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January 28, 2014

Ms. Brette L. Steele
Senior Forensic Science Advisory and
Senior Counsel the Deputy Attorney General
National Commission on Forensic Science
United States Department of Justice
950 Pennsylvania Avenue NW
Washington, DC 20530

Dear Ms. Steele,

The National Association of Criminal Defense Lawyers (NACDL) welcomes the establishment of the National Commission of Forensic Science and is hopeful that this commission will provide leadership in enacting the reforms recommended by the National Research Council in 2009.¹ The overarching concern of the National Research Council was the lack of science underlying the various forensic disciplines and their associated methodologies. In submitting this letter, NACDL encourages the Commission to prioritize the assessment of the existing research in the forensic disciplines, to clarify where further research is needed, and to determine what limitations should be placed on the conclusions that may be reliably drawn by practitioners because of gaps in a discipline's foundational research. Currently, forensic practitioners offer testimony in disciplines whose foundations are untested or demonstrably lacking; the criminal justice system's continued reliance upon forensic evidence cannot justify this practice.

NACDL is the preeminent organization representing America's criminal defense bar. It champions due process for all persons accused of crime and seeks a rational and humane criminal justice policy for the nation. A

¹ NACDL also directs the Commission's attention to the association's supplemental policies, adopted in the wake of the National Research Council report: Principles and Recommendations to Strengthen Forensic Evidence and Its Presentation in the Courtroom, available at www.nacdl.org/ForensicsRecommendations.

professional bar association founded in 1958, NACDL's approximately 10,000 direct members--and 90 state, local and international affiliates totaling up to 40,000 members--include private criminal defense lawyers, public defenders, active-duty military defense counsel, law professors, and judges committed to preserving fairness within America's criminal justice system. Fundamental components of the accused's right to representation include the Fifth Amendment right to due process of law and the Sixth Amendment rights to present evidence, to confront witnesses, to a fair trial, and to the effective assistance of counsel.

Through its education programs, monthly *Champion* magazine, innumerable member resources, sustained public affairs campaign, state and federal legislative criminal justice reform efforts, and issue-specific reform projects in the areas of indigent defense, forensic science, the death penalty, national security, and civil liberties, and white collar crime, among others, NACDL endeavors to:

1. Ensure justice and due process for persons accused of crime;
2. Foster the integrity, independence and expertise of the criminal defense profession; and
3. Promote the proper and fair administration of criminal justice

In February 2009, the National Research Council of the National Academy of Sciences published its groundbreaking report "Strengthening Forensic Science in the United States: A Path Forward (NAS Report)." The report revealed that many of the forensic disciplines have not been scientifically validated, lack standardized protocols (where standards exist, they are often not mandatory), and lack uniformity in procedures for certification of practitioners and accreditation of laboratories (indeed, in most jurisdictions, practitioner certification and laboratory accreditation is not required). The NAS Report concluded:

With the exception of nuclear DNA analysis, however, no forensic method has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence and a specific individual or source.²

The NAS Report stressed the need to develop a body of research to establish the limits as well as the measures of performance. Concomitantly, there was a need to address sources of variability and potential bias as well as establish a body of scientific research in these areas. So fragmented was the forensic science community, and so deep were its problems, that the NAS Report in its first recommendation urged the creation of a separate independent federal agency to implement the recommendations made in the report. In addition, the report strongly urged that crime laboratories be independent of law enforcement.

But forensic laboratories remain for the most part under the auspices of law enforcement, notwithstanding several egregious lab debacles in places such as Massachusetts, New York, Minnesota, and California, to name a few. Whether accredited or not, labs have continued to

² Strengthening Forensic Science: A Path Forward, at 7.

display a history of management, oversight and systemic failures. These failings have resulted in thousands of cases and convictions being called into question. Within the past few months, substantial defects have been uncovered in the gas chromatography testing of blood alcohol samples in the Scottsdale, Arizona, forensic laboratory and in six controlled substance reference standards used for the testing of narcotics at the Alaska Department of Public Safety's Scientific Crime Detection Laboratory. Most recently, the F.B.I. announced input and interpretation errors in 166 profiles in a national DNA database. These failings underscore that virtually no area of forensics is immune.³

NACDL strongly believes that the Commission must first determine what research exists in each forensic discipline and evaluate the strengths and limitations of that research. Without an evaluation of the existing research, and without a discussion about its limitations, there can be little discussion of standards, best practices, or accreditation and certification. Not all forensic disciplines are equally grounded in validated science. Any forensic discipline whose underlying theory or methodology has not been validated, or whose limitations (such as measurement uncertainty and error rates) have not been established, should not be admitted into evidence.

Where additional research is required to shore up the foundations of a discipline, such research should be led and primarily conducted by credentialed and qualified scientists at the national research institutions; forensic science practitioners – particularly those guided by a culture-of-science mindset and with histories of independence from law enforcement – should be active research participants and partners.⁴ This research should be published in well-regarded scientific journals that are widely and publically available.

The basic principles of human observer bias and sources of human error are sufficiently established that there are a number of precautions that can and should be mandated now. As

³ NACDL has serious concerns about what is meant by “forensic accreditation,” how it is applied, what accountability systems are in place when laboratories are found to be in violation of standards, whether standards are required or are simply suggestions from the accrediting agency on how a forensic laboratory should operate, and whether the accrediting agencies are qualified to recognize and/or evaluate the management systems, with an emphasis on determining why, despite yearly inspections, the actions of technicians engaged in egregious behavior remain undetected.

The National Commission should undertake an in-depth examination of the actual protocols used by accrediting agencies in conducting inspections, including but not limited to a determination of whether “accreditation” is being conducted versus an “audit” of required manuals, stated protocols, et cetera. Further, the National Commission should examine whether any current accrediting standards provide for sufficient accountability in the event laboratories flout the guidelines.

⁴ NAS Report, at 71 (“Although the FBI and the NIJ have supported some research in the forensic science disciplines, the level of support has been well short of what is necessary for the forensic science community to establish strong links with a broad base of research universities and the national research community. Moreover, funding for academic research is limited and requires law enforcement collaboration, which can inhibit the pursuit of more fundamental scientific questions essential to establishing the foundation of forensic science”); id. at 189 (“Much more federal funding is needed to support research in forensic science and forensic pathology in universities and private laboratories committed to such work.”).

research into observer bias continues, additional findings should be taken into account in continual improvement of policies, protocols and procedures.

In forensics, DNA is often revered as “the gold standard.” Unlike other disciplines, forensic DNA analysis achieved this status in part because the underlying technology was originally developed in research laboratories and used in medical and life sciences research. In addition, DNA analysis was subjected to significant validation and standardization, largely because of the scrutiny it received from the criminal justice system.

However, over the years the criminal justice system’s demand for DNA analysis from smaller, more compromised and frequently complex mixed samples has outpaced the validation studies required to ensure that the results of such analysis are reliable. Thus, many if not all of the same problems that plague pattern and impression evidence, also plague the analysis of these low-level DNA samples, threatening to tarnish forensics’ “gold standard.”

The analysis of exceedingly small quantities of DNA, well below the amounts determined by existing validation to produce reliable, reproducible and accurate results, is being conducted in numerous federal, state and local laboratories throughout the country. Frequently, one or more of a number of modifications are made to the standardized process in order to coax results from these very low-level samples with little or no validation conducted by the laboratory doing this modified analysis (termed “low copy number” (LCN) or “low template” (LT) testing). Some laboratories that purport to have conducted substantial and adequate validation of their modified procedures fail to publish the results so the procedures may be reviewed and scrutinized. Other labs conduct low copy number DNA testing, without even realizing that is what they are doing. Well-known scientists have cautioned against LCN testing and yet labs fail to heed these warnings.⁵

Litigation in the courts has resulted in a variety of rulings, with some courts ruling the results of this type of analysis inadmissible because it is unreliable and not generally accepted in the scientific community.⁶ However, scrutiny by the criminal justice system is dependent on lawyers and judges understanding the science and its limitations.⁷

Validation, transparency and standardization are at the root of good science. Best practices dictate that validation of the type required to implement a major modification from established procedure – as would be required for LCN testing – occurs outside a forensic laboratory and in a research setting conducted by independent research scientists. This is not to say that forensic

⁵ See, e.g., Budowle, B., Validity of Low Copy Number Typing and Applications to Forensic Science, *Croat Med J.* 2009 June; 50(3): 207-17.


⁶ *People v Hector Espinosa* (Los Angeles Superior Court Case # NA076620); *United States v. McCluskey* __ F. Supp. 2d __, 2013 WL 3766686 (D.N.M. 2013).

⁷ NAS Report, at 12.

labs should not conduct validation studies. Indeed, labs should and must validate established procedures using their own equipment and protocols after the methods and procedures have been validated by the research community. Results of the validation should be published in peer review publications so other scientists may scrutinize the experiments and offer criticisms that in turn will lead to improved procedures and more reliable results.

NACDL remains committed to the goal of a forensic science system in the United States as envisioned by the NAS Report -- one based upon openness, fairness and neutrality. The goal of the forensic science community should be to report in a complete, unambiguous way the results and limitations of its work so that it may be understood by all the stakeholders in the criminal justice system, including lay jurors upon whom falls the awesome responsibility of determining guilt or innocence. The problems that currently affect almost every corner of forensic science will not be readily solved and will require a major change in attitudes toward reform and a willingness to accept such reform. Though not many of the NAS Report's critiques and suggestions have been addressed in the five years since the Report's release, the National Commission has the opportunity to make a difference. To that end, NACDL is prepared to offer whatever assistance it can to implement those reforms and other improvements in all forensic disciplines.

Sincerely,


Jerry J Cox,
NACDL President