NACDL PRELIMINARY POSITION STATEMENTS AND RECOMMENDATIONS ON STRENGTHENING FORENSIC SCIENCE

The National Association of Criminal Defense Lawyers supports the recommendations of the report of the National Academy of Sciences, *Strengthening Forensic Science in the United States: A Path Forward*, Committee on Identifying the Needs of the Forensic Science Community, National Research Council of the National Academies, 2009 ("NAS Report").

In addition, NACDL adopts the following Preliminary Position Statements and Recommendations as necessary for the forensic science system to produce accurate and reliable science, and hence fair and accurate verdicts, in our courtrooms. The Position Statements and Recommendations discuss seven central areas of need: (1) a central, science-based federal agency, (2) a culture of science, (3) research, (4) education, (5) transparency, (6) discovery, and (7) defense resources, particularly for indigent defense services.

CENTRAL, SCIENCE-BASED FEDERAL AGENCY

POSITION: Congress should establish and appropriate funds for the establishment of a science-based federal entity, whether the National Institute of Forensic Sciences (NIFS) as identified in the NAS Report or an equivalent federal agency. This agency cannot be part of the Department of Justice or any other existing federal department or agency whose mission includes law enforcement. The purpose of the new science-based agency would be to promote the development of forensic science into a field of multidisciplinary research and practice founded on the systematic collection and analysis of relevant data. In addition to a full-time administrator, the federal agency should have an advisory board whose representation includes research scientists with expertise in physical and life sciences, mathematics and statistics, pathology, engineering, information technology, measurements and standards, testing and evaluation, and forensic sciences; medical examiners; laboratory representatives; attorneys from private and public defender bars, prosecutors, representatives of national criminal defense and prosecution organizations, and judges; and experts in national security and public policy.

The federal agency should serve as the repository for forensic science funds allocated by the Congress and become the authority by which funds are dispensed in a cohesive fashion with a national strategy in mind. This agency must be created and established first before there can be an attempt at the other important and necessary reforms of the forensic sciences. Indeed, the completion of research programs funded and directed by a science-based federal agency to determine the validity of the forensic disciplines, and to evaluate their assumptions, methodologies, and weights to be attributed to identifications, is, for example, a prerequisite for accreditation and certification programs to have any meaning.

RECOMMENDATION 1:

The federal agency should oversee all programming that relates to forensic science in the United States. Among its responsibilities, the federal agency should:

1. Develop programs to determine the validity and limitations of the forensic sciences and to improve the understanding of them by members of the criminal justice system;
2. develop a strategy to improve forensic science research and educational programs;
3. fund academic, independent, and government research projects and educational programs, with emphasis on programs that address the credibility, validity, reliability, and understanding of forensic science evidence;
4. promote scholarly, competitive peer-reviewed research in the forensic sciences;
5. establish and enforce best practices for forensic science professionals and laboratories;
6. establish educational standards of forensic science programs in colleges and universities;
7. establish standards for the mandatory accreditation of forensic science laboratories and the mandatory certification of forensic scientists and medical examiners/forensic pathologists, and identify the entity/entities that will develop and implement accreditation and certification;
8. develop a national code of ethics that shall encompass substantive forensic science procedures and ethics for forensic science examiners with a concomitant enforcement mechanism;
9. develop and maintain a resource center for aiding the forensic science and legal communities in obtaining information about forensic science and new developments in research, including the creation and maintenance of a library that would house treatises, journals, legal pleadings and judicial decisions concerning the admission and presentation of forensic science evidence, and transcripts of forensic scientists' testimony and legal rulings; and
10. evaluate the development and introduction of new technologies in forensic science investigations, the use of established technologies on new or different types of evidence, a comparison of new technologies with former ones, and a consideration of the limits of new ones.

RECOMMENDATION 2:

Within the federal scientific agency, a board on accreditation and certification should be established with full authority to accredit and revoke the accreditation of all laboratories and to certify and de-certify all forensic science examiners. Neither accreditation of laboratories nor certification of examiners should occur until it has been demonstrated that a forensic science discipline or methodology has been validated. Oversight of accreditation and certification programs should be housed outside the forensic disciplines themselves and shall be the sole responsibility of the federal agency or its designate. The board shall:

(A) Accreditation

1. Develop on its own, and/or in conjunction with other organizations, a mandatory accreditation program for forensic science laboratories. The accreditation program shall set forth an established set of standards of quality and acceptable practices, including a management system that defines laboratory operations on a daily basis and monitors laboratory activities and responses to deviations from the acceptable practices;
2. establish a thorough process for accreditation, which includes criteria by which organizations can apply, a self-evaluation process, an external evaluation process (including site visits by external evaluators), an appeals process, a repeat cycle of evaluation and external evaluation, and a set of standards by which entities can be evaluated;
3. require as criteria of accreditation that a laboratory shall either offer or provide opportunities for continuing education and training programs to enable examiner compliance with set standards;
4. require any designated accrediting agency be independent in all respects from the laboratories which they are accrediting; and
5. develop criteria for the equal disclosure of information by government forensic science laboratories to both parties – the prosecution and the defense – in a case.

(B) Certification

1. Develop certification programs and standards (alone or in conjunction with other agencies) that shall be required for all forensic laboratory examiners;
2. require as part of the certification process specific educational, training and experience requirements including a series of competency tests, both written and practical;
3. ensure that, in contrast to forensic laboratory scientists, those scientists and experts who have specialized knowledge and expertise and/or conduct research and teach in academic and private institutions but who do not perform routine laboratory casework are not required to be certified in order to consult with legal professionals and to testify in court based upon their expertise;
4. require that any designated certification agency shall be independent in all respects from the entities and persons who are being certified; and
5. develop criteria for the equal disclosure of information by government forensic science examiners to both parties – the prosecution and the defense – in a case.

RECOMMENDATION 3:

Proficiency testing is an integral part of the accreditation and certification process and, accordingly, it should be mandatory. Either on its own and/or in conjunction with designated agencies, the accreditation and certification board should develop proficiency testing that (1) mirrors actual casework, (2) is as difficult as the casework that examiners do, (3) is blind; (4) is well documented; and (5) evolves with the learning of new developments that may affect proficiency. Such proficiency testing

programs shall provide a mechanism whereby failure to successfully complete a test shall be reported to the board and made known to those legal professionals who rely on or who have relied upon the examiner's work, and shall result in a corrective action plan for the forensic science examiner. The board shall have the authority to revoke the accreditation of any laboratory and/or decertify any person where it finds there was a willful failure to accurately report the results of proficiency testing or the lack thereof.

RECOMMENDATION 4:

As a central component of its mission, the federal agency should develop a strategy and provide funding to improve forensic science research. In this regard, the agency should promote scholarly, competitive peer-reviewed research. In addition to funding research for current disciplines and methodologies, the agency should assess the development of new technologies in forensic science investigations. Further, the agency should fund the already-promising research into human observer bias and the causes and likelihoods of various forms of error. The federal agency should encourage and ensure that research is conducted by national research universities and other independent research-based institutions.

CULTURE OF SCIENCE

POSITION: A culture of science that encourages critical review, precision, independence, openness, objectivity, and uncertainty management must be instilled in forensic science laboratories and facilities, forensic science practitioners, and forensic science students.

RECOMMENDATION 1:

Forensic science employment should require external continuing education and rigorous, continual evaluations of professional competency. Within the forensic science community, there must be independent, objective peer review of casework and critical assessment by the scientific and legal communities through professional journal publications, conferences, and training seminars.

RECOMMENDATION 2:

A national professional code of ethics for all forensic science practitioners should be adopted and enforced to give forensic scientists a clear understanding of their ethical obligations and to encourage them to meet those expectations. The code of ethics should include continuing educational requirements. Ethical standards should also define the bounds of testimony that may be presented in court given a particular set of findings. The code of ethics must have an enforcement mechanism. For an egregious ethical violation that compromises the integrity of the criminal justice system, the disqualification from the practice of forensic science should be an available sanction.

RECOMMENDATION 3:

Forensic science laboratories, facilities, and practitioners should have no administrative, budgetary, or managerial relationships to law enforcement. Forensic science laboratories, facilities, and practitioners should be independent.

RECOMMENDATION 4:

The exchange of research information, methods, and data is critical to the advancement of forensic science; therefore, forensic science laboratories and facilities should adopt protocols and policies that promote openness in operational, management, and scientific procedures. All scientific protocols, methodologies, and data should be available for examination and critique by scientists, legal scholars, and practitioners to promote knowledge, development and education. The use of online tools can increase communication regarding scientific academic research, enabling the scientific and legal communities to assess the reliability and effectiveness of the forensic science practices and applications.

RECOMMENDATION 5:

Forensic science laboratories, facilities, and practitioners must minimize the impact of unconscious bias on the interpretation of results by implementing measures such as independent (blind) re-examination, sequential unmasking protocols, avoidance of the use of qualitative labels (e.g., "victim"), and segregation of case information extraneous and unnecessary to the examination. Forensic scientists should participate in efforts by the scientific community to conduct research to detect and measure the impact of bias within forensic science examinations.

RECOMMENDATION 6:

Forensic science conclusions must include information concerning the measurement of uncertainty associated with the results and the limitations of the opinion offered. Forensic science opinions of individualization and identity are not scientifically supportable without inclusion of the measurement of the uncertainty inherent in the conclusion that two items may have come from the same source.

RESEARCH

POSITION: Research pertaining to the accuracy, reliability, and validity of forensic science theories and techniques, and their limitations and measures of uncertainty, must be fully funded and carried out immediately by credentialed and qualified scientists at national research institutions.

RECOMMENDATION 1:

Studies establishing the validity of a forensic science theory or technique must include the limitations of the technique, measurements of uncertainty statements, confidence intervals, and methods for determining the weight to be attributed to the result. Because uncertainties are inherent in all forensic science processes, based

upon this research, match probability associations about the evidence should replace conclusions such as "uniquely associated with," "source attribution," or "individualization."

RECOMMENDATION 2:

Studies of the reliability, validity, and accuracy of forensic science techniques or theories should mirror actual casework and samples. The research should distinguish between industry performance (achieved across individual practitioners and laboratories) and individual performance (achieved by specific practitioner and laboratory).

RECOMMENDATION 3:

All research concerning the validity of a forensic science theory or technique should be peer reviewed and published in scientific journals that are widely available and easily accessible to the public.

RECOMMENDATION 4:

Research into human observer bias and sources of human error in forensic science examinations should be funded and further conducted, including studies of the effects of contextual bias in forensic science practice (e.g., studies to determine whether and to what extent the results of forensic science analyses may be influenced by knowledge regarding the background of the suspect and the investigator's theory of the case).

RECOMMENDATION 5:

Research should be conducted to establish error rates. Based on the results of the research, standard operating procedures should be developed to minimize bias and sources of human error in forensic science practice.

RECOMMENDATION 6:

Research conducted to develop automated techniques capable of enhancing forensic science technologies should include consideration of any limitations associated with the automated technique, and notification of such limitations should be provided together with results.

RECOMMENDATION 7:

Documentation of all procedures and results of forensic science examinations or analyses is necessary to permit an independent reconstruction of the examination or analysis to establish the reliability of the results. Therefore, research must be conducted to determine what constitutes sufficient documentation to permit an independent reconstruction of a forensic science examination or analysis.

EDUCATION

POSITION: The NAS Report accurately observed that legal professionals generally lack the scientific expertise necessary to comprehend and evaluate forensic science evidence in an informed manner. Attorneys and judges need significant education and training in the fundamentals of science, statistics, and common forensic science practices and the limitations of, and potential forms and scope of error associated with, those practices.

RECOMMENDATION 1:

Law schools should offer courses in scientific principles and scientific evidence. As part of a law school curriculum, students should be encouraged to take courses in science and statistics.

RECOMMENDATION 2:

The federal government should appropriate funding for the training of criminal defense attorneys in science and in particular general scientific principles and litigating scientific issues. Funds should be provided to existing public defender and independent organizations that currently have effective training programs and to any new or existing entities that demonstrate a commitment to training and present an effective training proposal. Additionally, specific funding should be made available to geographical regions of the country that have historically not had the funds to provide high-quality training to lawyers or that have had an unusually high incidence of forensic laboratory scandals or exoneration cases associated with the misuse of forensic science evidence.

RECOMMENDATION 3:

Funds should also be appropriated for the purpose of establishing a public repository for transcripts of forensic science practitioners; pleadings and transcripts in cases involving challenges to forensic science evidence; and journal articles and treatises involving forensic science, especially those journals or treatises that are out-of-print or in limited circulation. A public repository of such material should be made available through the overseeing scientific federal agency.

TRANSPARENCY

POSITION: The principle of transparency is fundamental to science and to the criminal justice system. Without full and open disclosure, the parties and the trier of fact in criminal proceedings are unable to fully evaluate the strengths and weaknesses of the evidence, such that the criminal justice system's ability to have fair and accurate verdicts is substantially impaired.

RECOMMENDATION 1:

All operations of public crime laboratories must be open to scrutiny.

RECOMMENDATION 2:

Forensic science practitioners should adopt and follow a code of ethics that emphasizes the importance of full disclosure of all data.

RECOMMENDATION 3:

Forensic science practitioners should be trained on the legal obligations of disclosure of Brady v. Maryland, 373 U.S. 83 (1963), and Kyles v. Whitley, 514 U.S. 419 (1995), in order to ensure a full understanding of the constitutional duty of the government and its agents to disclose in criminal proceedings.

RECOMMENDATION 4:

Uniform minimum disclosure requirements consistent with Recommendation 1 of the Discovery Position, *infra*, should be imposed in all jurisdictions to promote the effective assistance of counsel, due process, and fair trials for all criminal defendants.

DISCOVERY

POSITION: Requiring greater disclosure from forensic science facilities is essential to any effort to reform forensic science. Even when the science itself improves and research is conducted that demonstrates the validity or invalidity of certain forensic science methods, both the prosecution and the defense will need full access to the forensic science evidence related to a particular case. Without greater access to information about the forensic science facilities and forensic science practitioners and a requirement that forensic science reports include all data relied on, all assumptions made and all limitations of opinions rendered, defendants will be denied fair trials and wrongful convictions will continue to occur.

RECOMMENDATION 1:

Forensic science facilities must be required to disclose information regarding the analysis or examination that was conducted, provide documentation of quality control problems in the facility or associated with a particular forensic science practitioner, and provide access to standard operating procedures and validation studies. The following is a list of information that should be readily accessible to attorneys representing criminal defendants in cases involving scientific evidence:

(A) Information Pertaining to the Analysis

1. All "bench notes" (contemporaneous notes made during the examination or analysis) including all photographs, diagrams and descriptions of the analysis conducted;
2. all data generated as part of the analysis whether or not the data was ultimately relied on in reporting the results or findings;
3. all communications concerning the case or the evidence whether oral or in writing between the forensic science practitioners, supervisors, technical leaders, and/or law enforcement, including police officers and prosecutors;
4. all chain of custody documentation regarding all samples examined and/or analyzed; and
5. all documentation regarding the collection of all physical evidence as well as documentation regarding a decision not to collect any item of potential evidence.

(B) Information Pertaining to Quality Control within the Forensic Science Facility

1. The most recent external audit report;
2. internal audit reports for the year preceding the analysis through the time of the anticipated testimony;
3. all internal quality control documents recording any errors of any kind (sometimes denominated as "unexpected results" logs) whether or not the correct result was ultimately obtained;
4. records of any internal review or audits conducted for any reason other than accreditation purposes;
5. records documenting corrective action taken following an error or "unexpected result";
6. if no corrective action was taken when an error or "unexpected result" occurred, the written documented explanation of the inaction;
7. calibration records for all equipment used in the analysis; and
8. a list of any documents published or unpublished relied on in forming an opinion in the case.

(C) Information Pertaining to the Forensic Science Practitioner

1. Current curriculum vitae or resume;
2. documentation of all education, training, employment, and other matters listed on the curriculum vitae or resume;
3. documentation of all relevant training received;
4. all information concerning deficient, negligent, or incompetent performance;
5. records concerning any error or "unexpected result";
6. records concerning all proficiency tests; and
7. records concerning certification.

(D) Standard Operating Procedure Manuals and Validation Studies

1. Standard operating procedure manuals for any technique or method in effect at the time of the testing through the time of the anticipated testimony;
2. validation studies for any method or technique used in a particular case; and
3. underlying data from the validations studies.

RECOMMENDATION 2:

Forensic science reports must be complete, thorough, and accurate. Reports should be written so that members of the legal system are able to discern what method of comparison or technique was used; the report must clearly define the standards for the method or technique, all terms used in the report, and the results of the comparison. Reports should include

1. The opinion that will be presented in court;
2. all assumptions being made in rendering the above opinion;

3. a clear characterization of any limitations and an associated statistic that describes the weight that should be attributed to the evidence; and
4. the underlying basis of the opinion including any published or unpublished material relied on.

RECOMMENDATION 3:

Defense attorneys should have access to information in government-administered forensic databases upon a written statement that such access may lead to relevant evidence and is necessary for effective representation of a criminal defendant. Access should be provided in a manner consistent with the privacy rights of the individuals in the databases.

RECOMMENDATION 4:

Funding should be appropriated to establish a repository for transcripts of the testimony of forensic science practitioners.

DEFENSE RESOURCES

POSITION: The Constitution requires that criminal defendants be afforded due process of law, effective assistance of counsel, the ability to confront evidence proffered by the government, and the ability to produce witnesses. As the NAS Report makes clear in highlighting how the misuse and misunderstanding of forensic science has led to the conviction of innocent persons, forensic science reform must be viewed within the framework of these constitutional protections to ensure fair and accurate verdicts based on trustworthy evidence and to prevent wrongful convictions. While the prosecution has historically been the primary proponent of forensic science evidence, the defense bar also uses scientific evidence; indeed, many of the exonerations of innocent persons have been based on forensic science evidence. Additionally, even hampered by severe economic constraints, it is typically the defense bar that has spotlighted deficiencies in, and limitations of, various forensic science disciplines. Defense counsel must have the ability to consult with experts in the forensic science disciplines and related scientific fields to identify for the courts and juries the scientific limits of the evidence and to present the results of independent testing and the testimony of independent experts when appropriate. Forensic science reform must therefore include providing the defense with resources to obtain the assistance of scientific experts for confidential consultation and testimony, and the use of forensic laboratories for independent, confidential testing.

RECOMMENDATION 1:

Criminal defendants should be provided expert assistance commensurate with the needs of the case. Assistance shall include consultation with experts, expert testimony and laboratory testing. The federal government, through the central federal scientific agency, must therefore provide increased resources to the indigent defense bar to provide for greater access to, and assistance by, experts versed in the forensic science disciplines and their scientific underpinnings. This money should be provided to state and federal public defender offices for use in the representation of indigent defendants.

RECOMMENDATION 2:

In those circumstances where some or all indigent representation is provided by non-public defender court-appointed attorneys, the central federal scientific agency should provide money specially targeted for forensic science assistance to the courts or agencies designated to administer funding to court-appointed counsel. These funds should be available to defense lawyers upon a written, ex parte statement that expert assistance is necessary to effectively represent the defendant.

RECOMMENDATION 3:

Although individuals trained as forensic scientists are one category of expert who may possess relevant and specialized knowledge, there are many other types of experts to whom the defense can turn for assistance in understanding forensic science evidence. In addition to forensic scientists, defense counsel frequently consult with scientists employed by academic and private institutions who have expertise and training in the forensic science disciplines and in other scientific disciplines that provide the underpinning for, and context of, the forensic sciences. The funding for expert assistance must necessarily support and encourage assistance from forensic scientists and from other scientists whose expertise can relate to and inform the meaning of the forensic science evidence.

RECOMMENDATION 4:

Forensic scientists who work for government laboratories or for organizations that contract with the government should be open and accessible. Laboratory analysts and directors should be available to meet with defense counsel and defense experts to discuss and answer questions regarding the methodologies, tests, and findings in a particular case as a basic principle of discovery and fundamental fairness. Government laboratory scientists should also, when practical, be available to consult with defense counsel about cases from the same or other jurisdictions in circumstances in which there is no legal conflict of interest if defense counsel elects to seek assistance from such experts. Best practices generally prescribe that defense counsel consult an expert who is entirely independent of law enforcement and the government. There should, therefore, never be a requirement or expectation that defense counsel will rely upon government laboratory scientists as experts instead of consulting with private, independent experts.

RECOMMENDATION 5:

Government forensic laboratories should be available to conduct confidential testing and to provide confidential results to the defense at the request of defense counsel. Best practices generally prescribe that defense counsel use a laboratory that is entirely independent of law enforcement and the government. Therefore, there should never be a requirement or expectation that defense counsel will use government laboratories to conduct independent testing. The defense may employ whatever laboratory – public or private – that it deems appropriate in a particular case. Because laboratories offer different services and have different strengths and weaknesses, funding should be made available to the defense to seek forensic science testing from more than one laboratory on the same piece(s) of evidence.