It was with some trepidation that I asked SLD Deputy Director, Twila Kunde, to send out a customer satisfaction survey to the 384 clients, colleagues and partners on our external mailing list in September 2013. When we sent a similar one out 5 years ago, we only received 20 responses – a response rate of approximately 5% - and they were largely negative in their ratings of SLD performance. However, both because our College of American Pathologists accreditation requires that we conduct a survey periodically and also because we feel that it is important to get this feedback from our customers and colleagues, we sent it out again (and will do so every 2 years from now on). To our delight- and great relief- the response rate and results with the current survey were much different than they were 5 years ago.

Of the 384 surveys we sent out, we received 131 responses, a rate of 34%. Unfortunately, because we had no control over who responded, the number of responses for some areas of the lab, e.g. environmental and dairy testing, were too low (as low as n= 1 or 2) to allow us to draw any conclusions. Aside from those instances, though, enough people responded for most of the programs/Bureaus to give a general sense of 1) does SLD meet the needs of the programs we serve, 2) how are our turnaround times for testing perceived by our clients, 3) how do clients perceive our professionalism, knowledge, communications, and courtesy. Evaluations were given on a scale of 1.0 – 4.0 (poor- excellent).

To summarize the results very briefly, evaluations of the courtesy, knowledge and professionalism of SLD staff were very positive (3.7/4.0) as were evaluations of the clarity and quality of SLD communications between staff and clients (3.4/4.0). Program support services scored well in terms of timeliness and meeting client needs (3.6/4.0). Infectious disease programs appear to meet the expectations of timeliness and the needs (3.8/4.0) of the client programs. Toxicology services offered by SLD scored very high in both timeliness of services (3.5/4.0) and in how well SLD meets the needs of its clients’ programs (3.6/4.0). Environmental services provided by SLD generally scored fair to good terms of timeliness (2.6/4.0) and meeting client program needs (3.0/4.0). However, because of the very low
numbers of respondents in the environmental area- as low as 1 or 2 -we really cannot assume that the sample of respondent was representative of our environmental clients as a group.

While we realize that the survey has many limitations, it does provide valuable feedback from those whom we serve and, hopefully, will provide us all with food for thought as we seek to continue to improve performance and meet the needs of our customers. Overall, I am quite pleased with the results... and I will be much more enthusiastic the next time we conduct it!

The SLD Hosts Delegation from Yemen
David Mills, Ph.D., Director

On September 9, 2013, SLD had the pleasure of hosting a delegation from Yemen as part of a Sandia National Laboratories cooperative program. The 9 visitors from the Yemen Ministry of Defense and their 4 hosts from the U.S. federal government were interested in learning how the State of New Mexico coordinated and, in some aspects, consolidated public emergency preparedness activities to enable it to efficiently respond to physical, biological, chemical and agricultural emergencies. The Yemeni guests toured the laboratory facilities of both the SLD and the NM Department of Agriculture Veterinary Diagnostic Services (VDS), which is co-located with SLD in the New Mexico

Dr. David Mills demonstrates the use of a glovebox to examine threat samples in SLD’s All Hazards Receiving Facility

Scientific Laboratory facility, and talked with staff who explained the nature of their work and the physical requirements of the facility in which the work is performed.

They also attended series of lectures by staff of the SLD, the VDS and the Department of Health Epidemiology and Response Division. Lecture topics included the missions and roles of the various state agencies and the interagency coordination of responses to emergencies within the state. Also presented was how the state, local and private clinical, environmental, food, animal and plant testing laboratories in New Mexico coordinate with their federal counterparts at the Centers for Disease Control and Prevention, the Food and Drug Administration, the U.S. Department of Agriculture and the U.S. Environmental Protection Agency in what is known as the Integrated Consortium of Laboratory Networks.

The organization of public laboratory services in New Mexico, utilizing consolidation, co-location and cooperation of services, is relatively unique among the states within the U.S. and has been recognized as an effective and efficient approach to the offering of state laboratory services. Because of this, countries exhibiting similar demographic characteristics- large geographic area with small populations located in a few urban areas separated by large areas of rural or frontier areas- are interested in learning about the New Mexico model as they look to improve their government services.

LEAN® in the Laboratory
Twila Kunde, Deputy Director

Recently, several staff from the Scientific Laboratory Division attended either a two-day or a two-week course on LEAN©. Do you remember when everyone looked to Toyota to understand how to ‘build’ efficiency in manufacturing? These methods that have been incorporated throughout other industries in recent years, including health care, are now being implemented in public health laboratories (PHL). The goal of LEAN©, Six-Sigma, or any of the many variations, is to reduce cost, improve quality, eliminate waste and reduce the turn-around times for

(continues on page 3)
sample analysis and result reporting. The challenges of implementation of LEAN© in public health laboratories include:

1. PHL perform many specialized tests that are of critical importance to public health and safety, but that may not happen very often. This means staff must maintain analytical proficiency for events that may (or may not!) happen once or twice a year. This includes maintaining supplies that may outdate quickly.

2. PHL need to be able to shift testing ‘gears’ rapidly to accommodate for outbreaks, events, or exposures, while still continuing to analyze the more ‘routine’ but equally critical tests. This interferes with the ability of the laboratory to establish set patterns of workflow beyond the short term.

3. Due to requirements for laboratory certification and accreditation (SLD is accredited by five different external bodies for its analytical activities and has several licenses in addition), scientists must demonstrate proficiency in a testing method before being allowed to run samples. This means if the laboratory has to respond quickly to a pandemic influenza outbreak or a flood event, only those who have demonstrated and maintained proficiency can perform the analyses.

Laboratories traditionally track samples, turn-around times, and hold times. However, LEAN© analyzes steps in the process that have an effect on the overall result which is a new way for the PHL to be looking at the picture. How has the SLD used LEAN©? Using a targeted process approach, several sections of the SLD have either requested or been offered the use of some of the LEAN© tools. Here are some examples:

The Toxicology Drug Confirmation Section used LEAN© to evaluate its very complex case review procedure for forensic specimens. Following completion of a workflow analysis and with input from both the analysts and the supervisors, they were able to streamline the review process and reduce the backlog of cases that were analyzed but awaiting review prior to release of the test results. Elimination of this bottleneck in the workflow reduced the overall turn-around times on those cases and helped clear the backlog.

The Organics Section Supervisor in the SLD’s Chemistry Bureau started reviewing their result turn-around times for environmental regulatory testing even before the LEAN© program was brought into the lab…for some folks, efficiency is just in their blood! He evaluated the cost and time it took to either hold samples until a full batch was ready to run versus the cost and time to run samples at regularly scheduled intervals. In doing so, the Organics section reduced the turn-around times for its drinking water samples from 45 days to 28 days or less.

Another example also occurred in the Toxicology Bureau. The staff needed to find a way to reduce the number of expedited supply orders. To do so, they worked with the SLD’s Purchasing Supervisor to review their inventory process and developed a centralized, organized inventory, as well as developing an ordering trigger. While there is not yet sufficient data to determine if the number of expedited orders has declined, the sections like the process because they now have a standardized ordering process and can see how much inventory is in stock.

Several other laboratory sections have already begun to, or will soon, evaluate their work flow to determine what steps add or detract from the value of the product. This can include how much distance does the analyst walk in order to complete his/her tasks and then questioning whether supplies can be stored closer or can analytical instruments be moved to make the process more efficient and reduce unproductive time. This includes determining where chokepoints are in the workflow process, such as delays that result when sample submission forms are not completed or samples labeled properly. It will also involve developing strategies to motivate submitters to improve compliance.

The LEAN© initiative also includes developing new monitors and core indicators to track its progress in eliminating waste in its work processes. The SLD has always maintained quality monitors and turn-around time monitors, but using monitors to track progress within the system is a new step for managers. Needless to say, everyone involved is learning a lot about themselves as the process advances. The SLD will continue its foray into the LEAN© world. Hopefully what this means for you, our customer, is that the entire process from sampling to getting results is done more efficiently with less angst for all!
White Powders in the News: What Happens to Them?
Pascale Leonard, Ph.D., Supervisor, Molecular Biology and Patrick Dhooge, Ph.D., Supervisor, Chemical Terrorism Analytical Response

You’ve just arrived home after work and grabbed your mail. As you sort it, you come across a hand-addressed envelope. You are curious, because who writes letters anymore? You open the envelope and pull out the letter. As you do, white powder falls out onto your hands and disperses in a fine haze. You realize that this may have become the worst day of your life. The letter says “You asked for it, now you’re going to pay.” What do you do next?

Most people occasionally see on the news that a substance, usually a white or off-white powder, has been sent to someone; this occurs all over the United States on a regular basis. In many of these cases people call 911. What happens next is an ever-evolving and improving incident response involving multiple agencies and many people behind the scenes.

First steps
Typically, security personnel and/or local law enforcement will come to you and determine how best to proceed. A risk assessment is performed to help determine whether the incident is a credible threat. Ensuring your safety, minimizing the number of people exposed, and preventing contamination of the environment is foremost in the responders’ minds. Immediate actions may include removing and bagging contaminated clothing, followed by thorough washing if possible. If deemed a credible threat, in many instances a sealable plastic bag will be used to collect as much of the powder and evidence as possible. Decontamination of the outside of this bag, followed by placing it into a second bag whose outside is then also decontaminated, is the preferred procedure. A field pre-screen is performed by the first responders, because the NM Department of Health Scientific Laboratory Division (SLD) asks that samples of unknowns delivered to the lab be at least pre-screened in the field, and found to be negative, for explosives/explosive devices and significant levels of radioactivity. This is not only for the safety of the laboratory analysts, but also for the safety of the law enforcement personnel transporting the sample to the SLD.

First responders are in constant communication with appropriate officials, including the State Emergency Operations Center and the Federal Bureau of Investigations (FBI). Ideally, both the local FBI office and the NM Department of Health’s Epidemiology and Response Division (ERD) will be two of the first organizations notified; ERD is responsible for activating the SLD. On occasion the NM National Guard’s 64th Civil Support Team will assist in sampling, screening and packaging the sample. The FBI or police then bring the sample to the SLD.

Laboratory Response Network
The SLD is a member of the Centers for Disease Control and Prevention’s (CDC) Laboratory Response Network (LRN). The public health laboratories of every US state and territory, and some of the larger US municipalities, are tasked by the CDC with evaluation of unknowns that have been deemed credible threats by the FBI.

This is chiefly because of the threat of bioterrorism, which the CDC recognized even prior to the Amerithrax event of 2001, in which anthrax was delivered to several individual via the mail. The response effort has evolved to include an “all-hazards” approach to unknowns. The SLD works closely with the FBI Special Agent for Weapons of Mass Destruction, the ERD, the Civil Support Team, and the CDC to evaluate and investigate potential radiological, chemical, and biological threats to the public.

Significant improvements to the protocols for public response have been made since 2001. Federal and local law enforcement, hazardous materials response teams, departments of health and officials responsible for protecting the public treat every occurrence very seriously. The 2004 Intelligence Reform and Terrorism Prevention Act made it a federal offense to send even a hoax letter or package to anyone; significant prison time can result. State and local public health laboratories have been funded by the CDC to build a physical infrastructure capable of receiving and testing “all-hazards” unknown samples using LRN-approved methods. The personnel,
training, facilities, equipment, and protocols for responding to and testing unknowns have been greatly improved and are largely standardized throughout the LRN laboratories. The SLD treats samples of unknowns as criminal evidence; they are kept in controlled access areas and subject to evidentiary chain of custody.

SLD Processing of the Sample
The SLD has dedicated facilities for handling and testing all-hazards samples. Air-tight glove boxes under negative pressure, biological safety cabinets in a Biosafety Level 3 high containment facility (BSL3), and chemical fume hoods are used to isolate and handle samples in both the SLD’s all-hazards suite and BSL3 Laboratory. Advanced laboratory air filtration and waste water decontamination systems ensure that none of the threat sample contaminates staff, the laboratory building or the outside environment, and that no spores from the environment cause a false positive result for a sample. A specially trained team of chemists and biologists, on-call 24/7, performs the sample handling and testing. SLD screening personnel take high resolution digital photographs for documentation and to evaluate for criminal evidence.

If radioactivity levels are deemed to be too high to safely work with the sample, it is isolated in a lead container until it can be picked up by a federal facility that can safely handle radioactive materials. If radioactivity levels are suitably low, the sample is subjected to a chemical screen to attempt to identify any significantly poisonous substances. The screen includes tests for corrosive and reactive chemicals, chemical warfare agents, toxic industrial chemicals, and common poisons. A portion of the sample is then scanned using Infrared and Raman spectrometry to attempt to identify its bulk composition and the possible presence of chemical poisons. The FBI, the ERD, and other appropriate parties are notified of the chemical and radiological screening results as soon as they are completed, and then subsequently notified of the initial biological testing results as soon as they are completed.

If no significant radioactivity or obviously poisonous substances are detected, aliquots are taken and packaged for biological testing. The glove boxes incorporate “dunk tanks” where sealed aliquots can be safely removed through a bleach solution that will biologically decontaminate the outside of the aliquot package. The sealed aliquots are then transferred into a biosafety cabinet where they are readied for testing using rapid molecular methods such as the Polymerase Chain Reaction (PCR) techniques, that amplify genomic DNA, and by culture on solid media. PCR is highly sensitive and fast. Within a few hours the lab can determine whether any of the targets it is looking for are present in the sample. If a pathogen that is not targeted by the CDC assay is used in a bioterrorism event, PCR will not detect it. However, microbiological culturing, which takes at least 24 hours, can detect almost any bacterium; that is why culture is considered the gold standard for biological testing. The culture plates are incubated for a week, with daily inspections, to confirm that no harmful organisms are present in the unknown. The FBI, the ERD, and other appropriate parties are kept informed on the results of the plating tests.

Until biological testing is complete, the sample remains isolated in the glove box under negative pressure. The SLD is capable of performing much more detailed chemical analyses of samples if needed. Once a sample has been cleared for harmful biological materials, it can be analyzed by a variety of mass spectrometric techniques to detect extremely small amounts of chemical substances that may be poisons or may help identify the source of the unknown for criminal investigators. Samples that have been cleared by the chemical/radiological screening and the biological testing are sealed up and removed from active containment, although they are still handled as potentially hazardous materials. Usually, the samples are retrieved by the FBI or other law enforcement, to be used as evidence in any criminal prosecutions and sent to FBI headquarters for forensic testing.

It may take several years for a case to come to trial if the FBI chooses to pursue a person suspected of an act of terrorism; for this reason, all cases are heavily documented.
Analytical request forms contain the first information being conveyed to the laboratory regarding the specimen/sample, the patient/sample location and what is being asked of the laboratory to do. The request forms are designed to provide this information to the receiving area of the laboratory in a concise manner and, as such, are the backbone of sample-processing from start to finish. When a form is incomplete or filled out incorrectly, it delays the submission process and could possibly compromise the desired results, if not cause the specimen or sample to be rejected outright.

The Scientific Laboratory Division provides multiple forms for its specialized testing. There are the General Clinical Request Form for all specimens submitted for infectious disease testing on human specimens, the web-based interactive Chemistry Bureau Analytical Request Form for all environmental chemistry analyses, the Water Analysis Request Form for water microbiological testing, the Food Analysis Request Form for analysis of foods, and the Veterinary/Rabies Submission Form to be used for all animal-specimen testing. All are found on our current web site (http://sld.health.state.nm.us/) and are user friendly.

All SLD forms allow for multiple requests on one form and thus they are often referred to as “universal forms”. However, although the same General Clinical Request form for example, can be used to submit serum or sputum specimens, each type of form clearly states “one form per sample”. When one form is submitted for several specimens with differing specimen sources, etc., problems occur while trying to sort out which test is associated with which specimen. When each specimen is accompanied by its own request form, correct specimen log-in, accessioning and prompt delivery to the testing laboratory is assured.

When a form is received with discrepancies, errors, legibility problems, or incomplete data such as date of collection or specimen source, Specimen Receiving personnel must track down the needed data by contacting submitter or collector and ask for corrections in writing. No incomplete data can be supplied verbally as this information must be legally defensible. This typically requires the missing data to be faxed or emailed, as regulatory requirements dictate. This corrected data are added to the record of the submission and retained. All of this is a time consuming process, both for laboratory personnel as well as the busy clinical and environmental program staff who submit the samples. If missing information is not obtained in a timely manner, typically three working days for biological specimens and one working day for environmental submissions, the requested analysis can be cancelled.

As a whole, we at the SLD are dedicated to our patients and our clients; therefore every effort is made to rectify the situation in a timely manner, so that results are not impeded.

As a submitter or specimen/sample collector it is essential that care be taken when filling out request forms to ensure the integrity of the data received is not only accurate and legible but also placed in the pertinent field on the form. Every area of the form has a purpose and care has been taken to define the use and purpose of each field. This enables all of us, both the laboratory analysts and our submitters who are equally committed to protecting the health of New Mexico citizens, to clearly communicate our requests and expectations in this partnership. When quality data is received and correctly interpreted, the outcome is confidence in the results returned to the client.

Why it is Important to Fill Out Test Request Forms Correctly
Barbara Dobie, Supervisor, Specimen Receiving

Pictured above: Example of the Veterinary/Rabies Submission form used by the Scientific Laboratory Division.
Examples of submission forms used by the Scientific Laboratory Division. All forms can be found on the website at: http://sld.health.state.nm.us/
In celebration of National Disability Employment Awareness Month, Adelante Development Center, a nonprofit supporting people with disabilities, honored local businesses for their support in helping to provide employment opportunities for New Mexicans with disabilities.

The award winners include: Accurate Custom Injection Molding, Albuquerque Convention & Visitors Bureau, Bernalillo County MDC, New Mexico Scientific Laboratories, Sprouts Farmers Market (Alameda Blvd. & Corrales Rd.), and the University of New Mexico. Each business was recognized for its long-term support of employment for people with disabilities and for their utilization of Adelante’s social enterprises, businesses which operate with a dual mission; to provide quality business services while employing people with disabilities. Through Adelante, people with disabilities provide assembly, packaging, mailing, scanning, shredding, and facilities maintenance services for local companies and government entities.

The support of the business community is important in addressing the high unemployment rates of people with disabilities. In the United States, the unemployment rate for people with disabilities is over 70 percent, and 27% of working-age Americans with disabilities live in poverty, compared to 11.9% of those without disabilities. Nearly 10% of working-age people in the U.S. have a disability, which they have been born with, or may have because they suffered an injury or a debilitating illness. That impacts the economy because 18.3 million people make up a large pool of potentially valuable employees. Adelante is addressing this issue by employing over 350 people with disabilities directly. In addition, Adelante helps over 130 job seekers with disabilities each year connect to local employers through our EmployAbility program and as an Employment Network for the Social Security Ticket to Work program. Adelante’s payroll this year included over $1.8 million dollars for employees with disabilities.

National Disability Employment Awareness Month is organized nationally by the AbilityOne Program, whose mission is to provide employment opportunities for people with severe disabilities by providing goods or services to the federal government at a fair price. Adelante is part of the AbilityOne network of agencies, known as SourceAmerica, and knows that when people with disabilities are employed, they have greater independence, can contribute to society as taxpayers, and reduce their dependence on government support. To research the business services available through Adelante and to support employment for people with disabilities, visit www.AdelanteEnterprises.com.

For more information contact:
Jill Beets, VP of Marketing & Communications
Adelante Development Center
Desk: 505.449.4026
Mobile: 505.280.6209
SLD is located within the New Mexico Scientific Laboratories (NMSL) building

- Our address is: **1101 Camino de Salud, NE, Albuquerque, NM 87102.**
- The main phone number is: **505-383-9000.**

Here are the driving directions to the New Mexico Scientific Laboratories.

- From I-40 east or westbound, take the I-25 Southbound exit OR
- From I-25 southbound, take the Lomas exit (#225, under the Big I).
  - Go south on the Frontage Road to Mountain Road, turn left under I-25.
  - Make a left on northbound Frontage Road to Camino de Salud (first street on right).
- From I-25 northbound, take the Lomas exit (#225).
  - Go north on the frontage road past Mountain Road.
  - Turn right on Camino de Salud (first street after Mountain).

After turning onto Camino de Salud, the NMSL is the first building you see on the left.

**Visitors:** Enter the first entrance at the west end of the building (immediately after turning from Frontage Road). Visitor parking is in front of the building.

**Sample delivery/ Kit pick-ups:** Continue to the east entrance into the parking lot. Press “1” at the gate, and security will let you in. Drive around the back of the building to the SLD/OMI loading dock. Park in a designated “Sample Delivery” spot.

- **This is a secure facility, so you will need to ring the buzzer for admittance.**
- **Please bring a picture ID for admission to building.**

Please see our website for updates and a map to the facility. [http://sld.health.state.nm.us/](http://sld.health.state.nm.us/)