



TENNESSEE BUREAU OF INVESTIGATION

Forensic Services Division

Violent Crime Response Team Standard Operating Procedures Firearms and Toolmarks

6. Firearm and Toolmark Evidence

6.1 Scope

Firearms evidence can link a specific firearm to a shooting incident or to bullets or cartridge cases recovered from a scene or body.

The examination of defects and holes caused by projectiles from firearms can provide information useful in the reconstruction of a shooting scene. Determination of bullet trajectory can assist in locating fired ammunition components as well as point of origin position.

6.2 Firearms

Firearm safety must be assured at every crime scene and must be considered prior to the physical recovery of any firearm. Refer to VCRT 10.1 Rendering a Firearm Safe for the steps in clearing a firearm. The evidence must be handled and packaged so as to protect the most fragile type of evidence related to an item. If there is potential for damaging or destroying other types of evidence on the firearm, it is acceptable to remove that evidence from the firearm and to package it separately. The removed trace evidence may be packaged together with the firearm or submitted as a separate item. Refer to VCRT 10.15 Recording Firearms Evidence for the procedure.

Semi-automatic and automatic pistols found at crime scenes are more likely to be found in a “cocked” condition than revolvers. Use extreme caution when handling these types of weapons. Refer to VCRT 10.1 Rendering a Firearm Safe for general firearms handling guidelines.

The chambers of a pistol or the revolver cylinder must be visually examined to determine the safety status of the revolver. Refer to VCRT 10.15 Recording Firearms Evidence for the steps in recovering a firearm.

6.3 Ammunition

Ammunition does not need to be removed from a semi-automatic firearm’s magazine before submission to the laboratory. Refer to VCRT 10.15 Recording Firearms Evidence for the steps in recovering ammunition.

Unfired ammunition will be packaged separately from fired ammunition and from any ammunition recovered from weapons. Large quantities of ammunition collected together, or from the same area, may be grouped together as a single item.

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6.4 Fired Bullets and Bullet Fragments

Refer to VCRT10.15 Recording Firearms Evidence for information on the collection of fired evidence.

6.5 Fired Cartridge Casings and Fired Shotshells

Multiple fired cartridge cases can be collected and packaged in the same container or packaged independently as dictated by the shooting scene circumstances. Cartridge cases from different locations should be packaged separately.

If shot pellets are to be collected, collect and submit as many as possible.

Individual locations of cartridge cases shall be documented so that a diagram can be produced for later analysis.

6.6 Firearms Evidence Collection

When collecting firearms evidence, protect those surfaces that bear the markings used to make firearm identifications. It shall be collected with gloved hands or other non-marring instruments.

6.7 Collecting a Submerged Firearm

Refer to VCRT 10.29 Collecting a Submerged Firearm for the collection procedure.

6.8 Recovering Projectiles from Solid Materials

Refer to VCRT 10.30 Recovering Projectiles from Solid Materials for the collection procedure.

6.9 Bullet Path Trajectory

All apparent impact sites and projectile holes shall be documented in the notes and with photography when possible. The impact sites and holes can also be tested for the presence of lead. Refer to VCRT 10.2 Sodium Rhodizonate for the testing procedure.

6.10 Collecting Clothing for Shot Pattern and Distance Determination

It is preferred that the medical examiner remove clothing from the victim with apparent gunshot wounds.

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6.11 Suspected Tool Recovery

If a suspected tool is recovered at the crime scene, it shall be carefully packaged to prevent the prying blade or cutting edges from coming into contact with any other object that may alter the tool. Do not attempt to determine if a found tool fits in a toolmark (this may alter or obliterate the toolmark and trace evidence may be lost or added).

The suspect tool must be packaged separately from the collected toolmark.

6.12 Collecting a Toolmark

Small items with toolmark impressions (i.e., padlocks, strike plates, doorknobs, etc.) should be packaged and transported to the laboratory for examination.

If the item exhibiting the toolmark cannot be collected, a silicone cast of the toolmark may be made. Refer to VCRT 10.9 Silicone Casting for the casting procedure.

Toolmarks of comparative value shall be photographed, with a ruler included in the photograph, before silicone casting is attempted. Refer to VCRT 10-34 Comparison Photography for further information.