Oklahoma State Bureau of Investigation

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OSBI Ceremony Celebrates Hard Work

December 11, 2013, OSBI employees gathered at the National Cowboy & Western Heritage Museum to celebrate the outstanding work preformed during the year. Several dozen awards were presented during the banquet. Emily Sutton, meteorologist at KFOR-TV, served as emcee. Lt. Governor Todd Lamb presented the highest awards: Agent of the Year, Criminalist of the Year, and Non-Commissioned Employee of the Year.

Agent Mark Wood was honored for his two-year-long investigation into an auto theft ring operating in Central Oklahoma. During the investigation, it expanded to include gun running and drug smuggling. Wood built solid cases on more than 60 defendants.

OSBI Dir. Stan Florence, Criminalist Meghan Jones, Lt. Gov. Todd Lamb

Meghan Jones was awarded Criminalist of the Year for her continued quality and quantity of work. Jones completed 519 latent print cases, which is more than double the casework a latent print examiner is expected to produce. She also validated new procedures and equipment. As the lead trainer for the new employees in her unit, Meghan reorganized the training manual and incorporated several new techniques into the program.

2013 Non-Commissioned Employee of the Year was awarded to Julie Garrett, Physical Evidence Technician Supervisor. Julie identified areas that had not received the focus necessary to comply with accreditation standards. To correct that issue, she helped develop a new training manual for all evidence technicians. This new manual took intense focus and an immense amount of work. Julie also worked diligently on the Cold Case Project by researching old cases to determine what evidence is available, physically locating the evidence, itemizing it in the database, and preparing it for in-house analysis or to be outsourced.

All of the OSBI employees honored at the ceremony are highly motivated, professional, and serve as examples of the high quality work OSBI strives to maintain.

Emily Sutton /KFOR-TV

Uncertainty of Measurement Coming to the OSBI

By Heather Schafstall/Drug Analyst & Erin Henry/Criminalistics Admin. over Accreditation

"Uncertainty analysis in the field of forensic science…involves the procedures, methods, and tools of systematically accounting for every factor contributing to such uncertainties. The forensic purpose of uncertainty analysis is to evaluate the result of a particular measurement, in a particular laboratory, at a particular time; and as a consequence of knowing that such measurements are not totally accurate, to assign assumptions and approximations to those results."[1]

Since 2010, the OSBI Controlled Substances, Toxicology, and Firearms Units have been preparing for implementation of uncertainty of measurement. As part of the Criminalistics Services Division accreditation to the American Society of Crime Lab Directors/ Laboratory Accreditation Board (ASCLD/LAB) - *International* program, these three units will be required to report uncertainty of measurement on reports when the value "impacts evaluation of a specification limit stated by a regulatory body, a statute, case law or other legal requirement."[2] At a minimum, the OSBI CSD will be required to report uncertainty for the weights of controlled substances, the quantitation of alcohol and drugs in blood, and the barrel length of firearms, when the measurement result falls near the statutorily defined limit (e.g. trafficking levels of controlled substances, 0.08 g/dL for DUI cases, etc).

Error vs. Uncertainty

Uncertainty of measurement is a concept based on metrology (the science of measurement). In essence, every measurement assigns a value to an object, such as a weight to a bale of marijuana. For **every** measurement, there is also some variability ("give or take") associated with the measurement result. Variability in measurement results can occur based on the equipment used for measuring and the measuring process. Using quality equipment, ensuring proper calibrations, and having trained, experienced analysts can reduce the amount of variability in the measurement, but it can never be totally eliminated.[3] Once the uncertainty of a measurement has been determined, it is reported along with the measurement result to provide more information about the measurement.

It is important to recognize that uncertainty of measurement is *not* error. Error is the difference between the "true" value and a measured value. However, the "true" value is unknown unless the item being measured is a traceable reference standard. Essentially all measurements in forensics are for items where the "true" value is unknown. As a result, "error" cannot be evaluated. Uncertainty of measurement is the process used to quantify the amount of variability in a particular measurement process.

An example of a reported uncertainty of measurement is as follows:

Item 1 – green leafy substance, net weight 25.6 grams +/- 0.2 grams with a 95% coverage probability.

In this example, the measurement result is 25.6 grams and the uncertainty of measurement is the "+/- 0.2 grams with a 95% coverage probability." What this means is that there is a 95% certainty that the true value for the weight of the green leafy substance falls in the range of 25.4 to 25.8 grams.

In other words, the uncertainty *is* a calculated interval, with a given level of confidence, that the true value falls within. The OSBI has always utilized various quality control methods (positive/ negative controls, calibration standards, etc) to ensure the reliability of results. The calculation and reporting of uncertainty of measurement is simply the newest quality control method used to communicate the reliability of measurement results.

To calculate uncertainty, the OSBI followed eight steps outlined in the Guide to the Expression of Uncertainty in Measurement (GUM). As part of procedure, the Controlled Substances, Toxicology, and Firearms units spent time evaluating potential sources of uncertainty, including equipment, calibration vendors,

K-9 Training Aids

By Kevin Kramer/Criminalistics Administrator over Chemistry Disciplines

The OSBI laboratory has been involved with K9 training aids, otherwise known as dog drugs, for several years. In recent years, the dispenser of these dog drugs has changed from the OSBI laboratory to the DEA laboratory. This change has led to confusion, for both the OSBI laboratory and law enforcement officers, on how to return and destroy used dog drugs.

While the DEA laboratory is the current dispenser of dog drugs, they do not accept the dog drugs when they are ready to be returned and destroyed. To help in this area, the OSBI laboratory has continued to assist Oklahoma law enforcement officers with the destruction of these training aids. Officers currently have two options to return used dog drugs.

Option #1 is for the K9 handler to return the dog drugs to their agency property officer. The property officer should sign the DEA 41 form indicating the issued dog drugs have been returned by the K9 handler. The agency property officer can then fill out the OSBI destruction form (http://www.ok.gov/osbi/documents/LABdestructForm050506.pdf) and submit the dog drugs for destruction to any OSBI laboratory. With this option, it is up to the agency to decide whether or not to verify the weights of the drugs being returned.

Option #2 is for the K9 handler to return the dog drugs directly to the OSBI laboratory. Dog drugs returned directly to the OSBI laboratory will need to be returned at the FSC Laboratory located in Edmond. It is recommended officers schedule an appointment with Penny Cooper, Steve Brookman, or Mistie Burris, who can be reached at 405-330-6724. Dog drug weights will be verified by the laboratory, and the DEA 41 form will be mailed to the K9 handler at a later date.

The OSBI laboratory remains committed to the support of law enforcement agencies throughout Oklahoma. Any questions concerning the return of dog drugs can be directed to Kevin Kramer, either by phone (405-715-9539) or email (kevin.kramer@osbi.ok.gov). This information will be posted to the OSBI website (www.ok.gov/osbi/) for future reference.

Measurements continued…

reference standards, and sampling techniques. Historical data was reviewed and research was conducted to ensure the reported uncertainty was correct. Providing the measurement of uncertainty will provide an additional level of quality by having evaluated the level of variability in our measurement process based on both the methods and equipment used.

Reporting of Uncertainty
Starting December 31, 2013, the OSBI will be required to begin reporting the expanded uncertainty with the coverage probability on Controlled Substances, Toxicology, and Firearms reports. It is anticipated that these labs may begin to include uncertainty on reports before the ASCLD/LAB-*International* deadline. Any questions regarding uncertainty can be directed to the Technical Manager for each discipline: Controlled Substances: heather.schafstall@osbi.ok.gov, Toxicology: matt.stillwell@osbi.ok.gov, Firearms: terrance.higgs@osbi.ok.gov.

[1] "Uncertainty Analysis in Forensic Science." World of Forensic Science. 2005
[2] ASCLD/Lab Policy on Measurement Uncertainty. ASCLD/LAB-International. 2013
[3] Bell, S. "A Beginner's Guide to Uncertainty of Measurement." Measurement Good Practice Guide. National Physics Laboratory. No. 11, Issue 2, 1999.

Surveillance Cameras For Home or Business

By Alan Salmon/OSBI Forensic Video Analyst

Nothing is more frustrating than having photos and videos of an important life event turn out blurry! A child's first steps only happen once! Sadly, the problem in these situations is usually not with the camera but with the operator. The opposite is true when it comes to surveillance cameras. Hopefully, images recorded on personal or business surveillance equipment will never be needed by law enforcement; however, if it is, imagine how frustrating it would to learn that the guy throwing a brick through the front window is just an indistinct blob. The quality of the equipment dictates the quality of the image. Careful research and planning are an essential part of the process.

Alan Salmon
OSBI Forensic Video Analyst

The first step is to determine the purpose for the equipment. Is it to document when a particular act occurred? To identify someone who committed a criminal act? Or is it as complex as trying to understand how an accident occurred? Thinking through the need for this equipment before a purchase can minimize headaches and disappointments.

Next, decide on a budget. In the world of surveillance equipment, cheaper is not always better. The primary goal is to get the best quality image possible for the best price. Do not be misled by a live video feed in a demonstration. Most consumers do not realize that images on the live monitor are **NOT** the same quality as the images being recorded by the digital video recorder (DVR). Instead, ask the salesperson to present an actual recording made by the system. Higher resolution images are important. For example, a 352 x 240 image is inferior to a 640 x 480 image. Currently, the best systems have 1920 x 1080 resolutions just like flat screen televisions. While television quality may not be necessary to meet the goals of an individual business or home owner, a minimum of 640 x 480 is a must for a digital video camera. Purchasing and then setting the system to the highest quality possible will result in better, more identifiable images. In terms of protecting personal and business property, quality equipment is worth the small additional expense.

The third consideration is installation. Many companies offer to install and maintain the equipment they sell. The convenience offered by this service is worth the extra cost for most people. However, it is extremely important to deal with a reputable company with solid references. The Better Business Bureau is a great source of information. Another option is to design and install a video system that is tailored to the unique needs of the area to be monitored. In this case, make sure the equipment has a "brand" (many cheap DVR's have no company name or country of origin displayed on the product) and the included instructions are written in English. Purchasing a system from a company with technical support in North America is a plus. Additionally, insure there is a convenient way to export video and images. Consider whether or not the DVR can export and play video files in a common format such as Windows Media Video or AVI. As a bonus, most newer DVR's include network capabilities and smart phone connectivity.

Once system requirements are narrowed and installation arrangements are made, camera placement becomes paramount. Even the best cameras available won't produce acceptable results if they are poorly placed. An example of poor placement is a camera installed behind an exit sign or other object hanging from the ceiling. It is also important to avoid placing seasonal decorations in front of a fixed camera. Not long ago, a holiday decoration obscured a bank camera's view of a robber's face allowing him to escape identification. Likewise,

placing a camera on the ceiling will not capture good images of a person's face, especially if the person is wearing a cap. Good camera placement, even with lower resolution cameras, can produce acceptable results. The best guide is good, common sense. However, it is important to remember that regardless of camera quality or placement, a face, object, or license plate is not identifiable unless it fills at least fifteen percent (15%) of the camera's field of view.

When the system is ultimately in place, learn to use it right away. Record and export a video from the DVR to play on a computer. Some DVR's require a special program, or proprietary player, in order to playback the recorded video. If the system uses a proprietary player, consult the supplier for information on how to obtain the needed files. For property owners with a system currently in place, it is essential to maintain and monitor the system regularly to avoid learning the system was not working after an incident occurs.

Whether buying a new system or tweaking an existing system, reflect on the purpose of the recordings, compare and contrast systems, seek out a reasonable price and reputable company, and most of all, consider where to place the cameras for maximum results. These steps will help a business or homeowner choose a surveillance system that will best meet their need.

REFERENCE:
Section 4, Scientific Working Group on Image Technology, Recommendations and Guidelines for Using Closed Circuit Television Security Systems in Commercial Institutions, https://www.swgit.org/pdf/Section%204%20Recommendations%20and%20Guidelines%20for%20Using%20Closed-Circuit%20Television%20Security%20Systems%20in%20Commercial%20Institutions?docID=48

OSBI Mourns Loss of Commissioner Fariss

OSBI is grieving the loss of Ted Fariss, Chairman of the OSBI Commission. Fariss, a farmer and rancher in Dewey County, was first appointed to the Commission in 1994 by Governor David Walters. In 2001, Governor Frank Keating re-appointed Fariss to the Commission for a second term. Governor Brad Henry re-appointed him to a third term in 2008. Fariss was voted by other commission members to chair the group in 2000. He remained chairman until his death Thursday, January 9th. "Ted Fariss was a dedicated member of the OSBI Commission and a champion for law enforcement" Stan Florence, OSBI Director, says. "It was an honor to work with him, and he will be greatly missed."