



The Lab Report

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Letter from the Laboratory Director

Welcome to the inaugural issue of the NSP Crime Laboratory quarterly newsletter. Our goal with each newsletter will be to keep you informed about our staff, services, backlogs and related issues. Issues will include current information on section backlogs, featured staff biographies, a spotlight on forensic sciences, lab and staff contact information and other highlights we hope you will find of interest.

The NSP Crime Laboratory was established in 1971 and became operational in July of 1973. Our legislative mandate under State Statute 81-2010 is to "...perform services necessary for the recognition and proper preservation, identification, and scientific analysis of evidence materials pertaining to the investigation of crimes." We are entirely government funded and are here to serve all local, county, state and federal law enforcement agencies in Nebraska. **Our services are provided entirely free of charge.**

The primary objective of the NSP Crime Lab is to maintain and improve the quality of forensic science services provided to all law enforcement agencies in the State. We strive to meet this objective by assuring that we have a robust quality assurance system in place. Our participation in the ASCLD/LAB (American Society of Crime Laboratory Directors/ Laboratory Accreditation Board) accreditation program demonstrates that we meet national standards. These standards are in place so that you can have complete confidence in the quality of the results received from our lab.

In a typical year we accept cases from approximately 170 different agencies. These agencies vary dramatically in size, budgets and needs and are located throughout the state. Last year our submissions came from 75 police departments, 72 sheriff's offices, the state patrol, correctional facilities, state probation offices, university campuses, the fire marshal, game and parks, and other local, state and federal agencies. In addition to case work analysis services, we regularly serve the legal community through providing consultation and court testimony. We provide training and informative presentations to our submitter agencies, educational and community service groups, and professional associations.

Our staff welcomes your questions and comments. Please let us know if there is some specific information you would like to see provided in future newsletters. Our hope is that we can develop this publication into an informational resource that will be beneficial for all of our readers.

Pam Zilly
Crime Laboratory Director



ASCLD/LAB accredited
since 2004.



Microscopic comparison of fired cartridge case evidence.

Section Analysts

Kent Weber

Amy Weber

Sarah Zarnick



Toolmark comparison of cut marks on wire insulation.

Firearm/Toolmark Section

The NSP Crime Lab Physical Sciences Unit Firearm/Toolmark Section examines a wide variety of evidence, from firearms and fired ammunition components to clothing, tools, footwear and tire impressions. Test fired bullets/cartridge cases from submitted firearms as well as fired evidence cartridge cases/bullets collected from crime scenes are entered into the National Integrated Ballistics Information Network. The cartridge cases and bullets entered into NIBIN are correlated with other fired evidence entered by crime labs regionally with the ability to correlate nationwide.

The section is currently staffed by three forensic scientists: Kent Weber (section supervisor), Amy Weber, and Sarah Zarnick. The current section backlog is as follows: 33 firearm/toolmark assignments, 128 NIBIN assignments. Due to analyst cross-training, firearm/toolmark assignments are at approximately a 6 month turnaround and NIBIN only assignments are at approximately a month turnaround. Once cross-training is completed, there should be a significant decrease in turnaround times.

Types of analysis performed by the section analysts are as follows:

Bullet Analysis

Cartridge Case/Shotshell Analysis

Firearm Function & Identification

Serial Number Restoration (firearm & tool)

Gunshot Residue/Muzzle to Target Range Estimation

(gunshot residues from hands are not tested at this lab)

Toolmark Analysis

Footwear Impression Analysis

Tire Impression Analysis

For a more detailed list of capabilities, feel free to call the laboratory firearm/toolmark section and a detailed list can be emailed to your agency.

It is extremely important to submit all firearm related evidence to the laboratory for firearm analysis – keep in mind that the evidence that may seem irrelevant to the submitter (damaged condition of evidence, etc), may be valuable from the analysis standpoint!

Latent Fingerprint Section

The NSP Crime Lab Physical Sciences Unit Latent Fingerprint Section is responsible for the examination of items collected at the scene of a crime that may contain friction ridge detail needed for identification and/or elimination purposes. The section is currently staffed by three forensic scientists: Mariana Ward (section supervisor), Bridget Driver, and Steve Burke. The current section backlog is as follows: 10 assignments. The section is currently working March 2011 cases.

The latent fingerprint section utilizes two fingerprint databases (see below). Both systems provide automated fingerprint search capabilities, latent searching capability, electronic image storing, and electronic exchange of fingerprints and responses, 24 hours a day, 365 days a year.

- 1) AFIS (Automated Fingerprint Identification System) is a Nebraska state fingerprint system maintained by the Nebraska State Patrol (NSP). The database contains fingerprints of criminals, juveniles, law enforcement, sex offenders, concealed weapons permits, and applicants.
- 2) IAFIS is a national fingerprint and criminal history system maintained by the FBI, Criminal Justice Information Services (CJIS) Division. The IAFIS maintains the largest biometric database in the world, containing the fingerprints and corresponding criminal history information for more than 55 million subjects in the Criminal Master File.

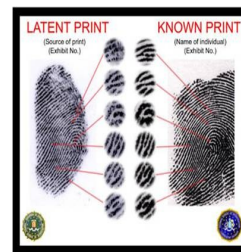
Items that can be submitted for processing include: Porous items, non-porous items, sticky tape, gloves (latex, nitrile), fired cartridge cases, impressions in blood, paint or other substances, and digital files containing photographs of the latent impressions (RAW or TIFF format with metric scale included).

If you have any questions with regard to proper submission of evidence for latent fingerprint processing/analysis, please contact the section.

Laboratory Quality Assurance

The NSP Crime Lab Quality Assurance section manages all aspects of the laboratory's Quality Assurance System to ensure that the various types of analyses, reports, and testimony provided for law enforcement agencies are accurate, impartial, and relevant. The areas of the Quality Assurance System include: Document control, case file review, proficiency testing, court testimony monitoring, laboratory/section audits, and issuance of corrective actions. The Quality Assurance section ensures that the laboratory maintains its national accreditation through the American Society of Crime Laboratory Directors / Laboratory Accreditation Board (ASCLD/LAB).

If you have any questions concerning the laboratory Quality Assurance System, please contact Quality Assurance Manager, Vicki Hopkins.

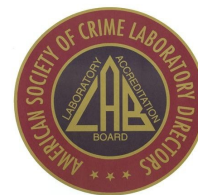


Section Analysts

Mariana Ward

Bridget Driver

Steve Burke



QA Manager

Vicki Hopkins



MDMA tablets

Unit Analysts

Celeste Laird

Vicky Cowan

Abbey Dodds

Brad Rutledge

Mike Auten



Chemistry Unit

Chemistry Unit

The NSP Crime Lab Chemistry Unit is divided into three separate sections: controlled substances, toxicology, and trace. The forensic scientists involved in each section are responsible for unique types of forensic chemistry examinations.

The Chemistry Unit is currently staffed by five forensic scientists with one position vacant: Celeste Laird (section manager), Vicky Cowan, Abbey Dodds (controlled substances), Brad Rutledge (tox), and Mike Auten (trace). The current unit backlogs are as follows: 75 controlled substance assignments, 28 toxicology assignments, and 3 trace assignments. The unit assignment turnaround times presently are: controlled substances approximately 10 days, toxicology approximately one month, trace approximately 2 months.

Types of analyses performed by the forensic scientists include:

Controlled Substances Section:

- Analysis of samples for controlled substance identification.
- Purity of methamphetamine samples for federal prosecution.
- Concentration of pharmaceutical samples for diversion cases.
- Analysis of clandestine laboratory samples.

Toxicology Section:

- Analysis of urine samples for the presence of drugs in DUI/probation cases.
- Analysis of adulterated food products for drugs and some poisons.

No alcohol analysis of any kind!

Trace Section:

- Analysis of fire debris samples for the presence of accelerants.
- Analysis of samples for explosives.
- Comparison of paints.
- Comparison of tapes.
- Analysis/comparison of many other types of unknown substances.

If you have any questions concerning the wide range of analytical services provided by the NSP Crime Lab Chemistry Unit, please contact the unit manager, Celeste Laird.

Forensic Biology Unit

The NSP Crime Lab Forensic Biology Unit is responsible for examining any items of evidence for potential biological evidence and for the possible determination of the origin of that biological material.

The Forensic Biology Unit is currently staffed by six forensic scientists: Cammi Strong (section manager), Katherine Rector (CODIS State Administrator), Jason Linder, Melissa Kreikemeier, Heidi Young, and Brandy Porter. They recently posted a job position for a laboratory technician and are refilling a forensic scientist position. The current unit backlog is as follows: 100 biology assignments with a turnaround time of approximately 2-3 months.

The Biology Unit currently possesses the following analysis capabilities:

Biological Screening Capabilities:

Blood, semen, urine (presumptive only), biological evidence transfer, and perform limited hair examinations (human vs. non-human, acceptability for nuclear DNA analysis).

Human DNA Typing Capabilities:

Analysis of 15 STR (Short Tandem Repeats) loci plus Amelogenin, a sex typing gene (included the 13 core CODIS loci).

Examination of “no suspect” cases and enter the appropriate DNA profiles into CODIS to search for possible DNA matches.

Touch DNA.

Limited capabilities for DNA analysis from bone.

No criminal paternity testing is available.

No mitochondrial, plant, or animal DNA testing is available.

Combined DNA Index System (CODIS) Database Components:

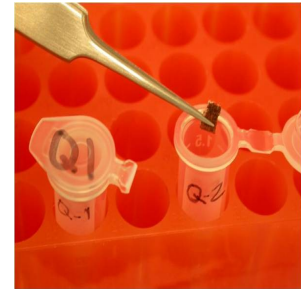
Convicted Offenders.

Forensic Unknowns.

Missing Persons and Unidentified Remains.

Relatives of Missing Persons.

If you have any questions with regard to the submission, handling of biological evidence, or the range of biology unit capabilities, feel free to contact the Biology Unit Manager, Cammi Strong. If you have questions concerning CODIS, please contact CODIS State Administrator Katherine Rector.



DNA analyst putting cutting into tube to start the DNA process.

Unit Analysts

Cammi Strong

Jason Linder

Katherine Rector

Melissa Kreikemeier

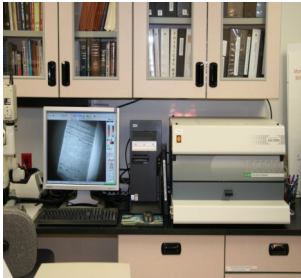
Heidi Young

Brandy Porter



DNA analyst operating the TECAN robot

Questioned Documents Section



Questioned Documents equipment in use.

The NSP Crime Lab Physical Sciences Unit Questioned Documents section is responsible for examining any documents that are in question, usually in an attempt to determine their origin or authenticity. This may include any of the following:

Handwriting comparison for identification of a writer.

Document examination for alterations and determination of original text.

Counterfeit document examination.

Deciphering of obliterated text.

Charred, shredded, or water-soaked document restoration.

Association of a document to a source (e.g. a typewriter, pad of paper, etc).

Developing of indented writing images on paper (e.g. indented images of writing from prior pages of writing in a pad).

Tear or fracture match of document related evidence .

Examination for inserted text in documents.

Section Contact

Pam Zilly

Currently all document examinations are being out-sourced to a contracted documents examiner free of charge to the submitting agency.

If an agency has a request for questioned documents analysis, please contact the laboratory for further information with regard to submissions, etc.

Evidence Section

The NSP Crime Lab Evidence Section oversees the intake and release of evidence to the crime lab as well as the distribution of evidence to the laboratory forensic scientists. The staff manages case records for all analyses performed at the laboratory. They also provide lab-wide administrative support. The evidence section is currently staffed by three employees: Jan Johnson (administrative assistant and supervisor), Margaret Wiesen (evidence technician), and Vicki Hopkins (Quality Assurance Manager).

Section Staff

Jan Johnson
Margaret Wiesen
Vicki Hopkins

Evidence Submission Tips

Sealing requirements for evidence submitted to the laboratory:

Tape sealed with initials across both sides of the tape.

Heat sealed (plastic bags) with initials across the heat seal.

Pre-manufactured self sealing evidence bags with initials on the bag.

Do NOT use staples to seal evidence!!!

Certified Mail:

Submittal on the outside of the sealed package.

Freeze urine before sending.

Submit ONE case per certified mail tag.

Protect the individuals at the laboratory by clearly marking the evidence external packaging (and all subsequent internal containers) with a Biohazard label if the evidence is suspected to possess potential biohazard material (e.g. blood, tissue, etc).

Several electronic forms are located on the Nebraska State Patrol website that can be used for evidence submission: **the 750 Evidence Inventory Submission form and the Rush Request form.** Typing is preferred on the forms so as to ensure readability for the evidence technicians. The Crime Laboratory Manual is located on the webpage as well.

The forms can be found by clicking on the following link:

<http://www.statepatrol.nebraska.gov/formList.aspx?folderName=CrimeLab>

If you have questions with regard to the proper completion/use of the evidence submittal form or the Rush Request form, do not hesitate to call the lab!





Laboratory Director:
Pam Zilly

Nebraska State Patrol
Crime Lab
1233 Arapahoe St.
Lincoln, NE 68506

(main) 402-471-8950
(fax) 402-471-8954

Hours of Operation:
Monday-Friday
8am—5pm

Evidence Receipt Hours:
Monday-Friday
9am-4pm

To contact the crime lab
with general laboratory
questions, call the main
phone number or email
Vicki Hopkins at:

Vicki.Hopkins@nebraska.gov

The Lab Report Editor:
Amy Weber

Nebraska State Patrol Crime Lab Staff Contact Information:

Laboratory Director:

Pam Zilly 402-471-8967 Pam.Zilly@nebraska.gov

Evidence Section:

Jan Johnson (sup.) 402-471-8951 Jan.Johnson@nebraska.gov

Margaret Wiesen 402-471-8950 Margaret.Wiesen@nebraska.gov

Quality Assurance Manager:

Vicki Hopkins 402-471-8983 Vicki.Hopkins@nebraska.gov

Physical Sciences Unit:

Firearm/Toolmark Section

Kent Weber (sup.) 402-471-8960 Kent.Weber@nebraska.gov

Amy Weber 402-471-8699 Amy.Weber@nebraska.gov

Sarah Zarnick 402-471-8925 Sarah.Zarnick@nebraska.gov

Latent Fingerprint Section:

Mariana Ward (sup.) 402-471-8918 Mariana.Ward@nebraska.gov

Steve Burke 402-471-8962 Steven.Burke@nebraska.gov

Bridget Driver 402-471-8914 Bridget.Driver@nebraska.gov

Questioned Documents Section:

Pam Zilly 402-471-8967 Pam.Zilly@nebraska.gov

Chemistry Unit:

Celeste Laird (Manager) 402-471-8978 Celeste.Laird@nebraska.gov

Controlled Substances

Vicky Cowan 402-471-8917 Vicky.Cowan@nebraska.gov

Abbey Dodds 402-471-8977 Abbegayle.Dodds@nebraska.gov

Toxicology

Brad Rutledge 402-471-8979 Brad.Rutledge@nebraska.gov

Trace

Mike Auten 402-471-8987 Mike.Auten@nebraska.gov

Biology Unit:

Cammi Strong (Manager) 402-471-8955 Cammi.Strong@nebraska.gov

Katie Rector (CODIS) 402-471-8822 Katherine.Rector@nebraska.gov

Melissa Kreikemeier 402-471-8957 Melissa.Kreikemeier@nebraska.gov

Jason Linder 402-471-8958 Jason.Linder@nebraska.gov

Brandy Porter 402-471-8870 Brandy.Porter@nebraska.gov

Heidi Young 402-471-8871 Heidi.Young@nebraska.gov

<http://statepatrol.nebraska.gov/>