



The Lab Report

Volume 7, Issue 1

July 2017

Nebraska State Patrol Crime Laboratory Mission Statement

The mission of the Crime Laboratory Division is to provide quality 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.

Analytical services are provided **FREE** to all submitting agencies.

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Current Case Assignment Turnaround Times (TAT) and Agencies Served

January 1 – June 30, 2017: 138 different agencies submitted cases, equating to 2,626 new cases and over 3,047 assignments to sections for analyses.

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

- ◆ Controlled Substances – 33.71 days
- ◆ Toxicology – 30.55 days

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

- ◆ Biology - Violent/Personal Crimes & Non-Violent/Property Crimes – 211.59 days
- ◆ Firearms/Toolmarks – 98.53 days*
- ◆ Latent Prints – 197.41 days
- ◆ Trace Evidence – 168.32 days**

[Database HIT information: January 1 – June 30, 2017](#)

CODIS (Combined DNA Index System)

- **41** Offender Hits (associating a known offender sample with an unknown evidence sample)
- **1** Forensic Hit (associating unknown evidence samples from two separate criminal cases)

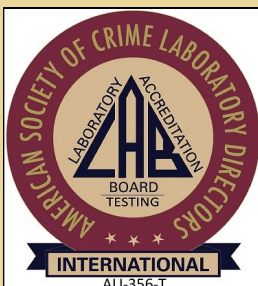
AFIS (Automated Fingerprint Identification System)

- **142** Latent Print Identifications, of which **75** 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 7/2/2017 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.



ASCLD/LAB accredited since 2004.



NSPCL Commitment To Continuous Improvement...

In order to provide the highest quality and most timely service possible, the Nebraska State Patrol Crime Laboratory is continually evaluating ways to improve processes and gain efficiencies. The move to our improved facility in 2015 allowed us to grow and make some changes. Some of these improvements include:

- ⇒ Expanded space in the new facility eliminated time wasted waiting for an available room and/or equipment needed to perform testing
- ⇒ Separated work areas reduced distractions, allowing for total focus on assigned tasks
- ⇒ Increased instrumentation, equipment, and robotics improved throughput and testing capabilities
- ⇒ Streamlined procedures reduced testing steps or unnecessary testing
- ⇒ Increased use of electronic workflows and reporting statements simplified documentation and report writing tasks

In addition, we have added two forensic scientists to our staff; one in the **Controlled Substances Section** and one in the **Toxicology Section**. Early in 2016, turn-around time in Controlled Substances was about 3.5 months and Toxicology was nearly 4.5 months. **As a result of the increased staffing and a lot of hard work, the case turnaround time in both of those sections is now approximately 30 days.**

We have also added a new Business Manager position. John Sobus joined us in that position starting in April 2017. Many people throughout the lab have historically performed a number of the administrative duties that are required to keep us in operation. Transferring those duties to John allows our forensic staff to focus more time on the work that requires their expertise.

Our Business Manager will handle many tasks including: ordering lab and office supplies, renewing instrument maintenance contracts, scheduling equipment/instrument maintenance, maintaining lab vehicles, handling deliveries to the lab, approving and forwarding invoices for payment, completing grant reports and much more. John comes to us with a diverse set of skills and experience in the both government and private sectors.

NSPCL Commitment To Continuous Improvement...



Our Firearm/Toolmark Section, Latent Prints Section and Biology Unit are now **fully staffed!** Our newest addition in the Firearm/Toolmark Section comes to us already fully trained and nationally certified. He will be doing independent casework after a brief training to familiarize him with our specific procedures. Our trainee in Latent Prints is already helping with some types of casework and we expect her to complete her training program by the end of 2017. Our Biology Unit's newest employee is in the early stages of her training and progressing very well.

The caseload in our Biology Unit continues to rise and has increased approximately 20% so far this year, as compared to this time last year. **In an attempt to focus our resources where they are most urgently needed, we have split our biology caseload into two separate queues, violent/personal crimes and non-violent/property crimes. We are focusing the majority of our resources on the violent/personal crimes, while reducing the resources applied to working non-violent/property crimes.**

We will continue to evaluate our resources and processes in the Biology Unit, with the on-going goal of improving timeliness without sacrificing quality.

NEW – Defense Attorney Request Form for NSPCL Report Information

In our continuous efforts to effectively serve the entire criminal justice system, the NSP Crime Laboratory has implemented a **NSPCL Laboratory Report Information Form** that is available for use by defense attorneys across the state of Nebraska.

This form will allow defense attorneys to obtain case summary information regarding the number of reports issued by the NSPCL on a client's case, the dates of the reports and the names of the forensic scientists signing the reports!

Keep in mind that general case summary information will be sent to the requesting attorney and the prosecuting attorney. Copies of reports and/or more detailed information must be obtained through appropriate legal procedures. Information disclosed via this request may also be subject to disclosure to the media through a public information request.

A link to the form itself and the main page where laboratory forms can be accessed can be found below:

<http://www.statepatrol.nebraska.gov/vimages/shared/vnews/stories/56a799f237860/Defense%20Attorney%20Request%20form.pdf>

<http://www.statepatrol.nebraska.gov/vnews/display.v/ART/56a799f237860>



Toxicology Section Update...

Toxicology Section is proud to announce a 30-day turnaround time!!

Article at a glance:

- Toxicology services overview
- 30-day turnaround time
- Staff changes
- Sealing and submitting urine evidence
- Cutoffs - what they mean and what they don't

Questions? Contact Toxicology Supervisor Abbegayle Dodds

Abbegayle.Dodds@Nebraska.gov (402) 471-8977

Our Services...

Our testing services are free of charge to any law enforcement agency. The NSPCL Toxicology Section offers drug testing of urine samples collected for the investigation of DUID from jurisdictions across the State. In addition, we provide testimony in County, District, and Federal Courts in Nebraska; travelling as far away as Scottsbluff and as close by as Omaha and Lincoln. Our travel expenses are covered by the NSP, so our customers in any County are able to request our testimony at no expense. Our analysts are fully compliant with Title 177, having Class D Permits to perform confirmatory testing of drugs in urine.

We are able to identify most drugs of abuse encountered in DUID cases including marijuana metabolite*, cocaine metabolite, amphetamine, methamphetamine, as well as a number of pharmaceutical drugs including alprazolam, tramadol, and oxycodone. There is a long list of drugs we are able to identify (too long to list here), and a short list of drugs we are not able to identify which include synthetic cannabinoids, GHB, LSD, Duloxetine (Cymbalta), and Quetiapine (Seroquel). As many of you know, we are happy to help you find a private laboratory that can test biological samples for these drugs. Just give us a call!

*Our methods result in the identification of a drug or a drug metabolite. A drug metabolite is a modified form of a drug that results from the human body's metabolic processes, usually resulting in the drug's elimination from the body. For example, the marijuana metabolite, carboxy-THC, is identified in urine because the primary active drug in marijuana, THC, cannot be found in urine. Methamphetamine, on the other hand, is eliminated in the urine unchanged, so we are able to identify the drug itself in urine.

Toxicology Section Update...

30-Day Turnaround Time...

The NSPCL Toxicology Section is proud to announce that we are able to offer our customers a 30-day turnaround time! Since July 2016, we have reduced our turnaround time from 127 days to 31 days.

There are a variety of factors that affect turnaround times. One factor that greatly affected turnaround times for the Toxicology section was **unexpected increases in caseload**. In 2015, the NSPCL Toxicology Section began receiving **all** urine drug evidence from the Omaha Metro area. As a result, the section had to identify ways to decrease the turnaround times to support the increase in caseload.

How was this problem solved? Through an increase in staffing and implementation of a new testing policy for DUID cases with DRE evaluations!

The NSPCL Toxicology section increased staffing from one full time analyst to two full time analysts and implemented a testing policy for DUID cases with DRE evaluations. We know that our customers in the Nebraska Criminal Justice community rely on high quality, yet prompt forensic testing to prosecute and defend criminal charges. We are now able to offer you this improved turnaround time while maintaining the quality of testing our customers and the citizens of Nebraska deserve.

The NSPCL Toxicology section is currently serving the **entire State** and has the resources to manage the caseload.





Toxicology Section Update...

Staff Changes...

On June 30th, we said goodbye to longtime Forensic Scientist/ Technical Leader Brad Rutledge. Brad was our only toxicologist for many years, and graciously served as our 0.5 analyst for the last six months. Brad was a committed public servant: After serving in the US Military, Brad went to work for the state as a forensic scientist in 1983. Thirty-four years, thousands of urine samples, and hundreds of testimonies later, he passed on the torch!

Abbegayle Dodds, formerly Forensic Scientist Supervisor/ Technical Leader of the Drug Section, transferred to Toxicology in June 2016 as Brad's understudy. At the same time, Debra Davis, formerly Laboratory Technician of the NSPCL Biology Unit, was promoted to Forensic Scientist and transferred to Toxicology. Abbey assumed Brad's Technical Leader responsibilities July 1.

With these staffing changes, the NSPCL has grown the section from one to two full time scientists, which means we can now complete 100% technical review of toxicology testing.



Toxicology Section Update...

Sealing Urine Evidence...

The very first thing we do with urine evidence is examine seals. Seals are very important to maintaining the chain of custody from the time of collection to the time it is admitted in court as evidence. Proper seals are also required by Title 177. Why do we bring this up? Well... we have been receiving evidence that isn't properly sealed... If you collect or transport evidence, please follow these instructions for properly sealing evidence:

- To seal with tape, place tape over any opening in the package. Initial across the tape onto the package. That way, if the tape is lifted, part of your initials are still on the tape and part are left on the package. It is then obvious that the tape seal was tampered with.

Note: Some urine collection kits can be opened from the bottom by folding the flaps of the cardboard box inward, example: the taller style Lynn Peavey Kit. Turn these over and tape seal the bottoms.



- To seal a plastic package with heat, heat seal the end, ensuring it goes across the entire package, initial across the seal.
- Evidence bags with manufactured adhesive strips are tamper-proof as-is. Just ensure the closure is secure and initial the package somewhere on the outside. **Please don't "roll" bags and seal shut. They are very difficult to open and reseal. It is best to just fold the flap down as marked on the bag's instructions.**

The main issue we have been seeing are tape seals that are not initialed. Please ensure your initials cover *both the tape and the package* and that all *package openings are covered with a tape or heat seal*.

If you have any questions, please contact the laboratory. You can also refer to Title 177 for a refresher on required seals and labeling of urine evidence.



Toxicology Section Update...

Cutoffs in Toxicology...

Many of you have seen “cutoffs” listed on Toxicology Reports. The NSPCL Toxicology Section complies with Title 177 Nebraska Rules and Regulations. Chapter 7 delineates how urine samples will be tested for the presence of drugs in urine. **One of the requirements is the use of “cutoffs” for seven drugs/ drug metabolites: marijuana metabolite, amphetamine, methamphetamine, codeine, morphine, PCP, and cocaine metabolite.**

The definition of a cutoff level in Title 177 is “the amount of drug detected which determines the absence or presence of drug.” This means that if a drug or drug metabolite is detected above the cutoff level, it is present; if it is detected below the cutoff level, it shall be reported as not present. We use cutoffs exactly this way. If a urine specimen has more than 50ng/mL marijuana metabolite, we report “marijuana metabolite was identified in the sample.” If a urine specimen has less than 50ng/mL marijuana metabolite, we report “marijuana metabolite was not identified in the sample.”

Some of our customers confuse drug cutoff levels with a drug *per se* limit, thinking it is similar to alcohol in blood which has a *per se* limit of 0.08 grams per 100mL blood. There is no such “universal” level of impairment with any drug/ drug metabolite or any combination of drugs/ drug metabolites. Drug metabolism and driver impairment due to drugs are much more complex than alcohol metabolism and driver impairment due to alcohol. In fact, these topics are the focus of ongoing research by forensic scientists, public policy makers, and academic researchers. The current consensus is that urine or blood drug levels cannot be correlated with driver impairment.

There are many other drugs/ drug metabolites that can be identified in urine which are not mentioned in Title 177. You may see test results without a cutoff listed.



Toxicology Section Update...

Thank You...

While we are celebrating our decreased turnaround times, we would like to thank you for your patience.

Our forensic scientists perform highly technical work that requires intensive on-the-job training from experienced forensic scientists. As you might imagine, this requires a lot of time and effort on the part of those experienced forensic scientists performing the training, which in turn, necessitates a reduction in time spent on casework testing.

A handwritten message in blue ink that says "thank you!". The letters are cursive and the exclamation point is large and prominent.

Hints on Evidence!

There is a new 750 Submittal form we would like our customers to use, especially important for NSP troopers. The new submittal form is designed with a box to identify your troop area. With the new evidence system NSP is using, the previous letter in front of the IR number identified the troop area for us. The new IR number does not. See the below links to the new form:

http://www.statepatrol.nebraska.gov/vimages/shared/vnews/stories/56a799f237860/750_Evidence_Inventory_Submittal_Receipt%202017.pdf

<http://www.statepatrol.nebraska.gov/vnews/display.v/ART/56a799f237860>

As mentioned previously in the Toxicology Update article, it is extremely important to seal the bottom of urine evidence boxes and initial your seals. Many of these come through the mail without being taped shut and they are easy to tamper with if not sealed properly. For more information on packaging urine and other evidence, please refer to the website at statepatrol@nebraska.gov under Crime Lab Evidence Manual.



Latent Print Section – The Nebraska AFIS Upgrade Project

The Nebraska State Patrol upgraded the state's Automated Fingerprint Identification System (AFIS) in October 2016. This was a multi-year project, grossing at about \$2 million in cost, and numerous hours spent away from the Crime Laboratory and the analyst's bench. This project involved staff from different divisions of the Nebraska State Patrol (Crime Lab, CID and IT), and both the tenprint (known) and the latent (unknown) sides of the system were upgraded. As a result of the upgrade, we have received superior matchers and added capabilities we did not have before. **The new AFIS system is much more efficient, and returns the results of latent searches of the state's database within minutes. This allows for a faster turnaround of cases being analyzed for latent prints.**

During the upgrade of the Nebraska AFIS, we have implemented a number of capabilities for searching the FBI's NGI system that were not available to the Nebraska users previously. We are extremely grateful for the help we received from *Joshua Connelly* of the *Douglas County Sheriff's Office*, who provided invaluable ULW file data, allowing our vendor MorphoTrak to implement those transactions in our new system. We also received a tremendous amount of help from *Rhonda Hemlick* of the *FBI's Latent and Forensic Support Unit*, and the FBI's Latent Support Unit staff during our NGI implementation. Without their help, the upgrade project affecting the Nebraska AFIS Latent users and all Law Enforcement relying on our results, would not have gone as smooth as it did. *Thank you!*

Some of the new NGI transactions include:

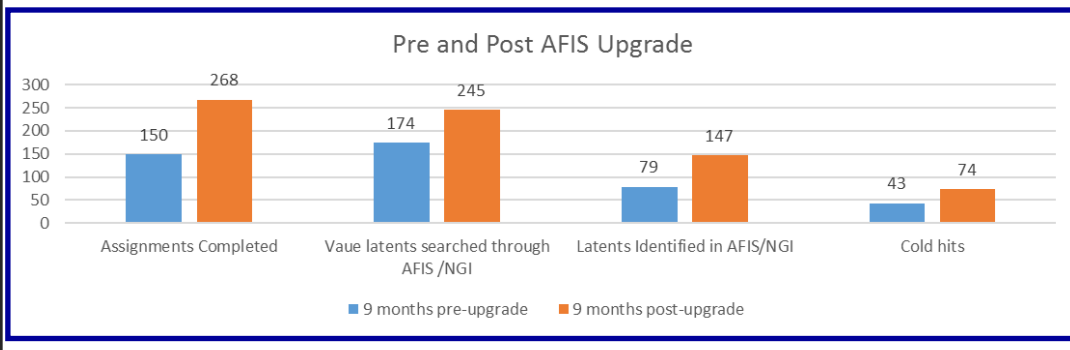
- latent palm submissions;
- requesting fingerprints, palm prints and mugshots from the FBI (IRQ transactions);
- receiving notifications of a potential hit on our state's latent by the FBI (ULM transactions);
- ability to request a latent delete from the FBI's database (ULD transactions);
- ability to receive mated minutiae information from the NGI (Type-9 data);
- ability to submit LFFS (Latent Friction ridge Feature Search) and/or LFIS (Latent Friction ridge Image Search) transactions;
- ability to import NIST files of known impressions into the Nebraska AFIS.

Latent Print Section – The Nebraska AFIS Upgrade in Numbers

We have experienced an increase in number of cases worked, due to the fact that the AFIS searches of the State’s system now complete within minutes! Our interface with the FBI’s NGI is much more user friendly, and is now integrated into our system. With three clicks, we can now launch our latents to search the FBI’s NGI database. The results coming back are currently taking approximately 4 hours, which is an improvement from the previous system, which would average 24 hours.

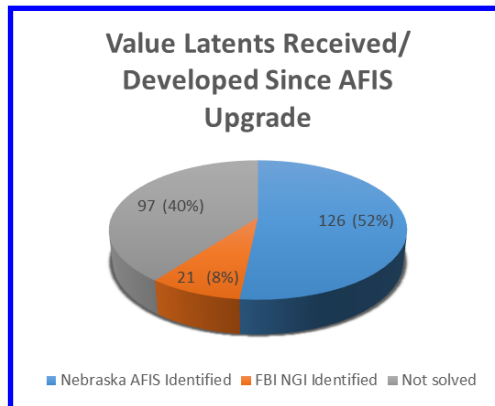
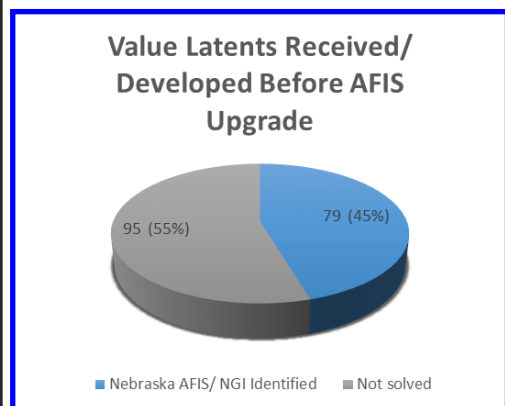
The number of latent identifications made in the Nebraska AFIS or the FBI’s NGI has increased (+46%), as well as the number of Cold Hits* (+42%).

**a “cold hit” is defined as an identification where the identified person’s name was not provided to the Latent Section by an investigative officer.*



Latent Print Section – Identifications

The percentage of latents identified through the Nebraska AFIS or the FBI’s NGI search for the Nebraska State Patrol Crime Laboratory has increased from 45% in the old AFIS system to 60% after the AFIS upgrade!



Since the AFIS upgrade, an investigative lead was provided in 35 criminal cases as a result of an AFIS Cold Hit!

G R E A T
J O B

Latent Print Section – Kudos to Our Submitters!

Latent impressions are particularly fragile and can be easily destroyed. Friction ridge detail is sometimes so minute, and the proper position of an impression being submitted for search of the Nebraska AFIS or FBI's NGI is crucial in making an identification... or missing a hit. **The success of our section's analysis largely depends on our submitters, and the way they collect and preserve the evidence.**

We would like to recognize the Grand Island Police Department for a job well done, on a consistent basis!

On July 18, 2016, a latent lift case was submitted by the Grand Island Police Department.

Upon examination of the evidence, it was found that not only were the latent lifts labeled with the date, time and an excellent description of what they were lifted from; they were also labeled with which side was the top of the item and which side was the bottom of the item when the lifts were created.

This additional information was invaluable in determining the orientation of several of the received value latent impressions, thereby speeding up the searching and comparison process.

Thank you to the Grand Island Police Department for going above and beyond in ensuring that the analysts have all of the information they may need!





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