



Firearms/ Tool Marks

The Firearms and Tool Marks section provides:

- comparison of unfired ammunition;
- comparison of fired bullets, bullet fragments, cartridge cases, and shotgun shells;
- restoration of obliterated or altered serial numbers;
- muzzle-to-target distance testing and determination;
- tool mark examination and comparisons;
- fracture match analysis;
- firearm function testing; and
- the identification of firearms and firearm components.



Examiners also process and test fire firearms for entry into the National Integrated Ballistics Information Network (NIBIN) database via the SLED Integrated Ballistics Identification System (IBIS) terminal.

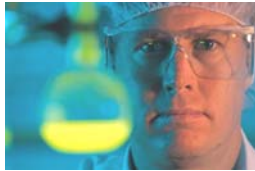
Examiners provide onsite support at crime scenes to assist in the collection of relevant evidence. They may also perform trajectory analysis and shooting scene reconstructions.

Fact: The term "Tool Marks" refers to unique markings left on a surface when one object comes into "hard" contact with a harder surface.



Fire Debris

Fire debris analysis involves the examination of evidence for the presence of ignitable liquids (most commonly gasoline, diesel fuel or kerosene). Cases may have no ignitable liquids present, but this does not mean the fire was not arson. Fire debris chemists assist arson investigators, but arson investigators are responsible for determining whether a fire is the result of arson or accident. Fire debris chemists also provide onsite support at fire scenes to assist in the collection, preservation, and documentation of evidence.



All Richland County Forensic Sciences personnel participate in continuing education and professional development in accordance with international standards.

Laboratory personnel have been qualified as experts in their respective disciplines in courts throughout the United States.

Fact: Children are responsible for almost half of the arson fires in the United States.

FORENSIC LABORATORY OBJECTIVES:

- **Service.** To provide quality service to its customers.
- **Training and Education.** To provide training to RCSD personnel and the quality management system; and to provide continuing education to our customers.
- **Accreditation.** To maintain laboratory quality, excellence and reliability by conforming to international standards.
- **Review.** To practically review and monitor the quality management system for potential nonconformity to standards.
- **Survey and Communication.** To conduct surveys and maintain communication with customers and personnel.

RCSD CONTACT NUMBERS

- Sheriff's Department..... 576-3000
- Crime Scene..... 576-3041
- DNA 576-3031
- Drug ID 576-3061
- Firearms 576-3198
- Fire Debris..... 576-3062

RICHLAND COUNTY SHERIFF'S DEPARTMENT
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FORENSIC SCIENCES DIVISION





My responsibility as Sheriff is to ensure that as technology advances, that we do as well. I believe that the state-of-the-art full-service forensic facility and staff that the Richland County Sheriff's Department possesses will effectively support law enforcement and citizenry alike. We have the comprehensive capabilities to expedite criminal prosecution and provide closure to victims.

Chronology of Forensic Science Division

- 1969—Crime scene response unit established.
- 1994—AFIS installed.
- 1997—Sheriff Leon Lott takes office.
- 2002—Drug Identification unit opens.
- 2002—Fire Debris Analysis unit opens.
- 2003—Firearms/Tool Marks unit opens.
- 2004—DNA unit. Opens.



Crime Scene - Latent Prints

Crime Scene Investigators (CSI) respond to a variety of crime scenes, from a simple vandalism to the most complex homicide. Evidence is located, documented, and processed using still and video photography, latent print development, casting of shoe and tire wear impressions and through collection of trace and biological (DNA) evidence. CSI are trained to conduct bloodstain pattern and bullet trajectory analysis, crime scene reconstruction and fingerprint comparisons.



Numerous processing powders, light sources, photography techniques and chemicals are used to develop and preserve fingerprints and palm prints left at the crime scene. Suitable fingerprints are submitted to the Automated Fingerprint Identification System (AFIS). RCSD maintains an AFIS terminal for searches of fingerprints/palm prints through state (SC) and national (IAFIS) databases. Suspects and human remains may be identified with this system.

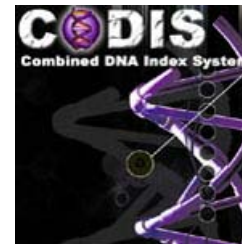


Fact: There are approximately 75-150 characteristics in a human fingerprint.



DNA

This unit offers DNA testing to include criminal paternity testing with the 13 core CODIS FBI STR loci. Forensic DNA or "DNA Fingerprinting" takes advantage of the fact that with the exception of identical twins, each person's DNA is unique. This exam includes or excludes individuals as being contributors (or the source of stains) on a variety of items of evidence.



CODIS, or the Combined DNA Indexing System, is a database of DNA profiles of convicted offenders and forensic cases. DNA results can be entered into the state and national DNA database to produce possible investigative leads. DNA profiles developed in the RCSD unit are entered into CODIS as appropriate.

Fact: It is much more likely for you to walk outside and get struck and killed by lightning with the winning Powerball ticket in your hand than to have the same DNA profile as your neighbor (or anyone else).

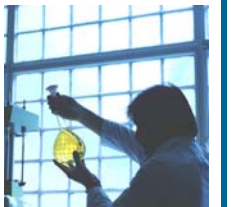


Drug

Forensic drug identification involves the chemical and instrumental analysis of suspected controlled substances evidence obtained during an arrest or seizure. Compounds may be prescription or over-the-counter medications, illicit substances, or adulterants and diluents. Qualitative analysis is performed in order to identify the substance(s) present. Forensic drug chemists are also asked to identify drug paraphernalia and unknown substances from a death scene in order to provide support to the coroner and medical examiner in the assessment of cause and manner of death.



This forensic section also provides clandestine laboratory response, which involves the assessment, dismantling, and analysis of evidence obtained from laboratories engaged in the production of illicit drugs (i.e. methamphetamine).



Fact: One pound of clandestinely manufactured drug generates five pounds of hazardous material.