



Physical Evidence Bulletin

Firearms Evidence Collection Procedures

Purpose The Physical Evidence Bulletin (PEB) is a guideline intended for law enforcement agencies to follow when submitting evidence to Bureau of Forensic Services (BFS) Laboratories. Physical Evidence Bulletins are not intended to be used in lieu of training in the collection of evidence.

Analysis and results that may be obtained The Bureau of Forensic Services provides analytical support to law enforcement agencies through the examination of firearms evidence. Firearms and related evidence are encountered in crimes against persons such as homicide, assault, rape, and robbery; and in other crimes such as burglary and narcotics violations.

While comparisons of bullets and cartridge cases to test fired components from specific firearms are the most common examinations requested, other examinations may include: shooting distance determinations, examination of firearms for functioning or modification, determination of possible firearms used, serial number restoration, and assault weapon determination.

Evidence that an individual was in the proximity of a firearm when it was discharged or has recently handled a firearm may be determined through the analysis of gunshot residue (GSR) collected from a person's hands or other body surfaces (see PEB 15). Evidence of who handled a firearm may be developed from latent fingerprints or trace (touch) DNA recovered from the firearm (see PEB 4).

Handling and safety of firearms The location and condition of firearms and related evidence at a crime scene should be documented through diagrams and photographs before recovering and securing. Close-up photos of the firearm should document the condition and position of visible features such as the safety, action (e.g. bolt, slide, etc.), and hammer.

Although physical evidence is important, safety must be the first consideration. Each situation should be evaluated before deciding to unload an evidence firearm. **Caution: treat a firearm at all times as if it is loaded.** If the weapon is a type that can be safely transported in a loaded condition, this is acceptable; however, depending on the circumstances it may be unnecessary or unwise to transport a loaded firearm. In such a case, the firearm should be unloaded, with care taken to preserve all types of possible

evidence. This evidence includes fingerprints, visible blood, hairs, fibers, cylinder “halos,” debris in the barrel(s) and chamber(s), and touch DNA. The weapon should be handled on those areas least likely to retain latent fingerprints such as knurled or checkered areas, while wearing fresh gloves to prevent contamination of any surfaces with material that may contain DNA.

UNLOADING:

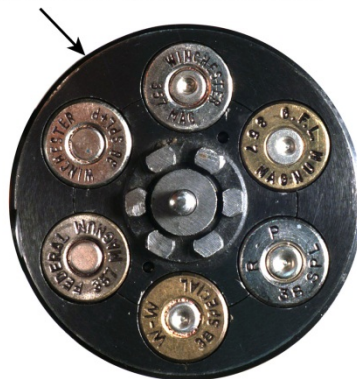
Before unloading or securing any firearm as evidence, record the position, as found, of any safety, cocking indicator [including a visible or partially hidden hammer], loaded-chamber indicator, selector, or other control feature. Instructions for unloading the most common firearms follow but will not apply to all firearms which may be encountered.

Unloading Revolvers:

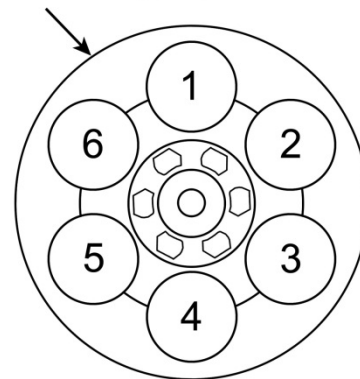
- Prior to moving the cylinder, it should be marked to indicate its position as found. This can be done with short pen or scribe marks on the cylinder, along each side of the frame top strap. The position of each cartridge/case in the cylinder should be recorded in field notes as diagrammed below.
- When opening the revolver to document and remove the cartridges/cases, keep the revolver pointed in a safe, downward direction to keep the cartridges/cases from falling out.
- All cartridges/cases removed should be packaged separately and handled so as to preserve possible fingerprints, DNA, and trace evidence. The position of each cartridge/case in the cylinder, and any other pertinent information, should be recorded in the field notes. DO NOT mark the actual cartridges/cases.

FACING REAR OF CYLINDER

Appearance of cylinder as recovered



Example of diagram to document position of cartridges/cases



EXAMPLE NOTES

<u>Chamber Position</u>	<u>Condition</u>	<u>Cartridge Headstamps</u>
1	Fired	WINCHESTER 357 MAG
2	Fired	G.F.L. 357 MAGNUM
3	Fired	R - P 38 SPL
4	Fired	W-W 38 SPECIAL
5	Unfired	FEDERAL 357 MAGNUM
6	Unfired	WINCHESTER 38 SPL+P

Unloading Single Shot, Repeating, and Auto Loading (Semi-Automatic) Firearms:

- Keep the firearm pointed in a safe direction at all times. If it is a semi-auto or repeating firearm (such as a bolt, slide, or lever action), remove the magazine if it can be detached. Do not remove cartridges from a detachable magazine, or mark the cartridges/cases directly.
- Clear the chamber by slowly drawing back the slide/bolt handle or opening the action. Examine the chamber visually to ensure that no cartridge is in the chamber. If there is a cartridge present, it should be removed and packaged separately.
- If the firearm has a non-detachable internal magazine, carefully remove the cartridges making note of the order in which they were removed from the magazine.
- If possible, leave the action open or block it open with a non-marring, DNA free item. Separately package the firearm, any detachable magazine, and any extracted cartridges or cartridge cases.
- Take care to preserve any possible fingerprints, trace evidence, or DNA evidence.

Contact your forensic laboratory if muzzle loading or homemade firearms are encountered or if a firearm cannot be checked or unloaded.

Trace evidence and latent prints

- Examine the weapon for possible trace evidence such as blood, hair, fibers, tissue, or paint that may be relevant.
 - Prioritize the processes of sampling for potential DNA, collection of visible trace evidence, and latent print processing to maximize the recovery of each type of evidence.
 - Remember that the location of adhering materials may also be significant.
 - Whenever possible, submit firearms to the laboratory in person to discuss which analyses are appropriate.
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Submission of firearms to the laboratory

- Personal delivery of firearms is preferred. A loaded firearm **MUST** be transported safely and delivered in person.
 - Loaded firearms may be transported in a specially constructed container which has a means of securely holding the firearm and has a metal plate and /or a Kevlar-type material positioned to prevent the exit of a projectile. The container should be prominently marked "LOADED FIREARM" and the muzzle direction clearly indicated.
 - If the firearm is to be shipped, it must be unloaded, securely packaged, and all other shipping requirements met. Wire or other hard objects should not be inserted into the barrel or chamber.
 - Always submit any magazines to the laboratory. Loaded magazines or recovered ammunition should be packaged separately.
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Documenting and marking firearms

- Make a sketch of the area or crime scene and record the location of each evidence item collected. The sketch should contain measurements which reference each evidence item to fixed objects or reference points.
- Photographs should be used to compliment notes and sketches, but not as a substitute

for them.

- The serial number of a firearm should be recorded when present (some older rifles and shotguns may not have a serial number). If a number is not readily visible, complete all necessary trace evidence collection, DNA sample collection, and latent print processing, before conducting a thorough examination for the serial number.
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Recovery of embedded projectiles

- Do not attempt to remove bullets, fragments, or pellets embedded in a wall or object. After documentation of hole location and direction (trajectory), remove by cutting out a portion of the material in which the projectile(s) is embedded for submission to the laboratory.
 - Fired projectiles located at scenes may have trace evidence (including possible DNA) and should be handled appropriately.
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Recovery of projectiles during an autopsy or surgery

- If possible, the wounded region should be X-rayed prior to removal of any bullets, pellets, or fragments.
 - All projectile components (bullets, pellets, fragments, etc.) should be collected. Be aware of associated items such as ballistic tips, sabots, wads, and other components which may be difficult to see on an X-ray.
 - Bloody bullets should be washed in running water without scrubbing.
 - Do not wash a projectile if trace evidence might be present (e.g. material from ricochets, deflections, or intervening penetrations).
 - If a bullet is washed, do not use a brush or other item for cleaning.
 - After washing, it is IMPERATIVE bullets be dried prior to packaging by blotting (not rolling) with a soft dry facial or tissue paper.
 - Package and retain any non-biological material which becomes separated from a bullet during cleaning.
 - Sealing a bloody or wet bullet in an air-tight package can cause corrosion of identifiable detail on the bullet. Wrap in soft tissue paper and seal in a labeled paper envelope or box.
 - Package each bullet separately. DO NOT MARK the bullet or allow it to be marked.
 - Mark the sealed container with a description of the bullet and all other pertinent data.
 - You may wish to sketch or photograph the bullet for your records.
 - You may contact your local BFS Laboratory for consultation on these procedures as they relate to your specific case.
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Collection of expended cartridge cases and shotshell components

Cartridge Cases and Shotshell Hulls

- In addition to developing information about the firearm used or being compared to recovered firearms, the location of ejected cartridge cases and shotshell hulls at a scene may assist in determining the position of a shooter.
- Make a sketch with accurate measurements of the locations of fired cartridge cases, noting other pertinent features such as walls, obstructions and type of terrain.
- Package each item separately and mark the packages with the pertinent information.

Shot Wads

- Shotshells contain plastic or fiber wads that may be found at the scene in the victim's body or clothing.
- If wet, allow the wads to dry before packaging. Package each wad separately and mark the sealed container with a description of the wad and all other pertinent data.

Shot Pellets

- The shot pattern must be properly documented with photographs prior to collection of any pellets or wads. Photographs should be taken, both with and without a scale, with the lens axis parallel to the impacted surface.
- If pellets are embedded, and it is not possible to submit the material in which they are embedded, pellets may be extracted carefully so as to minimize any damage.
- X-rays may be useful in locating and recovering shot pellets; however, shot cup, shot collars, and wads may not appear in an X-ray.

Unfired shotshells and cartridges

- All ammunition associated with a case should be collected and submitted to the Laboratory.
- Document where the recovered ammunition was found.
- If the number of cartridges is relatively few, they may be handled in the same manner as fired bullets. Large quantities of ammunition may be packaged together. Note: Postal regulations may prohibit shipment of ammunition through the mail. Loaded ammunition should be personally delivered or properly packaged and labeled for shipping by some other carrier with appropriate tracking and security.

Distance determination

- When the distance between the muzzle of a gun and the victim is a potential issue, the garments should be examined for powder residue and other evidence of close firing.
- For preservation of potential GSR, the victim's clothing should be air dried and then rolled between layers of clean paper.
- Package garments separately to prevent cross contamination.
- When projectiles have passed through garments into the body, close up photographs of the holes are desirable.
- When projectiles enter a body without passing through garments, thorough photographic documentation of the wound will be necessary to evaluate muzzle to

target distance.

- Photographic documentation should include:
 - Images of the wound taken before and after cleaning.
 - Images of the wound taken with the lens axis parallel to the path of the bullet.
 - Images of the wound taken with the lens axis perpendicular to wound surface.
 - Images of the entire pattern of particulates or marks.
 - Each of these setups should include a minimum of two photographs, one with a scale and one with the scale removed.
 - Submit the firearm and all fired and unfired ammunition associated with the incident to the Laboratory.
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**For further
information
and additional
resources**

Please contact your regional BFS laboratory with any further questions that you may have.

For a list of regional laboratories please go to:

http://ag.ca.gov/bfs/pdf/bfs_brochure.pdf or <http://ag.ca.gov/bfs/>

To locate the most current Physical Evidence Bulletins please go to:

<http://ag.ca.gov/cci/reference/reference.php>