TESTIMONY

By

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On

Raising the Bar: Progress and Future Needs in Forensic Science

Submitted to the

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE, SPACE, & TECHNOLOGY

Committee Hearing
Tuesday, September 10, 2019

Chairwoman Johnson, Ranking Member Lucas and Members:

My name is Lynn Garcia, and I am the General Counsel of the Texas Forensic Science Commission (Commission). Thank you for inviting me to share the progress Texas has made in the ten years since the publication of the National Academy of Sciences Report, *Strengthening Forensic Science in the United States: A Path Forward*.

The Texas Commission was created in the wake of a crisis. In 2002, the City of Houston and the Houston Police Department (HPD) commissioned an investigation after serious questions were raised regarding the quality of the forensic analyses at the HPD crime lab. The investigation lasted two years and resulted in a report that was highly critical of the scientific practices and management of the laboratory.

In 2005, the Texas Legislature created the Commission as the main oversight body for forensic science service providers in Texas. The Commission includes seven scientists and two attorneys. All members are appointed by the Governor. A table of current appointees is attached as *Appendix A*. The Commission is administratively attached to the Office of Court Administration, a judicial branch agency. An organizational chart is attached as *Appendix B*.

The Commission's current budget is $1.4 million per biennium. We currently have four full-time staff members.

I. Investigating Complaints re: Professional Negligence and Misconduct

Initially, the Legislature gave the Commission one job—to investigate allegations of professional negligence and misconduct against forensic laboratories.

The Commission has conducted investigations and issued reports in many different forensic disciplines, including: DNA analysis; seized drug analysis, forensic toxicology; firearm and tool mark examination; materials (trace); forensic video analysis; bite mark comparison; and bloodstain pattern analysis.

Texas law requires the Commission to issue investigative reports describing: (1) the alleged negligence or misconduct; (2) a conclusion regarding whether negligence or misconduct actually occurred; (3) any corrective action required of the laboratory; (4) observations regarding the integrity and reliability of the forensic analysis conducted; and (5) best practices identified during the course of the investigation, or other recommendations the Commission deems relevant.

In addition, Commission reports may include: (1) retrospective reexamination of other forensic analyses conducted by the laboratory that may involve the same kind of negligence or misconduct; and (2) follow-up evaluations of the laboratory to review: (a) implementation of any corrective action required; or (b) conclusion of any retrospective reexamination.

However, there are important limitations on the Commission's jurisdiction. For example, the Commission may not issue a finding relating to the guilt or innocence of any party in a civil or criminal trial involving conduct investigated by the Commission. Commission reports are not

admissible in a civil or criminal action. Information filed or obtained as part of a complaint or laboratory self-disclosure is not subject to release under the Public Information Act until the conclusion of a Commission investigation.[1]

Over time, the Commission has evolved into an oversight body that crime laboratories, law enforcement, prosecutors and defense attorneys all rely upon for fair consideration of serious scientific issues. They know the Commissioners have one goal in mind: to improve forensic science in our state. Commission members bring their scientific expertise to bear for the purpose of making incremental and meaningful change. Using the core values of transparency, accountability and collaboration, the Commission has taken on major initiatives in many of the key areas mentioned in the NAS Report.

Example of a Commission Investigation—Bite Mark Comparison (Dallas, TX: Steven Chaney)

One example of an investigation performed by the Commission was with respect to the bite mark comparison used in the murder trial of Steven Mark Chaney in Dallas, Texas. Mr. Chaney was convicted of murdering Sally and John Sweeks. He was sentenced to life in prison and served 28 years. The following transcript excerpt is from the direct examination of forensic dentist Jim Hales, an expert proffered by the State:

QUESTION: Can you express your opinion?

ANSWER: With reasonable dental certainty and scientific certainty, I feel that Steven Mark Chaney made the bite mark on John Sweek.

QUESTION: And you also testified that someone else in the world possibly could have made that bite mark. Do you have any odds?

ANSWER: One to a million.

QUESTION: Does that appear in the scientific literature?

ANSWER: Yes

On December 19, 2018, Mr. Chaney was declared actually innocent by the Texas Court of Criminal Appeals, the state's highest criminal court. The Court concluded that had the bite mark evidence been presented at trial under current scientific standards, Mr. Chaney would not have been convicted. The Court further noted the bite mark evidence was central to the State's case—so much so the State argued to the jury that it should convict on the bite mark evidence. During closing argument, the State reminded the jury that Dr. Hales testified only one in a million people could have possibly made the bite mark, asking rhetorically, "What more do you need?"

In reviewing Mr. Chaney's complaint, the Commission examined published literature, listened to presentations from a range of forensic dentists, including those who support the use of bite mark comparison in criminal cases and those who do not.

[1] *See* Tex. Att'y Gen. OR2014-16371.

Contrary to what Dr. Hales said in Mr. Chaney's trial, the scientific literature does not support the notion that an individual's dentition can be compared reliably to an impression left on human skin. Skin is a poor medium for recording impressions for comparison. The literature also does not support the idea that any statistical analysis can be validly applied to the question of how frequently such an impression would be seen in the population. After listening to all sides, the Commission, for the first time in its history, issued a recommendation to the judiciary that bite mark comparison not be admitted in criminal trials unless and until sufficient data are developed to support that such comparisons can be made reliably and accurately.

While we understand and appreciate the Commission is not a court, and gatekeeping decisions are ultimately the responsibility of the judiciary, we try to provide information to judges to assist them with making these difficult scientific gatekeeping decisions. What we have found is that by and large, they welcome the information. The vast majority of judges want nothing more than to make the right call. They just don't always have the tools they need to do it.

II. Accreditation of Crime Laboratories

The Commission is the accrediting authority for entities that perform forensic analysis in Texas.[2] There are 87 total laboratories accredited in Texas, 45 of which are located in Texas and 42 located outside of Texas.[3]

Pursuant to its accreditation authority, the Commission may also:

1. Establish minimum standards that relate to the timely production of forensic analysis;
2. Validate or approve specific forensic methods or methodologies;
3. Establish procedures, policies, and practices to improve the quality of forensic analyses.[4]

The Commission recognizes certain external accrediting bodies for purposes of determining whether a particular laboratory or entity should be considered accredited under Texas law. For purposes of this discussion, the two main accrediting bodies are the ANSI National Accreditation Board (ANAB) and the American Association for Laboratory Accreditation (A2LA). The Commission recognizes accreditation pursuant to ISO 17025 or 17020, including the forensic supplemental standards.

In addition to confirming a laboratory's accreditation status, in some cases the Commission has exercised its authority to "enter and inspect the premises or audit the records, reports, procedures, or other quality assurance matters of a crime laboratory that is accredited or seeking accreditation."[5] Historically, the Commission has reserved the exercise of this authority for situations in which either the laboratory's internal review process or the standard accreditation checks and balances were insufficient to identify and correct issues of concern.

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[2] TEX. CODE CRIM. PROC. art. 38.01 § 4-d.
[3] http://txcourts.gov/fsc/accreditation/
[4] *Id.* at § 4-d(b-1).
[5] *Id.* at § 4-d(d).

However, the Commission is not itself an accrediting body nor could it assume the role of accrediting body effectively given current resources. The Commission relies in significant part on its relationship with the external accrediting bodies to ensure the reliability of forensic analyses produced by accredited laboratories in Texas.

Understanding the Limitations of Accreditation

Accreditation is a critical component of quality forensic analysis. However, the significance of accreditation has often been overstated by criminal justice stakeholders as a guarantee of quality. For example, consider the following testimony:

> Q. Now, when we hear something like accredited, that sounds good, but what does that actually mean as far as the protocols that y'all have to follow in order to maintain that certification?
>
> A. Well, to be accredited, you're actually inspected by the accrediting agency, and they review your procedures to make sure that the procedures that you're following are scientifically valid, as well as accepted in the forensic community. They will come in and check out all of your operations, and then they routinely check—the accreditation cycle is actually a five-year cycle, but they do routinely check every year, or two years to make sure that you're following their guidelines and practices.

Similarly, an assessment team from the Major Cities Chiefs Association made the following statement in the report issued after a Texas laboratory's organization structure audit:

> "The [lab] is an ISO 17025 accredited laboratory, compliant with all relevant forensic standards and the FBI QAS, as demonstrated by its current accreditation. While the assessment team did not conduct an ISO assessment, it was readily apparent that the laboratory and its staff upheld the high standards of accreditation."

Statements like these reflect the emphasis stakeholders place on the accreditation process as an indicator of reliability and validity of scientific procedures and policy in the crime laboratory.

In this same laboratory example, the Commission observed fundamental weaknesses in the DNA section not long after the Major Cities Chiefs Association issued the statement above relying on accreditation as a key indicator of quality. Fundamental lapses persisted at the laboratory despite 17 internal and external audits from 2004 to 2015 performed by ASCLD/LAB and other auditors pursuant to the FBI's Quality Assurance Standards.

In another laboratory, Commissioners were concerned about weaknesses in the accreditation system with respect to the accrediting body's review of internal validation. The review occurred after the improper use of overblown data in DNA interpretation in a sexual assault case. ASCLD/LAB concluded there were no issues with the laboratory's validation studies without reviewing a single case file to assess how the laboratory's validation work was reflected in case analysis.

After an investigation by the Commission, the laboratory's executive management engaged in an extensive and difficult exercise in self-reflection, during which they concluded: "there was a cultural over-reliance . . . at all levels, regarding the role and purpose of ISO 17025 accreditation by ASCLD/LAB (subsequently ANAB) and FBI-QAS, and *widespread assumptions that the accreditation and the associated review and inspections could be relied on for reassurance that the laboratory's procedures were in fact in compliance with industry standards*."

These examples highlight that failed checks and balances have an adverse impact on all stakeholders—the laboratory itself, the accrediting body, and the lawyers and judges who rely on the laboratory's work product.

III. Collaboration with NIST's Standards Coordination Office on Accreditation Improvement

The National Institute of Standards and Technology (NIST) Standards Coordination Office (SCO) provides assistance to government agencies, including state regulators, regarding how to work with accrediting bodies to tailor standards and accreditation programs in a way that will best serve the impacted community. In this case, the "impacted community" includes forensic science service providers and their end-users in Texas.

The SCO has offered to assist the Commission with the development of an overarching quality infrastructure standard for laboratories that may be tailored to suit Texas' needs. Under this framework, Texas will work with existing accrediting bodies to develop a plan for improving the accreditation programs in Texas, with particular focus on internal validation, training to competence, qualifications of assessors, integration of key aspects of the Texas Code of Professional Responsibility, transparency and disclosure, and related issues.

IV. Licensing of Forensic Analysts

As of January 1, 2019, all forensic analysts must be licensed in Texas if they are to perform forensic analysis in Texas cases. The term "forensic analyst" means any person who on behalf of a crime laboratory accredited under Texas law technically reviews or performs a forensic analysis or draws conclusions from or interprets a forensic analysis for a court or crime laboratory. The term does not include medical examiners or other forensic pathologists who are licensed physicians.

The Commission established qualifications and adopted administrative rules with regard to forensic analyst licensing that are published in the Texas Administrative Code.[6] Requirements for forensic analyst and/or technicians to become licensed include:

1. Minimum education requirements;
2. Understanding and appreciation of Code of Professional Responsibility and related laws;
3. Successful completion of a General Forensic Analyst or Technician Licensing Exam;
4. Specific coursework requirements; and
5. Proficiency testing requirements.

[6] 37 Tex. Admin. Code § 651.201-220 (Tex. Forensic Sci. Comm'n., Forensic Analyst Licensing Program).

In addition to mandatory licensing for forensic analysts in accredited disciplines, the Commission may also establish voluntary licensing programs for forensic disciplines not subject to accreditation under Texas law. One example of a voluntary license program currently underway in collaboration with law enforcement is in the area of crime scene reconstruction.

To date, the Commission has licensed 1,261 forensic analysts and technicians.

V. Code of Professional Responsibility

The Commission also developed and published a Code of Professional Responsibility for Analysts and Laboratory Management, so all stakeholders involved in the critical work of forensic science share the same expectations. The Code addresses all aspects of forensic analysis, from submission of evidence through testing, interpretation of data, reporting, testimony and post-conviction obligations. A copy of the Code is attached as *Appendix C*.

VI. Statewide Triage Systems for Retroactive Case Reviews: DNA Mixtures, Hair Microscopy, Bite Mark Comparison

From time to time, the forensic community becomes aware of broad-based concerns in a given forensic discipline. Examples in the last few years include complex DNA mixture interpretation and microscopic hair comparison. Texas laboratories take these issues seriously, and are committed to reviewing casework as needed to protect against potential miscarriages of justice. The challenge in conducting any retroactive case review is to do so in a way that targets cases needing attention efficiently and effectively. Using collaborative statewide triage methods and with the support of grant funding, the Commission has facilitated reviews in DNA mixture interpretation, microscopic hair comparison and bite mark comparison. Additional work is currently underway in the discipline of bloodstain pattern analysis.

VII. Self-Disclosures of Nonconformities by Forensic Laboratories

Texas law requires crime laboratories to disclose significant nonconformities to the Commission. Though the adversarial process is a core component of fairness in our judicial system, it is not the most efficient way to address laboratory nonconformities. The Commission provides an open and transparent venue for resolution. To date, the Commission has reviewed and addressed 75 significant self-disclosures submitted by Texas laboratories.

VIII. Forensic Education and Training for Lawyers, Judges and Law Enforcement

The Commission works with the Court of Criminal Appeals under a grant program to promote education and training of judges and lawyers in the area of forensic science. We also partnered with the Texas Commission on Law Enforcement to enhance the crime scene training provided to peace officers through the Basic Peace Officer Course.

IX. Review and Integration of NIST OSAC Standards and Guidelines in Texas

Finally—and this is a recent development—we are partnering with NIST in two critical areas. The first was discussed in the accreditation section above. The second involves a review of

Organization of Scientific Area Committee standards and guidelines for purposes of assessing their viability for implementation in Texas. In both of these areas, NIST has tremendous expertise, and we look forward to an effective federal-state collaboration.

X. Support for Forensic Science Research

One additional area in which state and local labs could use federal support is foundational research. Though the Texas Legislature has significantly increased funding to our Commission, we do not have the capacity to conduct the types of research activities contemplated by legislation such as the Forensic Science and Standards Act of 2016 (H.R. 5795). Most crime laboratories face tremendous caseload demands, thus leaving precious little time for research. While we strongly believe the oversight of forensic laboratories should be left to the states, increased support from the federal government for forensic science research would be helpful not just for Texas, but for all states.

Finally, we would also like to emphasize the need to reauthorize the Debbie Smith Act before its September expiration date. This legislation dedicates much-needed resources to state and local law enforcement agencies to conduct forensic analyses of crime scenes, especially DNA typing for untested rape kits.

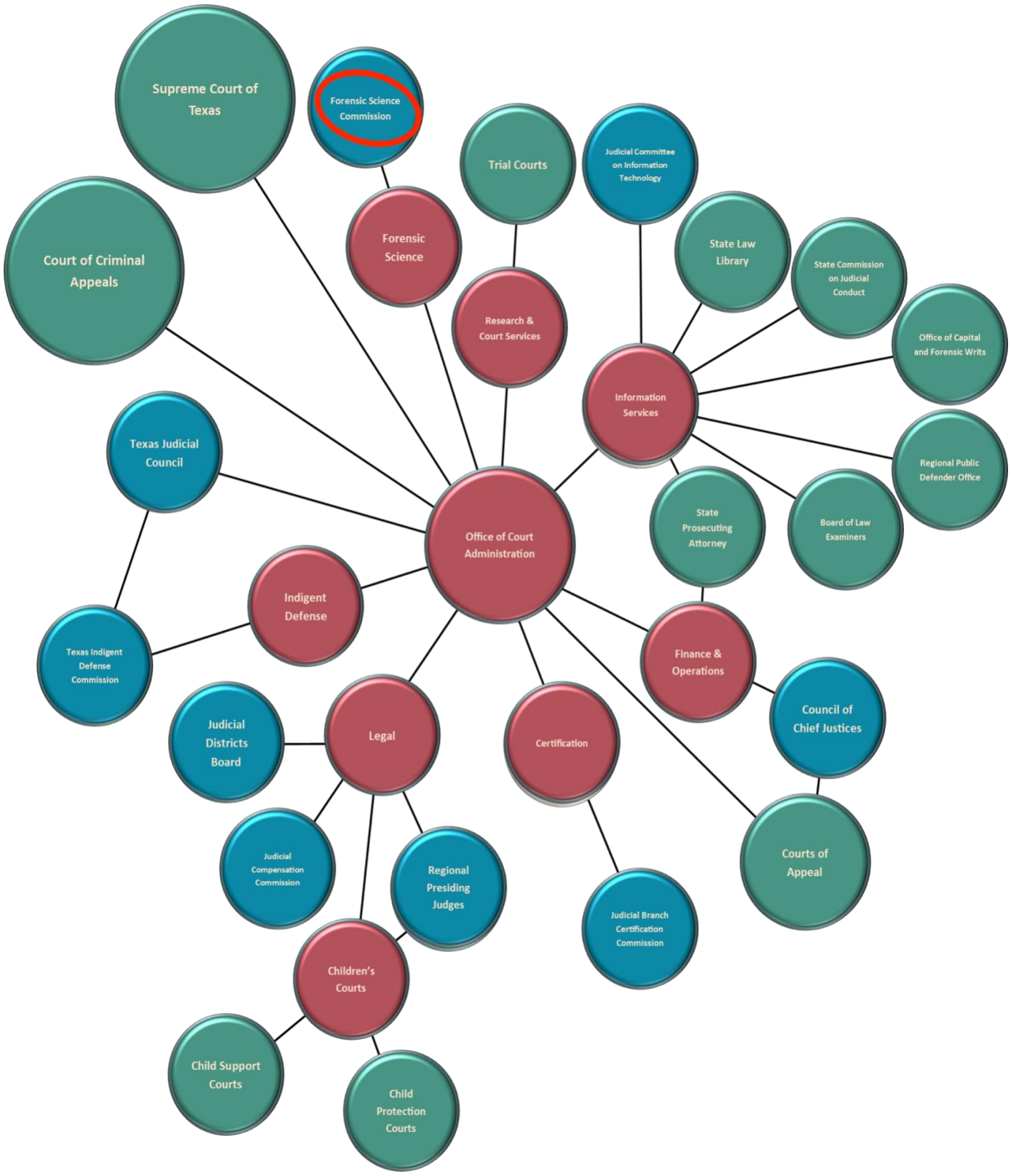
Closing Remarks

Texas is a law and order state, and with that core value comes great responsibility. The Texas Legislature understands this. The Governor of Texas understands this. Individual members of the Legislature from both parties have worked legislative session after session to effect meaningful progress when it comes to the quality of forensic science used in our state.

Is it perfect? No. Do we still have work to do? Absolutely.

But in reflecting upon the last decade, Texas has shown tremendous leadership in forensic science reform. Thank you for letting me share that story with you. I would be happy to answer any questions you may have.

APPENDIX A: ORGANIZATIONAL CHART



APPENDIX B: MEMBERSHIP

Name	Basis for Appointment	Date Appointed	Title
Jeffrey Barnard, MD (Dallas) *Presiding Officer*	University of Texas (Dallas)—Forensic Pathology Art 38.01, Section 3(a)(4)	10/31/11	Chief Medical Examiner, Dallas County; Director, Southwestern Institute of Forensic Sciences; Professor of Pathology, University of Texas Southwestern Medical Center
Bruce Budowle, Ph.D. (Fort Worth)	University of North Texas Health Science Center/Center for Human Identification Article 38.01, Section 3(a)(7)	11/28/16	Director, University of North Texas Center for Human Identification
Mark Daniel, J.D. (Fort Worth)	Texas Criminal Defense Lawyer's Association Article 38.01, Section 3(a)(3)	11/28/16	Criminal Defense Attorney & Partner, Evans, Daniel, Moore, Evans, Biggs and Decker
Nancy Downing, Ph.D. (Bryan/College Station)	Texas A&M University—Forensic Nursing Article 38.01, Section 3(a)(5)	11/28/16	Associate Professor, Texas A&M University College of Nursing; Forensic Nurse, Baylor, Scott & White Hospital; Chair, International Association of Forensic Nurses Campus Sexual Assault Task Force
Jasmine Drake, Ph.D. (Houston)	Texas Southern University—Forensic Chemistry Article 38.01, Section 3(a)(6)	11/28/16	Assistant Professor/Laboratory Coordinator, Texas Southern University Barbara Jordan-Mickey Leland School of Public Affairs, Department of Administration of Justice
Patrick Buzzini, Ph.D (Huntsville)	Sam Houston State University—Materials (Trace Evidence) (Huntsville) Article 38.01. Section 3(a)(8)	4/4/19	Associate Professor, Sam Houston State University, Department of Forensic Science
Pat Johnson, M.S. (Austin)	Forensic Expert (General Seat)—Former Director of Texas Department of Public Safety Crime Lab System—Forensic Chemistry Article 38.01, Section 3(a)(1)	11/28/16	Retired Deputy Assistant Director, Texas Department of Public Safety Crime Laboratory Services
Sarah Kerrigan, Ph.D. (The Woodlands)	Forensic Expert (General)—Forensic Toxicology/Sam Houston State University Article 38.01, Section 3(a)(1)	11/28/16	Chair, Sam Houston State University, Department of Forensic Science; Director, Institute for Forensic Research, Training and Innovation at Sam Houston State University
Jarvis Parsons, J.D. (Bryan/College Station)	Texas District and County Attorney's Association— Article 38.01, Section 3(a)(2).	11/28/16	District Attorney, Brazos County Texas; President, Texas District & County Attorneys Association

APPENDIX C: CODE OF PROFESSIONAL RESPONSIBILITY

Code of Professional Responsibility for Forensic Analysts and Crime Laboratory Management Subject to the Jurisdiction of the Texas Forensic Science Commission

(a) The Code of Professional Responsibility ("Code") for forensic analysts and crime laboratory management defines a framework for promoting integrity and respect for the scientific process and encouraging transparency in forensic analysis in Texas. Because certain components of the Code are best suited to individual forensic analysts while others are best suited to laboratory management, the Code is divided into two sections.

(b) Each forensic analyst shall:

(1) Accurately represent his/her education, training, experience, and areas of expertise.
(2) Commit to continuous learning in the forensic disciplines and stay abreast of new findings, equipment and techniques to maintain professional competency.
(3) Promote validation and incorporation of new technologies, guarding against the use of non-valid methods in casework and the misapplication of validated methods.
(4) Avoid tampering, adulteration, loss, or unnecessary consumption of evidentiary materials.
(5) Avoid participation in any case where there are personal, financial, employment-related or other conflicts of interest.
(6) Conduct thorough, fair and unbiased examinations, leading to independent, impartial, and objective opinions and conclusions.
(7) Make and retain full, contemporaneous, clear and accurate written records of all examinations and tests conducted and conclusions drawn, in sufficient detail to allow meaningful review and assessment by an independent person competent in the field.
(8) Base conclusions on procedures supported by sufficient data, standards and controls, not on political pressure or other outside influence.
(9) Not offer opinions or conclusions that are outside one's expertise.
(10) Prepare reports in clear terms, distinguishing data from interpretations and opinions, and disclosing any relevant limitations to guard against making invalid inferences or misleading the judge or jury.
(11) Not issue reports or other records, or withhold information from reports for strategic or tactical litigation advantage.
(12) Present accurate and complete data in reports, oral and written presentations and testimony based on good scientific practices and valid methods.
(13) Testify in a manner which is clear, straightforward and objective, and avoid phrasing testimony in an ambiguous, biased or misleading manner.
(14) Retain any record, item or object related to a case, such as work notes, data, and peer or technical review information due to potential evidentiary value and pursuant to the laboratory's retention policy.
(15) Communicate honestly and fully with all parties (investigators, prosecutors, defense attorneys, and other expert witnesses), unless prohibited by law.
(16) Document and notify management or quality assurance personnel of adverse events, such as an unintended mistake or a breach of ethical, legal, scientific standards, or questionable conduct.

(17) Ensure reporting, through proper management channels, to all impacted scientific and legal parties of any adverse event that affects a previously issued report or testimony.

(c) Members of crime laboratory management shall:

(1) Encourage a quality-focused culture that embraces transparency, accountability and continuing education while resisting individual blame or scapegoating.
(2) Provide opportunities for forensic analysts to stay abreast of new scientific findings, technology and techniques while guarding against the use of non-valid methods in casework, the misapplication of validated methods or improper testimony regarding a particular analytical method or result.
(3) Maintain case retention and management policies and systems based on the presumption that there is potential evidentiary value for any information related to a case, including work notes, analytical and validation data, and peer or technical review.
(4) Provide clear communication and reporting systems through which forensic analysts may report to management non-conformities in the quality system and other adverse events, such as an unintended mistake or a breach of ethical, legal, scientific standards, or questionable conduct.
(5) Make timely and full disclosure to the Texas Forensic Science Commission of any non-conformance that may rise to the level of professional negligence or professional misconduct.
(6) Provide copies of all substantive communications with the laboratory's national accrediting body to the Commission.
(7) For any laboratory that performs forensic analysis on behalf of the State of Texas, develop and follow a written forensic disclosure compliance policy for the purpose of ensuring the laboratory's compliance with article 39.14 of the Texas Code of Criminal Procedure.
(8) Ensure the laboratory's forensic disclosure policy provides clear instructions for identifying and disclosing any exculpatory, impeachment, or mitigating document, item, or information in the possession, custody, or control of the laboratory. The policy should explicitly address how to inform potentially affected recipients of any non-conformances or breaches of law or ethical standards that may adversely affect either a current case or a previously issued report or testimony.
(9) Inform all forensic analysts working on behalf of the laboratory that they may report allegations of professional negligence or professional misconduct to the Texas Forensic Science Commission without fear of adverse employment consequences.