

WSP FLSB July 2012

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Crime Lab Division Materials Analysis Section

Highlights:

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- National DRE Conference
- Spice and Bath Salts
- Seattle Science Festival
- Case Studies
- WSP Civil Service Employee of the Year—Ms. Kathy Geil

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The Crime Laboratory Division provides forensic science analysis and training services to criminal justice agencies throughout the state of Washington in a variety of forensic disciplines. Two forensic sections within the CLD have recently been restructured. The Chemistry and Microanalysis (Trace) functional areas have merged to become the Materials Analysis section. The goals of the merger include:

- Meet continuing need for trace evidence services statewide
- Maximize use of existing resources to provide the best forensic services

- Instrumentation
- Facilities
- Forensic Scientists
- Maintain and increase trace analyses for the future
- Establish and maintain faster turnaround time for lab results
- Maintain high-quality forensic services

Because many of the tools, equipment, and instruments, and much of the training, skills and knowledge required in the Chemistry functional area are applicable to the Microanalysis functional area, the Division has now combined the two functional areas.



Shoeprint Impressions

The resulting Materials Analysis functional area will improve in resource utilization across the Division for both the Trace and Chemistry forensic disciplines. We can identify and maximize the strengths of our current workforce, instrumentation, and facilities, and better prepare for future customer demands.

National DRE Conference

On August 16-18, 2012, the Impaired Driving Section is assisting the International Association of Chiefs of Police (IACP) with hosting the 18th Annual Training Conference on Drugs, Alcohol and Impaired Driving also known informally as the DRE (Drug

Recognition Expert) National Conference at the Westin Hotel located in downtown Seattle, WA. This event is a national conference attended by over 800 law enforcement officers, prosecutors, toxicologists, and other criminal justice professionals

from the United States and Canada. The training focuses on strategies to remove impaired drivers from our nation's roadway. Feel free to contact the Impaired Driving Section at 206-720-3018 for more information about the conference.

Materials Analysis Subdisciplines

Materials Analysis Evidence

Scientists in Materials Analysis examine a wide variety of evidence, essentially most anything other than human body fluids (that would be the Division DNA section):

- controlled substances
- pharmaceuticals
- materials from suspected clandestine drug laboratories
- ignitable liquids in fire debris
- explosives and post-blast explosive residues

- selected poisons and chemical unknowns
- hairs and fibers
- glass (identification, but comparisons not currently available)
- paint, surface coatings, polymers
- impression evidence (shoe, tire, etc...)
- physical matches
- soils and botanical materials
- tape
- vehicle lamps
- miscellaneous materials



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Materials Analysis – Vehicular Homicide / Hit-and-Run

A husband and wife were walking along a road when the wife was struck by a vehicle, which fled the scene. Several vehicle parts found at the scene lead to the development of a suspect vehicle. A piece of a vehicle wheel well recovered at the scene was compared to the remaining plastic wheel well from the suspect vehicle. In addition, fibers recovered from the vehicle were submitted to compare to the victim's clothing.

A physical match of the wheel well plastic found at the scene with the wheel well plastic remaining on the vehicle linked the vehicle to the scene and fibers recovered from the vehicle provided a direct link between the victim and the suspect vehicle.

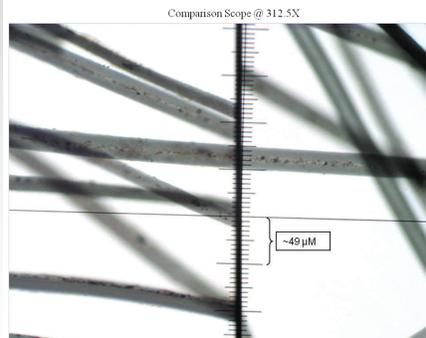
Physical match of the plastic and fiber match between the sweater and fibers collected from the vehicle

Forensic Links



Physical Match

Fiber Match



FBI Crime Laboratory

<http://www.fbi.gov/about-us/lab>

Computer Forensics

<http://www.computerforensicsworld.com/>

American Board of Forensic Toxicology

<http://www.abft.org/>

Association of Forensic Quality Assurance Managers

<http://afqam.org/wp12/>

Medic One Foundation

<http://www.mediconefoundation.org/>

American Red Cross

<http://www.redcross.org/>

Spice and Bath Salts

On June 20, 2012, the Senate and House agreed on a Bill which will add cannabamimetics, two substituted cathinones (also known as “bath salts”) and nine 2C chemicals to Schedule I of the Controlled Substances Act. This bill still requires reconciliation with the Senate and approval by the President before it can be enacted. RCW 69.50.201 gives the Washington State Board of Pharmacy authority to add these substances to the Uniform Controlled Substances Act thirty days following the

addition of these substances to the Federal Controlled Substance Act.

Submissions of cannabamimetics, substituted cathinones and other designer drugs continue to increase in all WSP Crime Laboratories. Acquisition and authentication of reference materials required for the conclusive identification of these compounds continues to be a challenge for the Crime Laboratory. Many of the current case samples contain compounds which are not covered by the

seven classes of synthetic cannabimimetics listed in WAC 246-887-100.



Photo by Jason Trigg

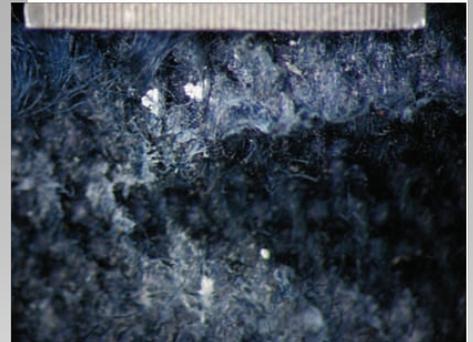
Case Study– Paint and Fiber Transfers

Margaret Barber, Forensic Scientist in the WSP Seattle Crime Laboratory, analyzed a hit-and-run vehicular homicide case for transfers between the victim's pants and the suspect's vehicle. The suspect denied hitting a pedestrian and stated instead that the damage to the vehicle was due to a collision with another vehicle. In examining evidence, Margaret noted blue transfers from the vehicle and found two types of embedded blue fibers - polyester and cotton - both similar in color and in microscopic and chemical characteristics to the fabric from the victim's pants. Additionally, on the victim's pants there were several smears of white substance. Among the smears there was a very small (1/10th millimeter across) three-layered paint chip. This paint chip was successfully cross sectioned and examined and found to be similar in microscopic, chemical, and elemental characteristics to the top three layers of the

Blue fibers recovered from the vehicle and white paint recovered from the pants helped to link the suspect vehicle to the victim's pants!

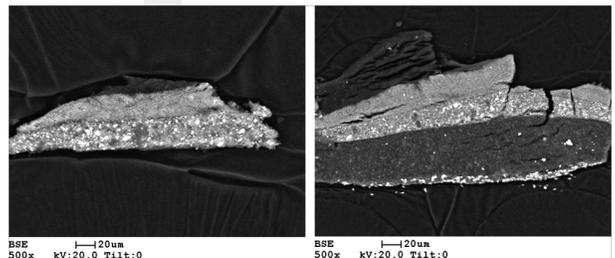
control paint collected from the vehicle.

Finding and successfully analyzing a very small fragment such as this demonstrates the value of trace evidence. Finding the correct general paint chemistry smeared on the pants is helpful, but also being able to show that the layers are each individually correct adds that much more weight to the findings. A two-way transfer of materials is strong evidence that this was the correct vehicle.



Paint chips on the victim's pants

SEM Photos of the paint chips



WSP Forensic Laboratory Services Bureau
<http://www.wsp.wa.gov/forensics/flsbhome.htm>

WSP FLSB Headquarters
210 11th Avenue SW
Olympia WA 98504
(360) 596-4120

Newsletter Contact:

George Johnston Phone: (206) 262-6005
2203 Airport Way S, Suite 250 Fax: (206) 262-6091
Seattle WA 98134 E-mail: george.johnston@wsp.wa.gov

NOTES:

Lab Request: With the new electronic RFL, there is no need for a second copy to be submitted with the evidence. A single copy is all we need; just submit that with your evidence and you are good to go.

Questioned Documents has made the move to the Spokane Lab! If you have QD evidence or questions, please contact the Spokane Lab at (509) 625-5401.

Forensic Service Guide: "Take extra caution when collecting evidence, especially the first responders to a scene. Use gloves and possibly face masks to prevent contamination of possible biological evidence. Take steps to avoid contamination of latent evidence, such as fingerprints, shoeprints, etc."

The inaugural Seattle Science Festival was held in June 2012, coinciding with the 50th anniversary of the 1962 Seattle World's Fair. This was the first science festival bringing together the Seattle region schools, universities, and businesses to celebrate the importance of science and technology to our youth. The Science Expo Day was Saturday, June 2 at the Seattle Center. The FLSB participated and featured numerous hands-on exhibits and demonstrations throughout the day. Twelve CLD and Toxicology staff graciously volunteered their Saturday to explain our work and science to many of the thousands of students and parents who enjoyed the festival.



Ms. Kathy Geil—2011 WSP Civil Service Employee of the Year



**2012 AFTE Conference
Buffalo, NY**

The Washington State Patrol Civil Service Employee of the year for 2011 is Ms. Kathy Geil. Kathy is a member of the Seattle Firearms Section and the CLD Crime Scene Response Team.

Kathy started in the CLD as a volunteer in the Microanalysis section in 2001. She was hired as a forensic scientist in 2002 and assigned to the Microanalysis Section. In 2004 she joined the CLD Crime Scene Response Team. Kathy transferred to the Firearms Section in Seattle in 2007 and has been a critical member of the section in helping to address case backlogs and training in firearms, as well as a primary investigator on the crime scene response team.

Kathy earned a Bachelors degree in Genetics from University of California-Davis and a Masters degree in Botany from the University of Washington prior to coming to the Crime Lab.



**Congratulations, Kathy,
Well deserved!!**