

Forensic Resources

North Carolina Office of Indigent Defense Services

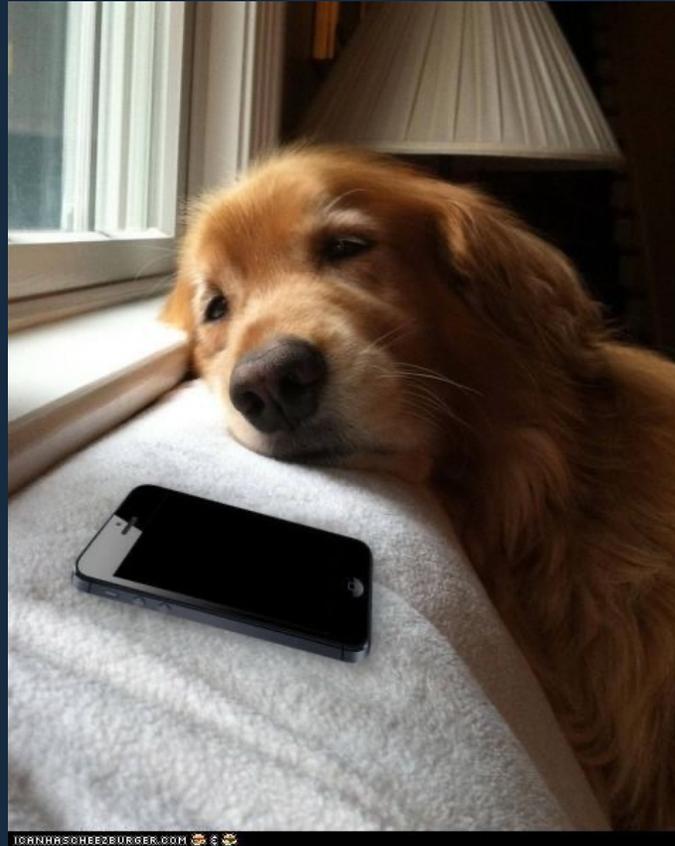
Helping North Carolina's public defense community understand forensic science evidence and achieve better outcomes for clients

Understanding Lab Reports and Challenging Scientific Evidence

Sarah Olson,
IDS Forensic Resource Counsel

www.forensicresources.org

Case Consultations



Sarah Olson

Sarah.R.Olson@nccourts.org

919-354-7217

34
states exhibit

North Carolina
STATE BUREAU OF INVESTIGATION

Department of Justice
RALEIGH

LABORATORY REPORT

TO: Agent Don Pagani
City-County Bureau of Identification
316 Fayetteville Street Mall
Raleigh, N.C. 27602

TYPE OF CASE: Homicide

LOCATION: Wake County

SUBJECT: JACQUETTE LASHAWN THOMAS (VICTIM)
GREGORY F. TAYLOR (SUSPECT)
JOHNNY BECK (SUSPECT)

ITEMS SUBMITTED:

- Item #16: One automobile fender liner. - *from*
- Item #17: Stained thread sample. - *from*
- Item #18: Stained thread sample. - *from*
- Item #21: One "Merit" cigarette butt. - *right from*
- Item #37: An SBI Sexual Assault Evidence Collection kit composed of the following articles of evidence identified as collected from the victim, Jacquetta Thomas:
 - a. Two liquid blood samples.
 - b. Two vaginal smears.
 - c. Four vaginal swabs.
 - d. Panties.
 - e. Two rectal smears.
 - f. Four rectal swabs.
 - g. Two oral smears.
 - h. Four oral swabs.
 - i. Pubic hair combings.
 - j. Known head hair sample.
 - k. Known head hair sample.
- Item #40: One dried blood sample identified as victim's.
- Item #45: One piece of tissue paper. - *in shirt*

I, Lacy H. Thornburg, Attorney General of the State of North Carolina, North Carolina State Bureau of Investigation, Department of Justice, certify that the purpose stated in G.S. 90-95(g) and approved by me in compliance with the provisions of that statute.

COPIES TO:

Mr. Colon Willoughby, D.A.

THIS REPORT IS
CRIMINAL INVESTIGATION

This report refers to the item(s)

CONFIDENTIAL. This is an official file of the North Carolina State Bureau of Investigation and the contents thereof to any unauthorized person is a violation of the law.

ITEMS SUBMITTED (CONTINUED):

- Item #46: One pair of pants with belt. - *victim*
- Item #51: An SBI Suspect Evidence Collection Kit composed of the following articles of evidence collected and/or prepared from the suspect, Gregory Taylor:
 - a. Two liquid blood samples.
 - b. Two saliva swabs.
 - c. Known pubic hair sample.
 - d. Known head hair sample.
 - e. Pubic hair combing.
- Item #52: An SBI Suspect Evidence Collection Kit composed of the following articles of evidence collected and/or prepared from the suspect, Johnny Beck:
 - a. Two liquid blood samples.
 - b. Two saliva swabs.
 - c. Known pubic hair sample.
 - d. Known head hair sample.
 - e. Pubic hair combing.

TYPE ANALYSIS REQUESTED:

Blood analysis, semen analysis, and bloodspatter pattern interpretation.

RESULTS OF ANALYSIS:

Examination of Item #45 revealed the presence of human blood. Analysis of a cutting from the panties (Item #37d) revealed the presence of semen. Items #37d and #45 and the liquid blood samples gave the following blood group reactions:

Items	ABO	Secretor	PGM	PGMsub	EsD	Hp	Gc	PepA	Hb
#37a (victim's blood)	O	Nonsecretor	1	1+	1	2	1F1S	1	A
#51a (Taylor's blood)	AB	Secretor	1	1+	5-1	INC	21S	1	A
#52a (Beck's blood)	B	Secretor	1	1+	1	1	1F1S	1	A
#37d (panties)	INC		NR	NT	NT	NT	NT	NR	NT
#45 (tissue paper)	O	<u>?</u>	1	1+	1	2	1F1S	INC	A

INC = inconclusive NR = no reaction NT = not tested

Examination of the cigarette butt (Item #21) gave chemical indications for the presence of saliva and gave reactions for ABO group AB.

Examination of Items #16, #18, and #46 gave chemical indications for the presence of blood. Examination of Item #17 failed to reveal the presence of blood.

A bloodstain examination of the pants (Item #46) failed to reveal any stains on the outside of the pants and several small stains on the inside of the left leg.

Innocence panel sets Greg Taylor free

ARTICLE

GALLERY

0 COMMENTS



[BUY PHOTO](#)

SHAWN ROCCO - SROCCO@NEWSOBSERVER.COM

Greg Taylor reacts as he hears the decision of the N.C. Innocence Commission exonerating him of murder charges Wednesday. One of Taylor's attorneys, Christine Mumma, is at right.

murder charges Wednesday. One of Taylor's attorneys, Christine Mumma, is at right.

Greg Taylor reacts as he hears the decision of the N.C. Innocence Commission exonerating him of

[BUY PHOTO](#)

SHAWN ROCCO - SROCCO@NEWSOBSERVER.COM

POD

R91185Z

Notes

Item # 16: Several 5ipbs taped together
+ 1 piece of molded plastic
from an automobile.

Several stains on the back. I circled the stains
phenol + duckterbury xA NT #c NT GCNT

takayama -
NEA

1991

Examination of Items #16, #18, and #46 gave chemical indications for the presence of blood. Examination of Item #17 failed to reveal the presence of blood.

2020

Examination of a sample taken from the DNA swab from point of entry to business (Item 1), using the Kastle-Meyer Test, gave chemical indications for the presence of blood. No confirmatory blood testing was performed.

Admissibility of presumptive drug tests

- Object to identification based on field drug tests!
- *State v. Ward*, 364 N.C. 133 (2010) – visual inspection not enough, chemical test needed for **an expert** to testify to the identify of a substance
- *State v. Carter*, 237 N.C. App. 274 (2014) - state did not show that a field test was reliable and testimony about results of a field test should not have been admitted
- *State v. Pinnix*, 246 N.C. App. 190 (2016) - testimony about results of field test for cocaine are inadmissible absent requisite expert testimony regarding a field test's reliability
- *State v. Cobb*, 845 S.E.2d 870 (2020) - the testimony regarding the field test should have been excluded, not limited via judicial instruction
- *State v. Osborne*, 2020 N.C. App. LEXIS 908 – testimony about field drug test kits “might have been excluded had Osborne objected”



Guilty until Proven Innocent: Field Drug Tests and Wrongful Convictions

Ross Miller
Paul Heaton
Haley Sturges

Lab Reports



Getting Lab Reports

- Make sure you have underlying data, not just the final report (15A-903(a)(1)(a))

The term "file" includes the defendant's statements, the codefendants' statements, witness statements, investigating officers' notes, results of tests and examinations, or any other matter or evidence obtained during the investigation of the offenses alleged to have been committed by the defendant. When any matter or evidence is submitted for testing or examination, in addition to any test or examination results, all other data, calculations, or writings of any kind shall be made available to the defendant, including, but not limited to, preliminary test or screening results and bench notes.

- **DO NOT ACCEPT A 1-2 PAGE LAB REPORT IN SUPERIOR COURT!!!!**
- Sample discovery motions - forensicresources.org

Getting Lab Reports

- Lookout for non-traditional experts and check that you receive adequate discovery about their testimony - 15A-903(a)(2)

(2) The prosecuting attorney to give notice to the defendant of any expert witnesses that the State reasonably expects to call as a witness at trial. Each such witness shall prepare, and the State shall furnish to the defendant, a report of the results of any examinations or tests conducted by the expert. The State shall also furnish to the defendant the expert's curriculum vitae, the expert's opinion, and the underlying basis for that opinion. The State shall give the notice and furnish the materials required by this subsection within a reasonable time prior to trial, as specified by the court. Standardized fee scales shall be developed by the Administrative Office of the Courts and Indigent Defense Services for all expert witnesses and private investigators who are compensated with State funds.

Forensic Advantage Web

*Every lab report from the NCSCCL has these parts,
even if the DA doesn't give them to you!*

Case Record

1. "Lab Report" = a summary of the results
2. Chain of Custody
3. Request for Laboratory Examination/Submission paperwork
4. Worksheets – where analysts record notes
5. Quality Assurance (blanks, standards, equipment maintenance)
6. Communication log (between analysts and between law enforcement and the lab)
7. Analyst's CV
8. Test data

PriorVersions.pdf = all draft worksheets and prior reports

Resources.pdf = lists instruments used and maintenance info

Raw Data files

Not getting full discovery?

- Is it a lab problem or a DA problem?
- Usually the DA's office has not downloaded the full report
- If it is a lab problem/special requests
 - NC State Crime Lab Legal Counsel: Jason Caccamo jcaccamo@ncdoj.gov

Beware!

- DAs can download sections of the packet separately – they can customize what they view and download only a portion of the report.
- Only what is downloaded will be paginated

Forensic Advantage Discovery Packet

Released Information

Regarding: R2020 [REDACTED]
Requested: 12/14/2020 FA
9:00:02 AM
Packet: Case Record (Full)

All information and files related to the published case record.



Table of Contents:

Lab Report-Released-[REDACTED].pdf	1
CaseReportR2020 [REDACTED] Record #1.pdf	4
Chain of Custody	9

LAB REPORT CHECKLIST

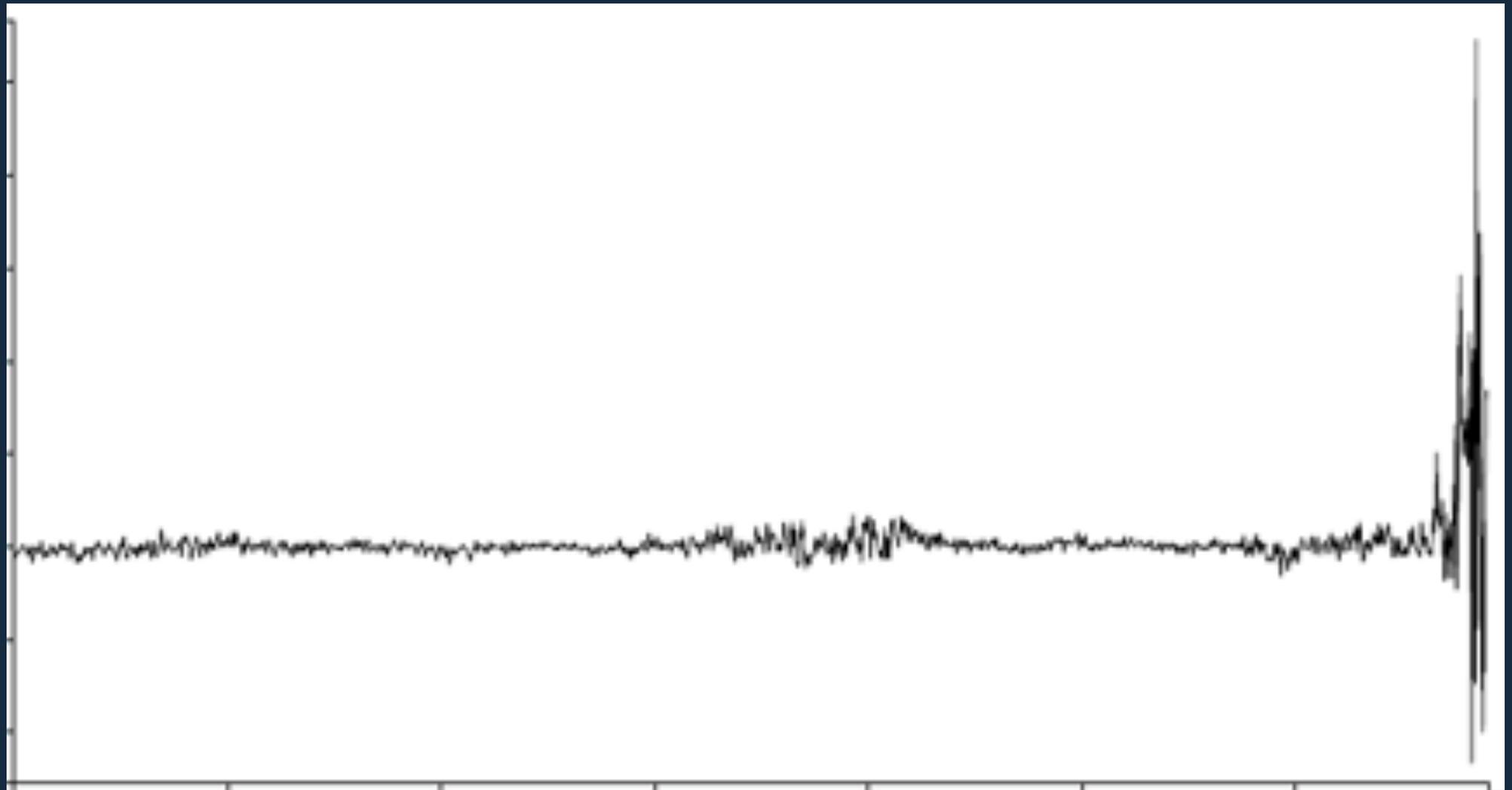
REVIEWING THE REPORT

- Is it a Full or Ad Hoc (DA customized) Report?
- Read Communication Logs and “Review History” to look for disagreement between analyst and reviewer. Are there any rescinded reports? Why?
- Read the top and bottom of the page to understand what graphs are showing.
- Was a blank or negative control run immediately before the evidence sample?
- Look for notations like “out of range,” “manual integration,” “outlier,” “re-run” or any handwritten notes.
- Check the dates/times of testing, quality control, and report writing – does it make sense?

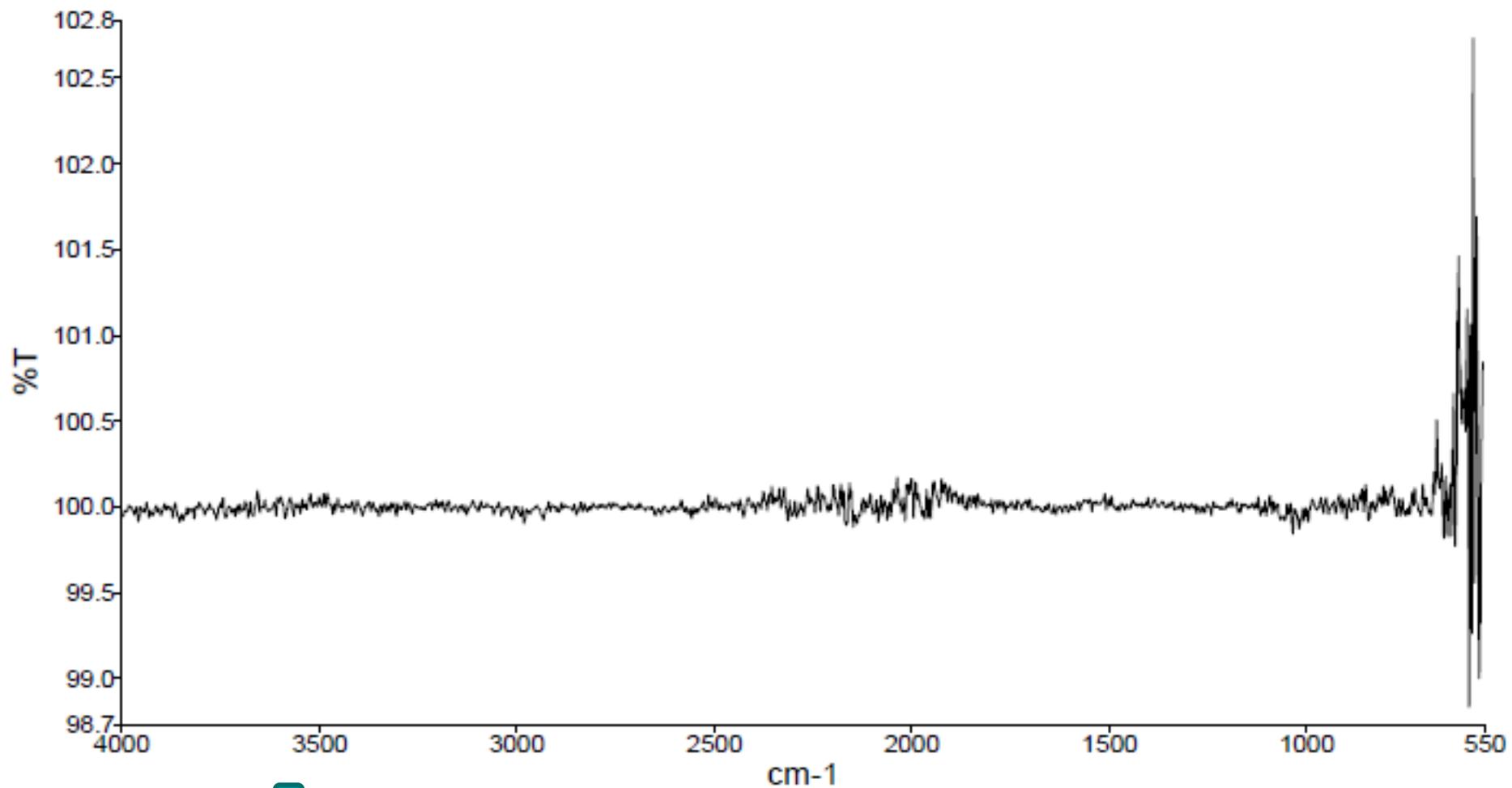
“Review History”

Review History

Date	By	Action – Comment
09/01/2016 20:30	Smith, James	Requested:
09/02/2016 10:43	Martinez, Carla	Accepted: I accept the review.
09/02/2016 10:44	Martinez, Carla	Returned: - extraction page; add reagents-allele call table: remove RMP statement, stats not calculated on known- main page: correct agency item numbers for item 11 and 12 (11 is Item 9 and 12 is Item 10)



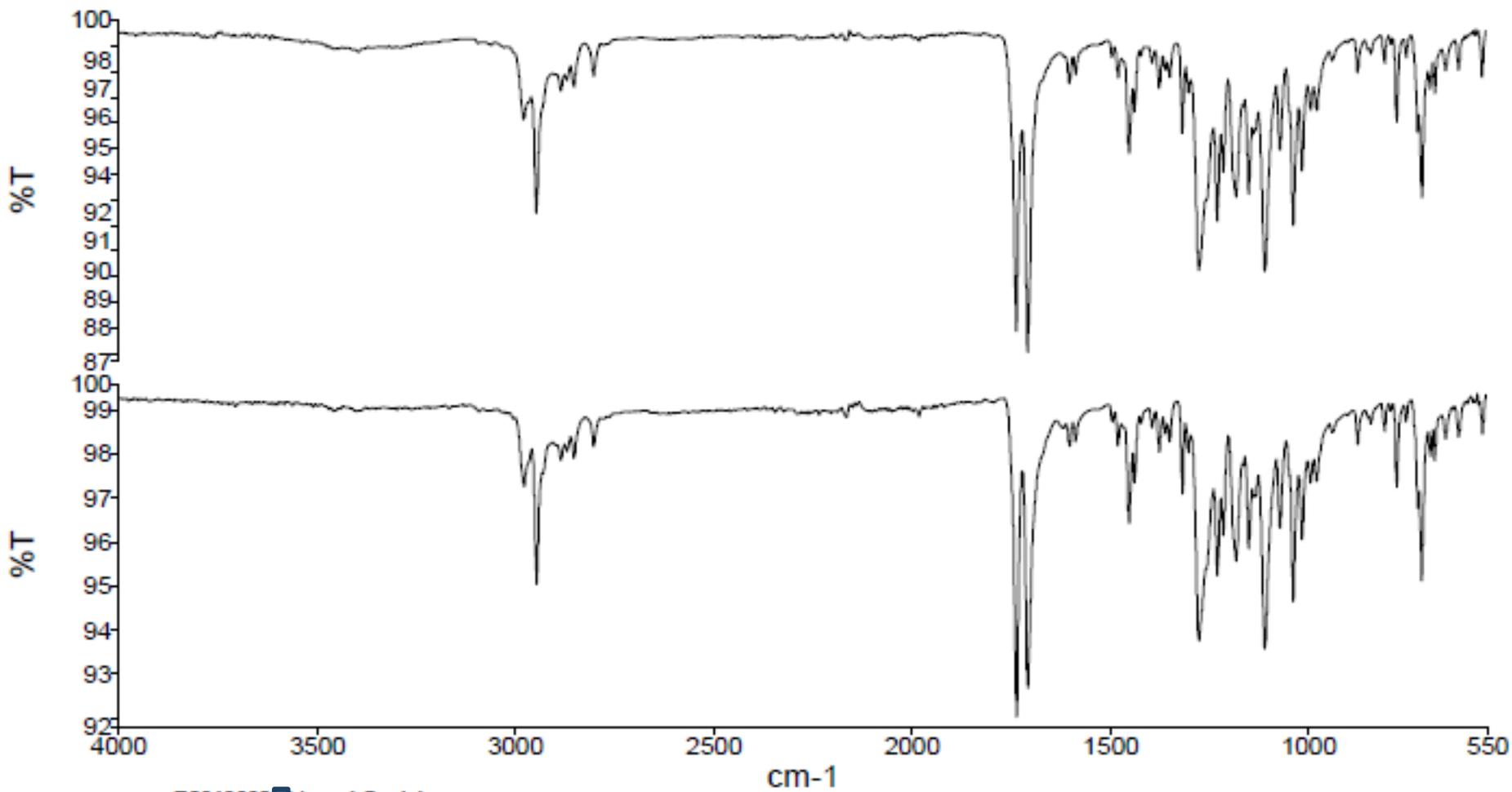
Analyst
Date FTIR 10 SN 79034
Tuesday, September 03, 2019 10:49 AM



— R2019008 Item 1 Blank

Analyst
Date

FTIR 10 SN 79034
Tuesday, September 03, 2019 10:49 AM



— R2019008 Item 1 Straight
— Cocaine Base

Sigma C-8912 (Lot # 102K0848)

Attention! One or more validation criteria failed!

Plate
Date
Time

Attention! One or more validation criteria failed!

Validation criteria

Exp. Group Num 1
Validation criteria : Raw data
SM1_1>SM1_2 --> TRUE
SM1_2>SM1_4 --> TRUE
SM1_3>SM1_2 --> FALSE
SM1_3>SM1_4 --> TRUE

QCNEG failed positive, all
positive samples were
repeated.-Zuchero, Matthew -
07/01/2016

1 Plate T
2 Sample
3 Raw da
4 B/B0
5 Cutoff

	1	2	3	4	5
A1	6				
B1	6				
C1	6				
D1	6				
E1	6	16201215-001-1A	2.895	88.722	ND
F1	6	16201002-001-1A	2.858	87.588	ND

QCNEG failed positive, all
positive samples were
repeated.-Zuchero, Matthew -
07/01/2016

Case #: R20181112
Status: Complete
Type: Forensics Exam
Examiner: Miller, J.
Case Note:
Sequence: 5
Working Days: 0
Discipline #:
Priority: 1
Backlog Priority:

Case Record #: 1 Confidential Case
Lab: Raleigh
Section: Drug Chemistry
Submitted Date: 10/30/2018 10:24:08 AM
In Section Date: 7/9/2019 7:08:30 AM
Assignment Date: 8/19/2019 7:10:10 AM
Exam Start Date: 9/03/2019 10:48:47 AM
Exams Completed: 9/03/2019 10:49:04 AM
Due Date:
Worksheet Date:
Completion Date: 9/03/2019 10:49:04 AM

ANALYST ISSUES

- Who is going to testify? Do you have a substitute analyst issue?
- Did the testifying analyst run the tests that are reported? Look for their initials on the graphs/data.
- Review the analyst's CV
 1. Are they certified in their discipline (by American Board of Criminalistics or other)?
 2. How much experience do they have testifying in this field?
- Get the analyst's Quality Records/Corrective Actions (Lab will require protective order)



Certification Exams

Certification Exams

- Forensic Sciences Act of 2011 requires State Crime Lab analysts become certified in their field
 - <https://forensicresources.org/2019/analyst-certification-information/>
- Several analysts failed their certification exams one or more times
- After the third round of ABC certification exams given, 98.7% of “eligible” analysts were certified
- *Look on analyst’s CV to see if they are certified or not – if newer analyst, consider whether they have sufficient experience/are eligible to take the exam*

PROFESSIONAL AFFILIATIONS AND CERTIFICATIONS

- American Board of Criminalistics-Diplomate- 2013 (Hair and Fiber)
- American Board of Criminalistics- Diplomate 2021 (Drug Analysis)
- American Society of Trace Evidence Examiners- 2011
- American Chemical Society- 2008
- Southern Association of Forensic Scientists
- OSAC- Organization of Scientific Area Committee- Seized Drug Subcommittee Member 2020-present

COURTROOM TESTIMONY

Discipline	Date Authorized	Approximate Testimony Appearances
Hair	October 2012	2
Drugs	February 2018	10

Read lab procedures

- Locate the written procedures

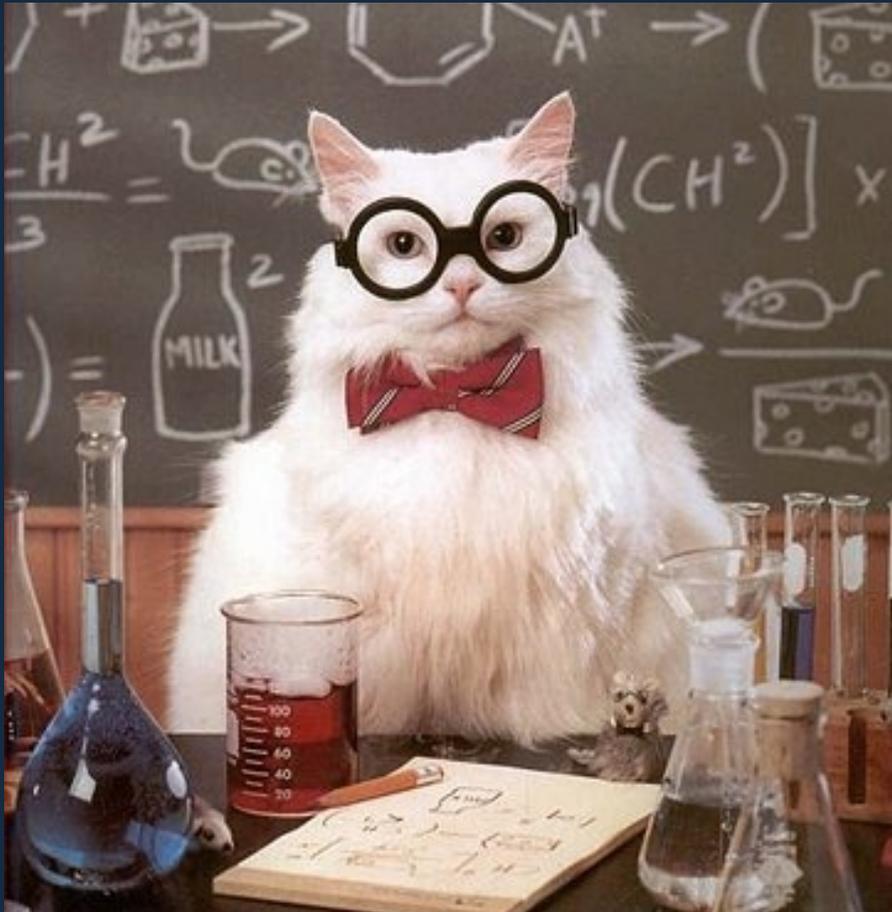
<https://ncdoj.gov/crime-lab/iso-procedures/>

-or-

<https://forensicresources.org/crime-labs/>

- As of July 1, 2016, local labs must also be accredited if the state intends to introduce a forensic report using notice and demand statute (NC Gen Stat 8-58.20)

Turn and talk



What is most challenging about working with experts?

Working with Experts

- Database of experts:
 - <https://forensicresources.org/browse-all-experts/>
 - Please provide feedback on experts!
- “Guide to Working with Experts”
(in materials)
 - Vetting an expert
 - Referral questions
 - Questions to ask during your first conversation with the expert

Expert Services Project

IDS launched a pilot project on Apr. 1, 2022, to improve attorney access to expert consultation. Experts in a limited number of fields will be available to consult *only with public defender and IDS contract attorneys* through a contract with IDS. Please complete the form below to request expert assistance with Digital Forensic or Drug Chemistry evidence. If your request is approved, you can begin working with an expert without seeking funding through the court. More information about the program is available [here](#). Contact Sarah Olson (Sarah.R.Olson@nccourts.org) if you have questions.

Request for Expert Consultation

Please submit the following information. Expert assistance through IDS is currently available only in public defender and IDS Contractor cases.

How were you appointed on this case? *(Required)*

Select one



Name of Defendant *(Required)*

Working with Experts Video

<https://forensicresources.org/working-with-experts/>



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The UNC School of Government's NC Superior Court Judge's Benchbook has a chapter on [Expert Testimony](#) (Aug. 2017) that attorneys should be familiar with when considering the admissibility of

Admissibility of Expert Testimony



Vetting the State's Expert

- Who is the analyst? Substitute analyst issue?
- Verify the expert's degree, certifications, memberships, professional discipline
- Assess experience in the lab/in a particular field
- Review the analyst's **corrective action reports**
- Meet with the analyst
- **MAKE A 702 CHALLENGE!**

Substitute Analyst Testimony

- *Smith v. Arizona*, 602 U.S. 779 (2024) - When an expert testifying at a criminal trial conveys an absent analyst's statements in support of the expert's opinion, and the statements provide that support only if true, the statements come into evidence for their truth.
- *State v. Clark* No. COA23-1133 (2024), temporary stay allowed
 - COA held: The opinion testimony of a substitute expert witness who relies solely upon the "testimonial hearsay" statements contained in a lab report or notes prepared by another analyst who tested the substance in question implicates a defendant's right under the Confrontation Clause of the Sixth Amendment. Lab reports created solely for an evidentiary purpose, made in aid of a police investigation, rank as testimonial statements under the Confrontation Clause.
 - In PDR, State argued it remains undecided whether the Supreme Court's decision in *Smith* implicates situations like the one here, and like those in *Ortiz-Zape* and *Brent*, where a substitute analyst relies on machine-generated data to form an independent opinion regarding the identity of a controlled substance.

- State v. Robinson, No. COA25-199 –
in NC, the Confrontation Clause does not
apply to computer-generated data created
by a machine without human judgment.
Toxicology data of liquid samples generated
by lab machines are not out of court
statements within the meaning of the
Confrontation Clause

Rule 702 – Testimony by experts

(a) If scientific, technical or other specialized knowledge **will assist the trier of fact** to understand the evidence or to determine a fact in issue, a witness **qualified** as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion, or otherwise, if all of the following apply:

1. The testimony is based upon **sufficient facts or data**.
2. The testimony is the **product of reliable principles and methods**.
3. The witness has **applied** the principles and methods **reliably** to the facts of the case.

Rule 702 – Testimony by experts

(a) Will the testimony assist the trier of fact?
(Daughtridge)

Is the expert qualified? (McGrady)

1. Based on sufficient facts or data (or assumptions?)
(Babich)
2. Based on reliable principles and methods (is the field as a whole reliable?) (Phillips)
3. Was it applied reliably to this case? (McPhaul)

Reliable or not???

- Single source samples of DNA
- Complex mixtures of DNA
- Hair comparison
- Fingerprints
- Firearms comparison
- Footwear comparison
- Bitemark



REPORT TO THE PRESIDENT
Forensic Science in Criminal Courts:
Ensuring Scientific Validity
of Feature-Comparison Methods

Executive Office of the President
President's Council of Advisors on
Science and Technology

September 2016



PCAST Report: Foundational Validity

Yes

- DNA – single source samples and simple mixtures
- Fingerprint comparison

No

- DNA – complex mixtures
- Firearm comparisons (one study complete, need two)
- Footwear comparison
- Microscopic hair comparison (invalid)
- Bitemark comparison (invalid)

Didn't consider:

Digital evidence, Drug chemistry, Toxicology, Autopsies, GSR testing, Blood spatter, mtDNA analysis, Y-STR DNA analysis

NC Superior Court Judges' Benchbook

Chapter on Expert Testimony:

<https://benchbook.sog.unc.edu/evidence/expert-testimony>

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NC SUPERIOR COURT JUDGES' BENCHBOOK

School of Government, The University of North Carolina at Chapel Hill, Jessica Smith (Ed.)

Expert Testimony

[Evidence](#) >> [Expert Testimony](#)

UNC School of Government **NORTH CAROLINA SUPERIOR COURT JUDGES' BENCHBOOK**

CRIMINAL EVIDENCE: EXPERT TESTIMONY

Jessica Smith, UNC School of Government (August 2017)

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Benchbook Search

Enter terms & hit enter

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Synopsis

This section discusses the admissibility of expert testimony in criminal cases under Evidence Rule 702.

Keywords

Rule 702 Daubert
expert testimony reliability
forensic evidence DNA
bite mark fingerprint
tool mark blood alcohol
blood spatter fiber analysis

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