



Focus on Forensics



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SPECIAL POINTS OF INTEREST:

- **RECOVER System—** bringing latent prints to light
- **Finding Answers for Missing Persons**
- **A Genetic Genealogy Success Story**

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Forensic Science Week



Every year in September there is National Forensic Science Week. The week brings recognition to the role that forensic science plays in the investigation of crimes across the country. The Kentucky State Police Laboratory System takes this time each year to celebrate the analysts that work hard every day to serve the citizens of the Commonwealth and support the criminal justice system. This year Governor Andy Beshear issued a proclamation for Forensic Science Recognition Week in the state of Kentucky to recognize the contributions of Kentucky's forensic scientists. As COVID continues to be a factor in day-to-day activities, external involvement in celebrating Forensic Science Week was limited this year. However, laboratory leadership is hopeful that next year's activities will be able to be open to the public to include tours, educational opportunities, and more. Stay tuned next September!

FAQ Forms and Documents

The Kentucky State Police Lab System has many documents available to law enforcement and other legal entities. There are commonly requested forms such as the KSP-26 required when evidence is submitted for examination, as well as documents pertaining to lab accreditation and operations. For convenient access to these documents, they can be found under Laboratory Manuals on the Kentucky State Police website or by following this link:

<http://kentuckystatepolice.org/forensic-laboratory-system/#1588690398691-df0fc149-457b>

RECOVER System—Bringing Latent Prints to Light

The discovery and comparison of fingerprint evidence plays a key role in the criminal justice system. Latent fingerprints, those that are invisible to the naked eye, may hold valuable information but come with their own set of challenges. The Latent Print Unit of the Kentucky State Police A.F.I.S. section has worked to overcome some of those difficulties with the recent implementation of the Foster & Freeman RECOVER LFT® Latent Print Processing System. The RECOVER System utilizes a chemical fuming process to visualize latent fingerprints on metallic items that have been exposed to extreme conditions of heat and pressure, particularly spent cartridge cases and bomb fragments. It can also aid in the processing of metallic objects that have been deliberately cleaned or submerged in liquid. With traditional techniques, the chances of recovering a usable fingerprint from a fired shell casing is so low that many laboratories have abandoned the practice altogether. With Kentucky being one laboratory that still accepts and processes that type of evidence, this new RECOVER technology is promising.



Foster & Freeman RECOVER LFT®
Latent Print Processing System

So how does this system work, and what does it mean for the increased recovery of usable latent prints in the future? What many may not realize is the inherent difficulty of latent print recovery from spent cartridge cases due to the nature of firing a gun. When a print is deposited on the cartridge, it is then forcefully loaded into a chamber then flash-heated to several hundred degrees under pressure when fired. Those forces, combined with the smooth metal of the cartridge itself, are why there is a 0% - 2% chance of latent print recovery with traditional methods. The RECOVER System was developed in the UK, and uses a vacuum chamber to fume items of evidence with disulfur dinitride. It is particularly effective on copper, steel, and similar metal alloys including brass. The fumes are attracted to microscopic imperfections in metallic surfaces such as corrosion. Other agencies utilizing this technology are reporting a 10% - 15% recovery rate of latent prints.

The KSP Latent Print section has evaluated this technology for its effectiveness, and is beginning to apply it to current cases. The system could potentially be useful for cold cases, but would need to be evaluated on a case-by-case basis. Currently submissions for this technology are restricted to major investigations such as homicides, death investigations, and CIRT use-of-force investigations. Any agency submitting evidence should clearly indicate all requested examinations upon submission on the KSP-26 form.

For more information on the RECOVER LFT® Latent Print Processing System or questions about case application, please contact the Latent Print Unit Supervisor Fred Crane at (502) 782-9821 or fred.crane@ky.gov.

Finding Answers for Missing Persons

Currently there are over 17,000 open missing persons cases in the United States, along with more than 13,000 unidentified human remains cases. As of this month, Kentucky has 268 missing persons cases, and 74 unidentified persons cases. There are a multitude of resources available to law enforcement and the general public to aid in solving these cases, one of the primary ones being the National Missing and Unidentified Persons System (NamUs). NamUs is a national information system and resource center for missing, unidentified, and unclaimed person cases in the United States. All of the resources that NamUs has are provided at no cost to law enforcement and family members of missing persons. So how does this system work? All information available for a missing person or unidentified human remains are entered into NamUs, including dental records, identifying features such as tattoos, and biological identifiers such as height, weight, age, sex, etc. Case circumstances can also be entered, however the case specifics and any entered medical records are only visible to members of law enforcement, not the general public. The system is able to compare the identifiers entered in missing persons and unidentified human remains cases to see if there are any potential matches. NamUs is open to the general public to search and view, though the more sensitive information cannot be seen by the public. However, public users can still be a driving force in solving these cases. The visible information can be used to search newspaper articles, social media, and other sources to help develop potential matches. Because law enforcement officers work multiple active cases, public users can spend more time focused on a particular missing persons or unidentified remains case. The sharing of information gathered by the public allows for a nationwide approach to solving these cases.

For a member of law enforcement who wishes to enter a case into NamUs, the process is simple and only requires that the case be active. Most Kentucky State Police posts have an intelligence person with access, though personnel can get a user name and password to be able to enter information. The key to successfully solving a case with this system is to enter all the information available. NamUs will help with the collection and entering of information as needed. For example, they have forensic odontologists on staff that can help with dental records. DNA samples can be collected by law enforcement as well for comparison. For missing persons and unidentified human remains cases, samples should be collected from biological relatives, ideally parents, children, or full siblings. There is a form to be submitted with missing persons samples that includes consent for any individuals giving reference samples for comparison. In unidentified human remains cases, a direct reference sample as a long bone should be submitted for the best chance for DNA results.

For questions regarding a missing persons or unidentified remains case including submission requirements and sample collection, please contact the Kentucky State Police Central Forensic Laboratory at (502) 564-5230. For information on reporting a missing person to the Kentucky State Police, as well as safety tips and other useful information, visit <https://kentuckystatepolice.org/missing/>.

A Kentucky Success Story with Genetic Genealogy

The Kentucky State Police has been working with the DNA Doe Project to aid them in identifying some Jane and John Doe cases. The Doe Project is an all-volunteer organization that uses genetic genealogy to help give names back to unidentified remains and bring them home to their families. In July of this year, KSP had their first success when they were able to confirm the identity of a woman known as Kentucky Jane Doe 2001 as Dawn Clare Plonsky Wilkerson. Her unidentified body was found on October 9, 2001 a little north of the KY-TN state line, and for nearly two decades after the KSP would exhaust all available leads in finding her identity. In 2018 the DNA Doe Project was contacted to use genetic genealogy, and with the aid of other organizations Ms. Wilkerson was identified this year.

Currently the Kentucky State Police and the DNA Doe Project are working to solve a cold case from 1989. Human remains were found in a barn off of KY State Highway 22 near Williamstown KY, and they were determined to be from a white male, 25-35 years old, 6'5" tall, and weighing approximately 220 pounds. So far this male remains unidentified, but to share any information about this case contact KSP Post 6 Dry Ridge at (859) 428-1212, or call anonymously at 1-800-222-5555. For more information on this case as well as other unidentified individuals, visit www.dnadoeproject.org.

Also this year, the Kentucky State Police Central Laboratory and the Medical Examiner's Office are using Forensic-Grade Genome Sequencing to produce new leads in an unidentified remains case known as the EastPark John Doe. The remains were found in EastPark in Boyd County near I-64. Through this partnership, KSP hopes to identify EastPark John Doe or a close relative. To share any information to aid this investigation, contact Det. Boarman with KSP Post 14 at (606) 928-6421. More information can also be found at <https://dnasolves.com/>.

Laboratory Management

Lt. Col. Larry C. Newton Jr, Executive Director, Office of Technical Services (larry.newton@ky.gov)

Laura Sudkamp, Director, Forensic Services Division (laura.sudkamp@ky.gov)

Capt. Joey Adams, Western Commander (joey.adams@ky.gov)

Sgt. Benjamin Campbell, Southeastern Commander (benjamin.campbell@ky.gov)

Laboratory phone numbers and contact info

Western Laboratory, 270-824-7540

Julie Ferguson, Interim Laboratory Director (julie.ferguson@ky.gov)

Jefferson Laboratory, 502-426-8240

Julie Ferguson, Laboratory Director (julie.ferguson@ky.gov)

Northern Laboratory, 859-441-2220

Jeanna Oxenham, Laboratory Director (jeanna.oxenham@ky.gov)

Southeastern Laboratory, 606-877-1464

Beverly Wagoner, Laboratory Director (Beverly.wagoner@ky.gov)

Eastern Laboratory, 606-929-9142

Larry Boggs, Laboratory Director (larry.boggs@ky.gov)

Central Laboratory, 502-564-5230 or 800-326-4879

Jeremy Triplett, Laboratory Director (jeremy.triplett@ky.gov)

AFIS, 502-782-9821

Fred Crane, Forensic Fingerprint Supervisor (fred.crane@ky.gov)

Central Laboratory Section Supervisors:

Matthew Clements, Firearms/Toolmark Supervisor (matthew.clements@ky.gov)

Whitney Collins, Supervisor (DNA/Bloodstain Pattern/Sexual Assaults/Violent Crimes) (whitney.collins@ky.gov)

Sabrina Christian, Supervisor (DNA/Property Crimes) (sabrina.christian@ky.gov)

Steven Barrett, Serology Supervisor (steven.barrett@ky.gov)

Whitney Collins, Administrative Laboratory Supervisor (whitney.collins@ky.gov)

Katrina Featherston, Quality Assurance Supervisor (katrina.featherston@ky.gov)

Ryan Johnson, Toxicology Supervisor (ryan.johnson@ky.gov)

Brandon Standifer, Toxicology Supervisor (brandon.standifer@ky.gov)

Helena Johnson, Photo Lab Supervisor (helena.johnson@ky.gov)

Stuart Mullins, Breath Alcohol, Systems Technician Specialist IT (stuart.mullins@ky.gov)

Jack Reid, Trace Supervisor (jack.reid@ky.gov)

Allison Standifer, Drug Chemistry Supervisor (allison.standifer@ky.gov)

Regina Wells, DNA Database Supervisor (regina.wells@ky.gov)

Do you have topics you would like to see in future editions? Do you have questions you would like to see addressed? Please contact danielle.jensen@ky.gov with comments or suggestions.

We want to hear from you!

Please take a moment to fill out our KSP Forensic Laboratories 2021 Customer Satisfaction Survey

<https://www.surveymonkey.com/r/KSPLAB>