



The Lab Report

Volume 7, Issue 2

October 2017

Nebraska State Patrol Crime Laboratory Mission Statement

The mission of the Crime Laboratory Division is to provide quality and timely forensic science services to the State of Nebraska. To fulfill the mission of the laboratory, the following objectives are supported and understood by the staff of the NSP Crime Laboratory:

To provide timely, effective and impartial forensic services to aid in the investigation of crimes; To provide relevant, professional and impartial testimony in judicial proceedings; To disseminate scientific information and educate the criminal justice community regarding forensic science matters; To provide traceable and accurate results that are pertinent to the needs of the criminal justice community.

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Current Case Assignment Turnaround Times (TAT) and Agencies Served

January 1 – October 31, 2017: 157 different agencies submitted cases, equating to 4,440 new cases and over 5,133 assignments to sections for analyses.

TAT in the following sections is an average over the past 30 days:

- ◆ Controlled Substances – 39.93 days
- ◆ Toxicology – 34.94 days

TAT in the following sections is an average over the past 90 days:

- ◆ Biology – Violent/Personal Crimes – 146 days
- ◆ Biology – Non-Violent/Property Crimes – 261 days
- ◆ Firearms/Toolmarks – 105.14 days*
- ◆ Latent Prints – 177.16 days
- ◆ Trace Evidence – 37.27 days**

Database HIT information:

CODIS (Combined DNA Index System) (January 1 – October 31, 2017)

- 69 Offender Hits (associating a known offender sample with an unknown evidence sample)
- 2 Forensic Hits (associating unknown evidence samples from two separate criminal cases)

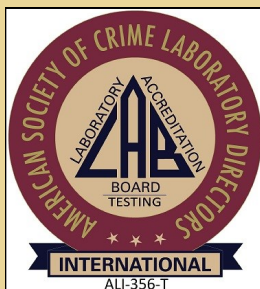
AFIS (Automated Fingerprint Identification System) (January 1 – September 30, 2017)

- 196 Latent Print Identifications, of which 100 were Cold Hits

* **TAT in Firearms/Toolmarks** is impacted by the fact that often evidence is not available to the section's forensic scientists until after examinations have been completed by other sections in the lab.

** **TAT in Trace Evidence** is impacted by the delays that result from getting required technical case reviews completed by a contracted consultant. This is necessary because there is not currently a second person in the laboratory with the expertise to perform technical reviews internally.

Information is current as of 10/31/17 and obtained from the Lab Information Management System (LIMS). Numbers can fluctuate somewhat due to assignments being added, deleted, and/or combined as needed, after the original evidence submission to the laboratory.



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Please Notice This



Trace Section Services Update

Staff Changes

On December 31, 2017, Mike Auten will retire after dedicating 44 years of service to the Nebraska State Patrol Crime Laboratory. He spent his early years working in Drug Chemistry and then transitioned to Trace where he has worked for the last 34 years.

Due to Mike's retirement, the NSPCL Trace Evidence section has a new supervisor, [Amanda Neely](#). Amanda was a forensic scientist in the Drug Chemistry section and began training in Trace in July 2017. Prior to working at the NSPCL, Amanda was employed at the Missouri State Highway Patrol Crime Laboratory for 11 years where she analyzed evidence in both the Trace and Drug Chemistry sections. She will continue to work cases in the Drug Chemistry section as time allows.

A new analyst will be hired who will train and work in both Trace and Drug Chemistry. This will allow the laboratory to offer our agencies more sustainable services as we will no longer have only one analyst in the Trace section. In time, we also hope this will lead to a better turnaround time in both Trace and Drug Chemistry!

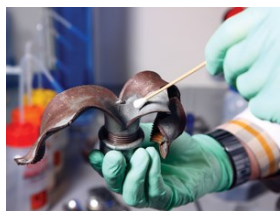
Explosives Update

Due to the aforementioned retirement of Mike Auten in the Trace Evidence Section, the Nebraska State Patrol Crime Laboratory will be suspending explosives testing services until further notice.

During the temporary suspension in services, Amanda will be updating her training in explosives analysis. She was previously certified to work explosives cases for the Missouri State Highway Patrol Crime Laboratory prior to her employment at the NSPCL. We will also spend this time evaluating national best practices and our current instrumentation.

Please contact NSPCL Trace Section Supervisor, Amanda Neely, for information on private laboratories who offer explosives testing while our service is temporarily suspended.

Email: Amanda.Neely@nebraska.gov or call 402-471-8950



Trace Section Services Update: Fire Debris

The NSPCL will continue to offer fire debris evidence analysis for all of our customers despite the suspension in explosives testing services.

There are two (2) changes you will see continuing forward:

1) **Ignitable liquid analysis will not be performed on evidence that is packaged improperly.**

- Evidence submitted for fire debris analysis must be submitted in an airtight container such as a metal can, nylon bag, Kapak bag, or glass screw top bottle with a Teflon lined lid (such as those used for clan lab liquid collection).

Examples of acceptable containers for the analysis of fire debris evidence:



- **Evidence that is not packaged properly for the retention of ignitable liquids will not be analyzed.** Containers such as paper bags, plastic bags and anti-static pink bags do not retain ignitable liquids. The outermost container may be of any type as long as the innermost container that holds the evidence is airtight.

Examples of containers that WON'T be tested:





Trace Section Services Update: Fire Debris (continued)

2) Changes in the way that fire debris cases are archived for future testing

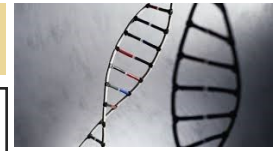
- Prior to the recent changes, submitting agencies would receive a vial containing a charcoal-strip and carbon disulfide, oftentimes placed into a separate container, in case future testing is needed.
- Moving forward, submitting agencies will still receive a charcoal-strip however it will no longer contain carbon disulfide, which is a flammable and hazardous solvent. The charcoal-strip will be placed in a vial which will be packaged with the tested item – no additional containers will be returned to the agency.

If you have any questions and/or concerns regarding fire debris testing, please contact the NSPCL Trace Section Supervisor, Amanda Neely.

Email: Amanda.Neely@nebraska.gov or call 402-471-8950



Rapid DNA Analysis: What You Need to Know



Key Definitions

- ◆ **The Combined DNA Index System (CODIS)** is the software provided by the FBI that allows DNA profiles obtained from offenders, crime scene evidence, missing persons, unidentified human remains, and relatives of missing persons to be searched against each other. DNA profiles can then be linked together providing law enforcement agencies with investigative leads.
- ◆ **Rapid DNA, or Rapid DNA Analysis**, describes the FULLY automated (hands free) process of developing a CODIS Core Loci STR profile from a REFERENCE sample buccal swab. The “Swab in – Profile out” process consists of automated extraction, amplification, separation, detection, and allele calling WITHOUT human intervention.
- ◆ **Modified Rapid DNA Analysis** describes the automated (hands free) process of developing a CODIS Core Loci STR profile from a known REFERENCE sample. This process consists of integrated extraction, amplification, separation, and detection without human intervention, but REQUIRES human interpretation and technical review.

The FBI’s Rapid DNA Program

The FBI’s Rapid DNA Program was established in 2010 to allow federal and state agencies to prepare for the implementation of Rapid DNA.

The goals of the FBI’s Rapid DNA Initiative are to link commercial instruments capable of producing a CODIS-compatible DNA profile within 2 hours and to integrate those instruments effectively within the existing CODIS structure to search unsolved crimes **while an arrestee is in police custody during the booking process.**





Rapid DNA Analysis: What You Need to Know

Legislation: The Rapid DNA Act

On August 18, 2017, H.R. 510 became Public Law No: 115-50. The Act allows DNA samples prepared by criminal justice agencies using Rapid DNA instruments in compliance with the FBI-issued standards and procedures to be included in CODIS.

As of October 30, 2017, there are NO Rapid DNA Systems that are approved by the FBI.

Per the FBI's website, they are currently poised to deliver the capability to process a Rapid DNA upload and search in the CODIS software within the first half of 2018.

While the software capability may be ready in 2018, the FBI anticipates that the testing of all of the required components won't begin until 2019.

What You Need to Know!

As of October 30, 2017, there is NO Rapid DNA System that is currently approved for use by an accredited forensic laboratory for performing Rapid DNA Analysis. Additionally, NO Rapid DNA System has been approved for use in a law enforcement booking station or agency.

At this time, the FBI is NOT including crime scene evidence as samples that can be ran with a Rapid DNA System. Any crime scene evidence ran with Rapid DNA Systems prior to approval by the FBI will NOT be eligible for entry into CODIS.

Although Rapid DNA Systems are being heavily marketed, use of Rapid DNA Systems prior to FBI approval would have a negative impact on the effectiveness of the CODIS database. DNA profiles obtained with Rapid DNA Systems prior to FBI approval will NEVER be allowed in CODIS; therefore, these law enforcement agencies will not benefit from the ability to search DNA profiles outside of their jurisdiction/state. They also will be taking away the ability of other law enforcement agencies to potentially solve cases because the profiles will not be linked through CODIS.

Rapid DNA Analysis: Steps Nebraska Needs to Take!



If the State of Nebraska decides that it wants to use Rapid DNA, several steps must first be taken. A few of those steps are discussed below:

- 1) Arrestee legislation must be passed in Nebraska that allows for the analysis of DNA at the time of the arrest. There cannot be any indictment, or delay in DNA processing requirements;
- 2) AFIS Livescans **MUST** be present at any booking stations that want to utilize Rapid DNA Systems;
- 3) Updates to the CJIS network and connectivity in Nebraska must be completed per FBI requirements;
- 4) Policies and procedures must be developed to establish roles and responsibilities for those agencies using Rapid DNA;
- 5) Training must be provided to ensure that Rapid DNA Systems are being used by qualified individuals;
- 6) The Nebraska State Patrol Crime Laboratory must ensure that the state's CODIS software is properly configured;

As the State's CODIS Administrator, Katherine Rector is working closely with the FBI to ensure that she has the most up-to-date information regarding Rapid DNA. Katherine has reached out to Nebraska stakeholders in the past regarding Rapid DNA, and she will be reaching out again now that the Rapid DNA Act has passed.

A training presentation has been developed to help educate our law enforcement agencies about Rapid DNA, and the Nebraska State Patrol Crime Laboratory will be scheduling trainings in the future.

Please contact Katherine Rector with any questions you may have regarding Rapid DNA at 402-471-8950 or via email

katherine.rector@nebraska.gov



CODIS and It's Impact on Investigations in the State of Nebraska

The Combined DNA Index System (CODIS) is a DNA database provided to federal, state, and local forensic laboratories by the FBI. This database compares DNA profiles obtained from crime scene evidence, thereby linking serial crimes together as well as to known offenders. CODIS also has the ability to search DNA profiles obtained from Missing Persons and Unidentified Human Remains against other DNA profiles in the database in order to identify those samples.

Although CODIS cannot solve cases, it can provide law enforcement agencies with investigative leads that could result in the conviction of individuals. CODIS can also provide investigative leads that result in the exoneration of individuals who have been wrongfully convicted. Due to the significant impacts that CODIS can have on an investigation, the Nebraska State Patrol Crime Laboratory works closely with law enforcement agencies across Nebraska, as well as with the FBI, to ensure that we utilize the CODIS database to its fullest potential all while maintaining the integrity of the database.

Nebraska CODIS Success Stories

CODIS has been instrumental in providing important investigative leads in many cases in our state! Below are a few examples that demonstrate the value of CODIS:

An individual was included as the source of DNA obtained from evidence collected from a rape victim. The DNA profile from the rape kit met eligibility requirements and was entered into the database. Four years later, an unknown male broke into a home and raped a teenager in her bedroom. Evidence was submitted for DNA testing and a DNA profile was entered into CODIS. This DNA profile hit to the solved DNA profile from four years earlier. The two investigators were able to share case information and the agency investigating the rape of the teenager was able to identify the suspect.



CODIS and It's Impact on Investigations in the State of Nebraska



A mother and son were killed in their home. The case went cold and evidence was eventually submitted for DNA testing. A DNA profile was obtained from the crime scene evidence and submitted to CODIS. Less than a year later, the DNA profile hit to another DNA profile from an unsolved case in another state. The law enforcement agencies from both states were able to compare investigative information and began following a new lead for their cases.

Two suspect reference DNA samples were submitted and compared to crime scene evidence from a homicide. The suspects could be included as sources of DNA found on some of the items from the crime scene and they were convicted. Two additional unknown DNA profile were identified on different items collected from the crime scene. These DNA profiles met CODIS eligibility requirements and were entered into the database. Eight years later the profiles hit to DNA profiles submitted by convicted offenders, thus identifying two additional suspects to the law enforcement agency working the homicide case.

A total of eight sexual assault cases have been linked over the years to two serial rapists. Investigators were informed every time a new sexual assault was linked through CODIS. Eventually, two individuals were convicted of qualifying offenses in Nebraska and required to provide their DNA samples. These known convicted offender DNA samples were entered into CODIS, hit to the corresponding sexual assault DNA profiles, and the offender names were released to the law enforcement agency.

There have been many CODIS hits throughout the years that have linked crime scene evidence to known convicted offender DNA profiles who were not the listed suspects on the cases. When this occurs, the law enforcement agency is provided with the convicted offender's information so that they can investigate and determine if the named individual has anything to do with the crime. This can result in the initial suspect being cleared and changing the direction of the law enforcement agency's investigation.





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