



# Focus on Forensics

APRIL 2015

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## SPECIAL POINTS OF INTEREST:

- Learn the value of laboratory accreditation and what it means to you.
- See how communication can help make the most of your evidence.
- Continue in the lab history series to learn about our beginnings.
- Explore the DNA database to learn the proper use of offender samples.

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## Why Accreditation

One of the questions that I get a lot is why the forensic labs bother with accreditation. I have been told that it has slowed us down, puts unnecessary wording on our reports, and is expensive. So why do it if it is not required? The six Kentucky State Police Forensic Laboratory Branches are all accredited by the American Society of Crime Laboratory Directors - Laboratory Accreditation Board's (ASCLD-LAB) International Accreditation Program. The program is an ISO/IEC 17025 program. Let's talk about accreditation and run through the confusing acronyms and structure to help appreciate what the labs have accomplished.

What is Accreditation? Accreditation is a voluntary, third party-review process. As part of accreditation, a laboratory's quality management system is thoroughly evaluated on a regular basis to ensure continued technical competence and compliance with ISO/IEC 17025. Laboratory accreditation can only be granted by an approved accreditation body, which for us is ASCLD-LAB. The International Laboratory Accreditation Cooperation (ILAC) conforms to ISO/IEC 17011 for accrediting bodies who accredit ISO/IEC 17025 laboratories. In essence, the ILAC arrangement guarantees that test results are mutually acceptable between different governmental and regulatory organizations on regional, national and international levels and that these test results meet the same minimum standards for quality regardless of the lab's accreditation body.

What is ISO/IEC 17025? Why is it important? ISO/IEC 17025 was first issued in 1999 by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). It is the single most important standard for calibration and testing laboratories around the world. The standard specifies the general requirements for the competence to carry out tests, including sampling. It covers testing and calibration performed using standard methods, non-standard methods, and laboratory-developed methods. Laboratories that are accredited to this international standard have demonstrated that they are technically competent and able to produce precise and accurate test and/or calibration data.

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## Evidence—how to make the most of it

Can you imagine being the sole provider of services to law enforcement agencies from 120 counties? That's exactly what we do in the laboratory system everyday! We struggle daily to do the work we have to do, in the time allotted to do it, with the resources we have. This is not even mentioning the many court appearances that cut into our time to do lab analysis. Sections that are most hard pressed to keep up with demands of law enforcement and the legal system are the Trace (6 analysts) and DNA (15 analysts) sections. The laboratories worked over 1000 homicide, sexual assault, assault and robbery cases, and an additional 500 property crimes cases in 2014 receiving that evidence from 483 different agencies. While the task is daunting there are some steps we can take to ensure that resources of time, personnel and finances are used in the best possible manner to deliver a service that is useful, accurate and timely.

In this series on evidence we'll address several aspects that we hope will make life easier for all involved. We'll be highlighting our case acceptance policies, the value of timely submission of evidence...and in this issue the following great testimonial from **Det. Randy Combs, KSP Post 13**, on the value of communication.

*I began my career with the Kentucky State Police in February of 1996. I spent my first eight years as a uniformed Trooper and the last 10 years as a Detective. During that time I have worked many criminal cases from the initial call, all the way to the completion of a lengthy jury trial. The most important lesson that I have learned along the way is the value of good communication between every person involved in a criminal case.*

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## History of the Lab— Part 2 by Lt. Mark Mayes



Eastern Regional Laboratory  
Mid 70s-2005

In Part I we explored the beginning of the KSP Laboratory as a single entity, and we'd just started to delve into how the laboratory became the "system" we know today. The first prongs of the system were the Western and Jefferson laboratory branches, both of which opened on May 1, 1975. The Western Lab first opened in the old TB Hospital in Madisonville where it operated until the mid 1980's. It was then moved to the Martin Mall/ Thornberry Drive location and initially occupied the first floor. In the late 1980's an expansion took place and floor space upstairs was obtained. With that expansion came the famous (or infamous) spiral staircase. Then in 2009, it was recognized that the Western Lab needed serious renovation or needed to relocate. After several years of planning and waiting the lab opened for business in a new building at its current location January 2013. See the full story on page 2 of the [July 2013](#) newsletter.

The Jefferson Lab started out on the Spaulding University Campus in Louisville. It moved from there in the spring of 1989 to its current location near the Ford Truck Plant. In 2007/2008 it was decided that the current space needed to be reevaluated. There were a couple of neighboring suites vacant at the time. Working with the lessor, the lab expanded providing additional work space for all disciplines, particularly firearms/toolmarks.

On September 1, 1976, the Northern and Eastern laboratory branches opened. When the Northern Lab first opened, they occupied a house located on Northern Kentucky University's campus. Initial plans were to only be in the house for five (5) years. They received some renovation in 1991 providing more space for BA technicians and a space for serology. It wasn't until 1998 they moved to their current location in Cold Springs.

The Eastern Lab opened in a location very much like the Western Lab. They were housed on the 4<sup>th</sup> floor of the old TB hospital in Ashland. Sometime in 1998 the lab was notified that because of the condition of the building it would be closed in 2001. Of course, that wasn't the case as the Eastern Lab did not move into their current location until the spring of 2005.

The last of the laboratory branches to open was the Southeastern Lab, which opened June 1, 1977, in the old TB hospital in London. As you can see there are a couple of common themes going here as to building availability in the 70's being either a college campus or old TB hospital. The Southeastern Lab remained in the TB hospital until moving to their current location in 1995. When they moved to the new building they doubled their space and eliminated overcrowding at the time. In 1990 there was a plan to move the lab to property owned by the Cabinet for Human Resources. The property, however, never became available. The Southeastern lab was scheduled to undergo a major renovation around 2006 and the process went all the way to bid opening before being cancelled.

Another significant occurrence happened in the 1970's. From the lab's beginnings in 1949 up until 1973 the system was dominated by male analysts. However, June 1, 1973 that changed. On that date, Pat Hankla became the first female lab analyst. I haven't gotten the full story from her, but I have been told the presence of a female in the lab wasn't exactly welcomed and some comments about her hiring may have been inappropriate. Any concerns about her commitment to the lab were unfounded as Mrs. Hankla was a fixture in the laboratory system for over 30 years until her retirement in December 2005.

In 1989, the Central Lab in Frankfort expanded with the addition of two (2) modular units, dubbed the "Pizza Huts" due to their resemblance to a popular food chain, and later took over the old cafeteria space in KSP Post 12. By the early 90's it was apparent that the Central Lab needed more space. It was determined that several state run laboratories would come under one roof thus the complex at 100 Sower Boulevard was designed and built. The Central Lab officially moved to its current location April 4, 1994, where it occupied space on the first floor. The Central Lab continues to grow in size and currently analysts are located on all three (3) levels of the building.

And let's not forget, in 2012 the laboratory system really became one lab. On March 12, of that year the entire lab system was recognized by the American Society of Crime Lab Directors/Laboratory Accreditation Board (ASCLD/LAB) as an ISO/IEC 17.025:2005 accredited laboratory. It was a great accomplishment which made many of us a part of the history of the lab.



Western Regional Laboratory  
Mid 80s-2013

See [Why Accreditation](#) to understand why this is such an important part of our laboratory history.

*This lab history is available due to KSP yearbooks, annual lab reports, and many current and former lab employees.*

## Why Accreditation continued from page 1

What does that mean for you, our customers? ISO/IEC 17025 accreditation provides our customers, the general public, and all interested parties with a ready means to identify our laboratories as a competent source of testing. The accreditation program is highly customer driven. The reporting changes that you have seen over recent years include clarifications as to why we were unable to include or exclude a sample, the uncertainty of our measurements where judicial consequence has been assigned, and statements regarding the limitations of specific tests. The intent is not to overload the reader with information but instead to ensure that they are aware of the limitations of our testing regarding the characterization and conclusions of our testing. Information that was once available only from analysts during testimony is now readily available on the report, as required by the ISO 17025 standard. More changes will be coming to our reports as we add more information about the test methods.

Another large change mandated by the accreditation program, and the reason there is an increase in the number of crime lab deficiencies in the press, is that we must self-report any problems to both our accrediting body (ASCLD/LAB) and to our affected customers. Long gone is the era of crime labs being closed off from scrutiny. We have entered the age of transparency and embrace it. Problems are processed through a root cause analysis process and corrective action is documented.

In this process we not only elicit change due to problems, but we also continually look for places where we can improve both in how we do things and what services we offer. This requirement has led to significant changes to the Toxicology Section as they work to bring more types of drug analysis online so that we can report more reliable extraction and quantitation data. This process has been slow and painful but necessary.

Finally, in our DNA sections federal law requires that laboratories participating in the National DNA Index System (NDIS) be accredited. Without accreditation DNA profiles from your unsolved cases would not be uploaded and searched in the national database. Also, much of the grant funding for DNA testing that the lab relies upon is contingent upon maintaining our accreditation status.

So why accreditation? Because quality is important to everyone - and we are not the only folks who think so. There is an international standard specific to the automotive industry, another for the medical device industry and thousands of organizations operating under ISO 9000 certification. We rarely wonder if a new car will operate or whether granddad's pacemaker will really work. The quality management systems that we, and others, use are designed to provide assurance that we know what needs to be done and we have a standardized method to accomplish the task. The extra effort required to maintain these quality systems may seem inconvenient, but it helps everyone be assured to receive a quality product or service.

Accreditation is not just a rubber stamp. It is not conferred until the laboratories show that they are producing solid work by qualified personnel. We would not be accredited, or maintain accreditation, if we were not doing quality work. While accreditation is not mandated by statute in Kentucky, we felt that it was an important step to show the Criminal Justice community that the laboratories they rely upon are competent and inline within international standards for testing laboratories.

*If you have questions or want additional information contact Laura Sudkamp.*

## KSP Laboratory Employees Named to National Committees

In the last newsletter edition we reported that the National Institute of Standards and Technology (NIST) and the Department of Justice (DOJ) made the first appointments to the Forensic Science Standards Board (FSSB), which included KSP Laboratory supervisor, **Jeremy Triplett**. Since then two other KSP laboratory employees have been named to national committees which are also part of the initiative to strengthen forensic science in the United States.

**Dr. Margaret Sanger**, DNA Technical Leader, has been named to the NIST Organization of Scientific Area Committees (OSAC), specifically the subcommittee for DNA Analysis I, which will focus on standards and guidelines related to forensic DNA laboratory methodology. **Laura Sudkamp**, Forensic Laboratory Director, has been named to the National Commission on Forensic Science Human Factors Subcommittee, which will examine factors that influence the performance of forensic scientists as they draw conclusions from physical evidence and communicate their findings in the legal system. This committee will recommend policies and procedures to improve the performance of forensic laboratories and their personnel in the various roles they perform.

We are honored to have the KSP Laboratory so well represented in this national endeavor. To learn more visit <http://www.justice.gov/ncfs/cognitive-bias-and-human-factors-subcommittee> and <http://www.nist.gov/forensics/osac/index.cfm>.

## Evidence How to Make the Most of It continued from page 1

As a uniformed Trooper, my early investigations were based on the basic knowledge that I had gained in the academy. Too often I relied completely on my own judgment rather than asking questions. One of my mistakes as a young Trooper was blindly submitting evidence to the lab and just expecting miraculous results. As I gained experience, I started calling the lab personnel and speaking to the analysts when I had a question about testing that I didn't understand.

When I became Detective, I began working larger investigations such as rape cases, robberies, major assaults and murder cases. I attended many autopsies at the medical examiner's office where I got to collect evidence in a whole different setting. The amount of evidence I had to collect on these types of cases grew exponentially from what I had done before. I was dealing with all sorts of trace evidence, DNA evidence, fingerprint evidence and firearms evidence on a more regular basis. Sometimes we as police officers, along with prosecutors, feel the need to have everything tested because of what we perceive as the "CSI effect", a phenomenon reported by prosecutors who claim that television shows based on scientific crime solving have made actual jurors reluctant to vote to convict when forensic evidence is neither necessary nor available. To counter the CSI effect the easy answer is to just send everything to be tested, and trust me, I have sent a little bit of everything to the lab over the past 18 years. But, is that always the best thing for the case? When left to play a high stakes guessing game as to what evidence to collect, what evidence to test and what tests should be done to that evidence, I've found that a little communication goes a long way.

When I sent everything, I found out that the lab has limits on certain tests. At first I thought the limits were a huge roadblock for me, but later I learned that they were only standards set up by the lab to attempt to focus on the probative and meaningful evidence in the case. Once I took the time to explain my case to the analyst we were able to work out what evidence really needed to be tested or, depending on the case circumstances, I gained approval to expand the number of items tested. There are many occasions where the lab personnel just needed more information than I had put on the lab request form. There were many other occasions where what the prosecutor and I were asking for was unrealistic, but I had no idea until I discussed the case with a lab analyst. I learned the best way to handle cases was to involve both the lab personnel and the prosecutor at each step so everyone was on the same page.

I realize now that the best way to manage a case is to check my ego at the door and to admit that I do not have all the answers. I have learned a lot about how to properly work a case by taking the time to listen to and learn from the people in the other disciplines, such as laboratory personnel, medical examiners and prosecutors. Through experience I have learned never to use the words "my case" as I'm much more likely to succeed when I consider it "our case". If you are submitting evidence to the lab, you might also adopt the philosophy of looking at it as "our case". We all do separate, but equally important jobs that are designed to achieve the same goal. We'll have better success in achieving that goal as a team.

## FAQ's

**Q:** Why does the **drug** chemistry section no longer perform quantitative analysis?

**A:** The only drugs with penalties that differ based on weight in Kentucky are cocaine, methamphetamine, heroin, and marijuana. [KRS 218A.010](#) defines cocaine, methamphetamine and heroin and as "a substance that contains any quantity of (the listed drug)...", and KRS 218A.010(21) defines marijuana as "...all parts of the Cannabis plant or "...any compound, mixture, or preparation which contains any quantity of these substances.". These definitions in Kentucky law preclude the need for quantitative analysis. The cost and labor involved in a quantitation can be as much as a 10-fold increase over a standard identification. For this reason, along with the lack of judicial consequence, the laboratory decided to suspend quantitative analysis in 2014. If a drug case will be tried in federal court and requires quantitation, please speak with the associated federal law enforcement agency (DEA, FBI, ATF) to obtain a quantitative analysis.

**Q:** When a **drug** field test kit is used by an officer is it necessary to submit that kit to the drug chemistry section?

**A:** No, in fact, field test kits should not be submitted to the drug section of the laboratory. Several of the kits contain acid which, if spilled during transit, could destroy the drug evidence prior to analysis.

**Q:** When submitting a syringe to the **drug** chemistry section is a letter from the prosecutor necessary?

**A:** No, the drug chemistry section no long requires a letter for such submissions to be accepted.

**Q:** Can the laboratory destroy **evidence** submitted, if the agency does not want it back?

**A:** No, the laboratory does not routinely destroy evidence. with the exception of toxicology kits. Please make a point to check with the evidence custodian any time you visit the laboratory so that evidence submitted by your agency may be returned. See also destruction of evidence in the [October 2014](#) newsletter (Legal Notes page 5), which explains the significance of [KRS 524.140](#) (2).

**Q:** How should **evidence** items be sealed when delivered to the laboratory?

**A:** Proper sealing involves placing the entire item into the container such that it can be completely sealed. The opening should be secured with evidence tape and the sealer's initials placed across the tape.

## What's New at the Lab?

### New DUI Kit

The toxicology section has a new DUI Collection Kit format coming out. There are a few notable differences. First, there will no longer be a urine bottle in the kit contents. Due to new instrumentation, urine submissions are no longer needed for standard DUI cases. Second, there are two gray stoppered collection blood tubes and only one lavender. Please fill out the tube labels completely as you have done in the past. Finally, there are only two options on the Investigating Officer's Report. \*Please check the alcohol box, if only alcohol is suspected. \*\*Please check the drug screen box, if drugs are suspected to be involved and specify any drugs that are believed to be present. Both boxes can be checked, if you are unsure which test you need performed. If you have any questions, please contact Lauren McCormick ([lauren.mccormick@ky.gov](mailto:lauren.mccormick@ky.gov)) or the Central Laboratory Toxicology Section.

INVESTIGATING OFFICER'S REPORT	
NAME OF SUBJECT:	_____
OFFENSE:	_____
DATE OF INCIDENT:	TIME: _____ AM/PM
COUNTY:	_____
INVESTIGATING OFFICER:	_____
DEPARTMENT:	_____
DATE BLOOD DRAWN:	TIME: _____ AM/PM
FACILITY WHERE DRAWN:	_____
BLOOD DRAWN BY:	_____
CASE OR CRITCON NO.:	_____
LAB NO.:	_____
WAS SUBJECT GIVEN BREATH ALCOHOL:	<input type="checkbox"/> YES <input type="checkbox"/> NO
IF YES, RESULTS:	_____
CHECK APPROPRIATE BLOCKS	
<input type="checkbox"/> ALCOHOL	_____
<input type="checkbox"/> DRUG SCREEN (PEPDT)	_____
CHAIN OF POSSESSION	
RECEIVED FROM:	_____
BY:	_____
DATE:	TIME: _____ AM/PM

### New Breath Alcohol Instrument

After several years and a number of speed bumps, the KSP Breath Alcohol Maintenance Section has finally begun to deploy new instruments into law enforcement facilities across the state. The Intoxilyzer® 8000 is now being rolled out slowly and will eventually replace the Intoxilyzer® 5000EN.



We began evaluating the instruments in 2008. It took several years to get the specific hardware and software required to provide the best version of the product. As of February 20, 2015 there are approximately twenty three Intoxilyzer® 8000 instruments in use across the Bluegrass, with fourteen more scheduled to be put into use during the period of March 9, 2015 through May 31, 2015. We are moving them out slowly to allow agencies the chance to complete their training. After May 31, we will then roll out phase 2 which will include approximately twenty Intoxilyzer® 8000s. By then we will have a better idea of the needs of the Commonwealth. So far, the initial deployment has gone smoothly. Hopefully things will continue to go well and we will be able to purchase more instruments in the coming years. For more information contact Stuart Mullins.

## The DNA Database— What It Is and Isn't

The Combined DNA Index system (CODIS), commonly referred to as the DNA Database, is an FBI based program which houses crime scene and offender DNA profiles. These profiles are compared to one another in hopes of making links between cases and offenders or between cases; all in an effort to aid unsolved investigations. The DNA Database is not a giant repository of suspect standards used for direct comparison to cases. An offender sample linked to an unsolved case is provided only as an investigative lead.

The Kentucky law which established and mandates the DNA database is [KRS 17.175](#). This law dictates the type of samples allowable in the Kentucky database—**convicted or adjudicated offenders, crime scene specimens, unidentified human remains, missing persons, and close biological relatives of missing persons**. This list is all inclusive; if a sample type is not listed here, it cannot be maintained in the database. Types of samples not listed include suspect, elimination, victim or arrestee samples, so these cannot be included in the Kentucky DNA database.

Please note that each state and the Federal government have their own database dictated by their own state or federal law. While Kentucky does not currently have a law allowing the data basing of arrestee samples, several states do, including the Kentucky border states—Illinois, Missouri, Ohio, Tennessee and Virginia. All offender samples included in the database are collected either by the Department of Corrections or the Department of Juvenile Justice. No law enforcement agencies are authorized to collect samples from offenders, and no one in Kentucky is authorized to collect samples from arrestees for the purpose of adding them to the DNA Database. That's the law!

Offender DNA samples are not used for direct comparisons to forensic cases and are not intended for use in court. The only purpose of the DNA database sample is to provide an investigative lead. When a match occurs between a case and an offender the officer then works with the Commonwealth's Attorney to obtain a standard from the individual. It is this sample that is compared to the case evidence and a report with a statistical interpretation provided for court purposes. The presence of an offender sample in the DNA Database does not eliminate the need for collection of a suspect's standard.

Currently the Kentucky DNA Database houses over 100,000 offender profiles and reports over 200 links between offenders and unsolved cases per year. If you have questions about the DNA Database or the types of forensic samples allowed in the DNA Database contact Stacy Warnecke.

**Laboratory Management**

Major Eddie Johnson, Central Lab ([eddie.johnson@ky.gov](mailto:eddie.johnson@ky.gov))

Lt. Mark Mayes, Western Laboratory ([mark.mayes@ky.gov](mailto:mark.mayes@ky.gov))

Sgt. Rodney Wren, Eastern Laboratory ([rodney.wren@ky.gov](mailto:rodney.wren@ky.gov))

Laura Sudkamp, Laboratory System Director, Central Laboratory ([laura.sudkamp@ky.gov](mailto:laura.sudkamp@ky.gov))

**Laboratory phone numbers and contact info**

**Western Laboratory**, 270-824-7540

David Hack, Laboratory Director ([david.hack@ky.gov](mailto:david.hack@ky.gov))

**Jefferson Laboratory**, 502-426-8240

Julie Ferguson, Laboratory Director ([julie.ferguson@ky.gov](mailto:julie.ferguson@ky.gov))

**Northern Laboratory**, 859-441-2220

Jeanna Oxenham, Laboratory Director ([jeanna.oxenham@ky.gov](mailto:jeanna.oxenham@ky.gov))

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Beverly Wagoner, Laboratory Director ([Beverly.wagoner@ky.gov](mailto:Beverly.wagoner@ky.gov))

**Eastern Laboratory**, 606-929-9142

Larry Boggs, Laboratory Director ([larry.boggs@ky.gov](mailto:larry.boggs@ky.gov))

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**SUGGESTIONS WELCOME!!**

Please contact [stacy.warnecke@ky.gov](mailto:stacy.warnecke@ky.gov) with comments or suggestions.

**QUICK LINKS**

[KSP Lab website \(previous newsletters\)](#)

[Physical Evidence Collection Guide](#)

[Combined DNA Index System \(CODIS\)](#)

*Scientific Working Groups...*

[SWGDM \(DNA\)](#)

[SWGgun \(Firearms\)](#)

*Need BEAST access or have questions about BEAST? Please see newsletter articles:*

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*OR contact*

[Lisa Troutman](#) at the Central Laboratory