
| Tr | Trooper |
| Ts | Tape sealed |
| Tsp | Teaspoon |
| TSW | Total Sealed Weight |
| Tue | Tuesday |
| TT | Tire Track, tattoo |
| TV | Television |
| UnFcc | Unfired Cartridge Case |
| Univ | University |
| Unk | Unknown |
| UNSBOX | Unsealed box |
| US | United States |
| USA | United States Attorney |
| UV | Ultraviolet |
| V | Victim, vehicle |
| V in a circle | Victim |
| Vac | Vacuum |
| Var | Variant, variable, various |
| VE | Video enhancement, video evidence |
| Veh | Vehicle |
| vert | Vertebra(e) |
| Vet | Veteran, veterinary |
| Vic | Victim |
| Vid | Video |
| VIN | Vehicle Identification Number |
| Vol. | Volume, volunteer |
| V/P | Volcanic powder |
| Vs | Versus |
| W | West, white, Wendell, witness |
| w, w/ | With |
| w/d | Washer and drier |
| Wed | Wednesday |
| W/F | White female |
| WF | Wake Forest, white female |
| Wh | White |
| W/M, WM | White male |
| w/o | Without |
| W/WO | With and without |
| Wit | Witness |
| Wm, wms | William, Williams |
| WMC | Wake Medical Center |
| WMD | Weapons of Mass Destruction |
| Writ | Writer, written by |
| Wt | Weight |
| X | Times |
| Xfer, x-fer | Transfer |
| XL | Extra large |
| XS | Extra small |
| Y | Yes |
| Yd | Yard |
| Yel | Yellow |
| Yo | Years old |
| Yoa | Years of age |
| Yr | Year |
| Z | Zebulon |
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| AGENCIES | |
| APD | Apex Police Department |
| AFD | Apex Fire Department |
| ATF | Bureau of Alcohol, Tobacco and Firearms. |
| CCBI | City County Bureau of Identification |
| CPD | Cary Police Department |
| CFD | Cary Fire Department |
| CVPD, CVMPD, CMPD | Crabtree Valley Mall Police Department |
| FBI | Federal Bureau of Investigation |
| FVPD | Fuquay Varina Police Department |
| FVFD | Fuquay Varina Fire Department |
| GPD | Garner Police Department |
| GFD | Garner Fire Department |
| HSPD | Holly Springs Police Department |
| HSFD | Holly Springs Fire Department |
| KPD | Knightdale Police Department |
| KFD | Knightdale Fire Department |
| MPD | Morrisville Police Department |
| MFD | Morrisville Fire Department |
| NCALE, ALE | North Carolina Alcohol Law Enforcement |
| NCCL | North Carolina Crime Laboratory |
| NCSBI, SBI | North Carolina State Bureau of Investigation |
| NCSHP, NCHP, SHP, HP | North Carolina State Highway Patrol |
| NCSUPD | North Carolina State University Police Department |
| RPD | Raleigh Police Department |
| RFD | Raleigh Fire Department |
| ROLPD | Rolesville Police Department |
| ROLFD | Rolesville Fire Department |
| Wake Med PD | Wake Medical Center Police Department |
| WCABC, ABC | Wake County Alcohol Beverage Control |
| WCDA | Wake County District Attorney’s Office |
| WCSO | Wake County Sheriff’s Office |
| WCFM | Wake County Fire Marshall |
| WPD | Wendell Police Department |
| WFD | Wendell Fire Department |
| WFPD | Wake Forest Police Department |
| WFFD | Wake Forest Fire Department |
| ZPD | Zebulon Police Department |
| ZFD | Zebulon Fire Department |
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| CHEMICAL NAME / ABBREVATION | |
| AB | Amido Black |
| AAB | Aqueous Amido Black |
| Blue\* | Bluestar |
| Kero | Kerosene |
| ISOP | Isopropyl Alcohol |
| SOD RHOD | Sodium Rhodizonate |
| Ace | Acetone |
| Coom | Coomassie Blue |
| EDTA | Ethylene Diamine Tetraacetic Acid |
| Etoh | Ethanol alcohol |
| H2O | Water |
| H2O2 | Hydrogen Peroxide |
| LCV | Leuco Crystal Violet |
| LUM | Luminol |
| MeOH | Methanol |
| NIN | Ninhydrin |
| PDEV, PD | Physical Developer |
| Ph, PHE, phenol, Pheno | Phenolphthalein |
| Rhod | Rhodizonate, Rhodium |
| SPR | Small particle REAGENT |
| TMB | Tetramethylbenzidine |
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| Revision History | | |
| Effective Date | Version Number | Reason |
| July 12, 2013 | 1 | New SOP structure |
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