

PETER NEUFELD
ANSWERS IN RESPONSE TO SENATOR CHARLES GRASSLEY
QUESTIONS FOR THE RECORD
SENATE JUDICIARY COMMITTEE HEARING ON
“IMPROVING FORENSIC SCIENCE IN THE CRIMINAL JUSTICE SYSTEM”

Question for Peter Neufeld

In your testimony, you referred to the 297 people your organization has helped exonerate through post-conviction DNA testing. Please provide the following information with regard to those individuals.

1) Exoneration because of improper forensic science.

- a) **How many of those exonerated were convicted in a case involving improper use of forensic science? Please explain what constitutes your definition of the improper use of forensic science and how you determined, in any particular case, whether it was involved and whether it contributed to the wrongful conviction.**

Fifty three percent of the nation’s DNA exonerees were convicted in cases involving improper use of forensic science. Improper use was determined through documented forensic science testimony or analyses, and sometimes with the aid of the underlying case file. Improper use was found where the analysis or testimony was unvalidated or otherwise failed to comport with the scientific method or where the lab or forensic scientist failed to disclose data, exculpatory or otherwise helpful to the defense.¹ These categories are defined in the following manner:

- **Improper Testimony or analysis:** testimony or analysis which drew conclusions beyond the limits of science as known at that time.² Also included in this category are cases in which there was negligence in analysis, fabrications/alterations of reports and possible failures to conduct elimination testing or comparison. We do not separate out misconduct, as it is not possible in most cases to know the intent of the witness.
- **Unvalidated testimony or analysis:** discipline that has not been validated *and* the testimony or analysis suggested a possible inclusion (source is consistent with/similar to/cannot be excluded, etc).
- **Failure to disclose exculpatory forensic evidence:** withholding laboratory reports, analysis, data, or the very existence of evidence.

¹ The percentage of cases involving unvalidated/improper forensic science is 52% when excluding the cases where exculpatory forensic evidence was not turned over to the defense (n=11).

² See the following article for more details about what specific types of testimony were considered improper: Garrett, Brandon L. and Neufeld, Peter J., Invalid Forensic Science Testimony and Wrongful Convictions (March 16, 2009). Virginia Law Review, Vol. 95, No. 1, 2009. Available at SSRN: <http://ssrn.com/abstract=1354604>.

- b) **Please provide a breakdown by forensic science discipline (i.e., serology—50 cases; hair analysis, 70 cases; etc.).**

A breakdown of the forensic science disciplines can be found in Table 1.

- c) **Please provide a breakdown by whether the use of improper forensic science was as a result of a) alleged scientific invalidity of the particular discipline; b) improper application of the discipline; or c) misconduct by a witness testifying as to what the forensic evidence in the case demonstrated.**

Please see Table 1 for a breakdown by forensic science discipline of whether the use of forensic evidence was a) unvalidated or b) based on improper testimony or analyses. Again, note that we do not separate out negligence and misconduct.

- d) **Please provide a breakdown by year of conviction (i.e, 1980—10; 1981—7; 1982-5; etc.)**

Year of Conviction	Number of Exonerations Involving Forensic Science Problems
1974	1
1978	6
1979	2
1980	2
1981	7
1982	7
1983	13
1984	7
1985	12
1986	13
1987	11
1988	16
1989	17
1990	14
1991	3
1992	6
1993	2
1994	2
1995	3
1996	4
1997	2
1998	3
1999	1
2003	2
2005	1

2) Context for understanding forensic science and exonerations.

a) How many requests for support from convicted persons do the Innocence Project and its affiliates receive, per year and in total since its founding?

The Innocence Project does not have any affiliates and can, therefore, only respond on behalf of itself. While this organization participates in the Innocence Network with other organizations working to prove the innocence of the wrongfully convicted, each project is an independent organization and does not operate under the Innocence Project's control.

The following chart represents the number of requests that the Innocence Project has received since its founding.

Total: Over 44,000 requests.

Year(s)	Intake
Pre-1997	2213
1997	1383
1998	1122
1999	1931
2000	2040
2001	4565
2002	3059
2003	2304
2004	2092
2005	2410
2006	3202
2007	3366
2008	3213
2009	3068
2010	3117
2011	3407

b) How many cases do the Innocence Project and its affiliates accept for further investigation, per year and in total since its founding?

As noted above, the Innocence Project does not have any affiliates, and therefore can only respond on behalf of itself. Since its founding, the Innocence Project has accepted 1,250 cases.

c) In how many cases have the Innocence Project and its affiliates opened a case and closed it when its investigation indicated guilt?

As noted above, the Innocence Project does not have any affiliates, and therefore can only respond on behalf of itself. The Innocence Project closed approximately 435 cases between 2004 and June, 2012. Of these cases, 177 reached the testing stage.

- In 38% of cases, probative exculpatory results led to exonerations.
- 42% of cases resulted in DNA inclusions. All of our clients sign an agreement to share their DNA testing results with law enforcement and the prosecution, so when inculpatory results are obtained, all relevant law enforcement agencies are made aware in the event future testing requests are made.
- In 11% of cases, DNA results were not probative. These cases typically involved profiles of the victim and/or a consensual sex partner, revealing no foreign profiles; cases where an unknown profile is found, but it alone is not enough to exonerate the individual seeking testing, including cases where the foreign DNA did not elicit a CODIS hit which would have been necessary to continue investigation in some of our more complicated cases.
- In 9% of cases, testing did not produce results or there was not enough DNA found to produce a useable profile.

d) In how many cases have the Innocence Project and its affiliates confirmed guilt?

As noted above, the Innocence Project does not have any affiliates, and therefore can only respond on behalf of itself. Please see the above data. While we share the DNA testing results with all relevant law enforcement agencies, we do not confirm guilt in any cases. If the testing results include the client on probative evidence, we close the case.

e) If you do not collect and maintain these statistics, please explain why.

As noted above, the Innocence Project does not have any affiliates, and therefore can only respond on behalf of itself. While we are pleased to share these statistics with the Committee, please note, with respect to questions 2(c) and 2(d), that statistics provided here are from 2004 onward. In 2004, the Innocence Project instituted a more data-driven internal system for gathering and aggregating data.

3) Innocence Project use of forensic science?

- a) Have the Innocence Project and its affiliates ever used as a consultant, advisor, or as an expert witness (or in any other capacity) a person who works at a laboratory that is not accredited by a nationally or internationally recognized organization or who is not certified by a nationally or internationally recognized organization?**

As noted above, the Innocence Project does not have any affiliates, and therefore can only respond on behalf of itself. Speaking only for the Innocence Project, we can confirm that we have worked with several consultants over the last twenty years who are leading academic research scientists in the fields of genetics, molecular biology, population genetics and statistics but whose labs are not subject to forensic accreditation and who themselves are not subject to forensic certification. Among the group are scientists who have been selected for National Academy of Science committees or who have assisted Congress and the executive branch in formulating forensic policy. We have also worked with an expert witness from an unaccredited laboratory named Dr. Edward Blake, a DNA scientist. While Dr. Blake currently works with an accredited laboratory, even during his tenure at the unaccredited Forensic Science Associates, he was an internationally respected DNA scientist and was able to provide scientific services to prosecutors and to the Innocence Project at a level that other DNA laboratories, even those that were accredited, were unable to provide, especially in the area of DNA extraction. The work product and attention to detail that Dr. Blake was able to provide was also unmatched by virtually any other DNA lab. Indeed, in the capital case of *Virginia v. Earl Washington*, an audit produced at the direction of the Governor revealed that Dr. Blake's work was more reliable than that of the accredited state lab and that Dr. Blake had uncovered material errors in the performance of DNA testing and analysis by the accredited state laboratory. We would be happy, upon request, to provide you with a copy of a sample laboratory report produced by Dr. Blake.

While a useful and basic tool for crime lab oversight, the NAS report states that "accreditation is just one aspect of an organization's quality assurance program,"³ and is not sufficient for oversight of the forensic process or to guarantee an error-free analysis. The NAS report made 13 recommendations for the improvement of scientific culture in the forensic system and accreditation was only one of the many important recommendations. Accreditation provides assurance that protocols for laboratory operations, evidence handling, personnel management, review of lab reports, and monitoring of testimony are documented and take place. Accreditation alone does not guarantee, nor is it determinative of the correctness of the forensic product.⁴ It also does not ensure that the best standard operating procedures, protocols, or policies are being utilized by the laboratory or that the laboratory has adopted the best practices. Since there are no national standards for almost all non-DNA forensic disciplines, laboratories are free to adopt their own standard operating procedures, protocols, or policies, which can vary by laboratory. In the absence of

³ Strengthening Forensic Science in the United States: A Path Forward, Committee on Identifying the Needs of the Forensic Science Community, The National Academies Press (2009), p 195. (hereinafter, *NAS Report*).

⁴ Recent investigations of crime laboratories with histories of accreditation have yielded investigations in North Carolina (See Swecker and Wolf (2010) report at http://media2.newsobserver.com/smedia/2010/08/18/13/SBIreview.source.prod_affiliate.156.pdf), New York (See New York State Inspector General reports on Monroe County Crime Lab (2012), <http://ig.state.ny.us/pdfs/MonroeCountyLaboratoryReport.pdf>, and Nassau County Crime Lab (2011), <http://ig.state.ny.us/pdfs/Investigation%20into%20the%20Nassau%20County%20Police%20Department%20Forensic%20Evidence%20Bureau.pdf>), and Texas (See Texas Forensic Science Commission 2012 letter to El Paso Police Department Crime Laboratory, http://www.fsc.state.tx.us/documents/El_Paso_Recommendations.pdf).

rigorous scientific research, accreditation will continue to allow laboratories to use methods that have not been fully tested for their limits and capabilities.

Many more strategies are needed to ensure a valid and reliable scientific work product and accreditation does not cover them all. Therefore, because we believed that Dr. Blake's laboratory operated using the best scientific practices, with proper transparency, and using the highest level of documentation, we were comfortable with utilizing his laboratory's services despite the absence of the accreditation title. Dr. Blake's scientific credentials and reputation are equally shared by both the defense and by prosecutors.⁵

- b) If fingerprint analysis were available as the only means to exonerate one of your clients, would you rely on it, notwithstanding its alleged lack of scientific validity? Similarly, your website touts the case of Cameron Todd Willingham, whose claims to innocence are based on re-analysis by a new arson investigator of the arson investigation used to convict him. Do you therefore accept that contemporary arson investigation is reliable evidence?**

The Innocence Project only takes on cases when we believe DNA testing will provide dispositive proof of innocence.⁶ Post-conviction DNA testing is used as the measure of a possible wrongful conviction because, to quote the NAS, “[w]ith the exception of nuclear DNA analysis, 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.”⁷

With regard to fingerprints, we do support best practices in fingerprint analysis that are in line with the NAS Report's recommendations. All the stakeholders interested in forensic science improvement recognize the vital need to do research. Further research can not only more fully validate the practice of latent print identification, but we hope it can provide a scientifically validated basis for expressing a statistical statement as to the rarity or commonality of an association. Such a development would be more in line with the principles of science than the opinion based testimony that is currently proffered. The NAS report's recommendations about avoiding observer bias in the analysis of prints are critical and shielding or insulating examiners from cognitive bias may be more easily implemented as we await the development of a validated statistical system for providing testimonial weight to a positive association. Lastly, the scientific burden to exclude a person from a fingerprint is different from the scientific burden to prove that an individual is the source of a particular print. As revealed in some of our DNA exoneration cases, there have been instances where probative prints were declared “inconclusive” or insufficient to do analysis but were actually exclusions of a defendant.

⁵ CV of Dr. Edward T. Blake (See pgs. 14-70 of 70), available at <http://www.forensica.com/fasc/doc/cv/eb.pdf>, (last accessed, 8/3/2012).

⁶ In very few of our cases, exceptional cases, innocence has been proven without DNA testing in a case.

⁷ National Academy of Sciences, “Strengthening Forensic Science in the United States: A Path Forward,” February 2009, p. 5-5

With regard to the second question, the Texas Forensic Science Commission was concerned “about the perceived differences in the understanding of fire indicators between the scientists and engineers who study principles underlying fire indicators, and the state and local professionals who respond to and investigate fires.”⁸ The Cameron Todd Willingham case – and that of Ernest Willis, who had been originally convicted and sentenced to death based on the same forms of arson evidence, was subsequently exonerated when the state of Texas recognized the evidence as scientifically invalid, and was then compensated for his wrongful conviction based on his actual innocence – highlights that the manner in which some fire evidence had been interpreted in the past to support findings of arson were scientifically invalid and unreliable.

In order for a fire to be deemed incendiary, all accidental causes must first be ruled out. In both cases referenced above, the arson investigators had originally relied on what we now know to be scientifically *disproven* forms of evidence that a fire had been set to establish the guilt of these men. (See *National Fire Prevention Association 921: Guide for Fire and Explosion Recommendations*.) NFPA 921 establishes that the evidence originally believed to indicate “arson” in those cases were actually indicators of extremely hot fires, and not necessarily indicators that an accelerant had been used to start those fires. A panel of fire scientists agreed that the techniques used in both investigations by state expert witnesses “relied on interpretations of ‘indicators’ that they were taught constituted evidence of arson. While we have no doubt that these witnesses believed what they were saying, each and every one of the indicators relied upon have since been scientifically proven to be invalid.”⁹ The Innocence Project believes that the scientifically tested and proven NFPA 921 establishes the scientific invalidity and unreliability of the arson evidence relied upon to convict Mr. Willingham.

- c) **Modern DNA analysis is based on scientific validation, techniques, and quality assurance guidelines originally developed through the Scientific Working Group on DNA Analysis Methods (SWGDM), composed of lab directors and led by the FBI Laboratory, and published in professional journals of the crime lab community. Why do you rely on DNA even though it does not meet the standards you now recommend for non-DNA forensic sciences?**

Modern DNA analysis *does* meet the standards that the Innocence Project is recommending for non-DNA forensic science. Moreover, the standards and guidelines for forensic DNA did not originate with SWGDM; rather they evolved long before SWGDM existed, following a substantial federal investment in basic and applied research and the reports of two National Academy of Science committees. Indeed, what distinguishes forensic DNA from the other forensic disciplines which attempt to associate crime scene evidence with a particular person

⁸ Texas Forensic Science Commission, Report of the Texas Forensic Science Commission Willingham/Willis Investigation, April 15, 2011.

⁹ Innocence Project, Report on the Peer Review of the Expert Testimony in the Cases of *State of Texas v. Cameron Todd Willingham* and *State of Texas v. Ernest Ray Willis*, p.3.

is its genesis. The basic methods of DNA testing were validated for medicine before they were used in criminal cases. The basic methods of testing for the other forensic disciplines which examine impressions or class characteristics have never before been scientifically validated for any purpose.

In 1994, the passage of the DNA Identification Act established the DNA Advisory Board (DAB).¹⁰ From 1995 to 2000, the DAB created two sets of standards: (1) Quality Assurance Standards for Forensic DNA Testing Laboratories¹¹ and (2) Quality Assurance Standards for Convicted Offender DNA Databasing Laboratories¹². These standards covered organization and management, personnel, facilities, evidence control, validation, analytical procedures, equipment calibration and maintenance, reports, review, proficiency testing, corrective action, audits, safety, and use of subcontractor laboratories. The DAB also developed a mandatory audit process that eventually became accreditation standards for all DNA laboratories that are federally operated, receive federal funds, or prepare DNA samples for upload into CODIS. The DAB was able to contribute these important standards by building on two National Academy of Sciences reports, DNA Technology in Forensic Science (1992) and The Evaluation of Forensic DNA Evidence (1996) that offered recommendations for standardizing the application of forensic DNA as well as for the statistical calculations that can be drawn from the data.

The DAB was operational from 1995 to 2000, after which SWGDAM became the authority on forensic DNA regulation.¹³ Unlike SWGDAM, however, members of the DAB were appointed by the FBI Director from nominations proposed by the head of the National Academy of Sciences and professional societies of crime laboratory officials.¹⁴ As a result, unlike most SWGs, 25% of the DAB were members of academic institutions, 67% held PhD degrees, and the group included one judge and one bioethicist. In contrast, SWGDAM members are appointed by the Department of Justice.

Lastly, DNA is unique in that forensic science laboratories were forced into compliance with the federal standards that were set for its use. Without following the standards set by the DAB, laboratories not only could not receive federal funding, but could also not upload DNA profiles to CODIS. These two consequences would have had dire implications for local criminal prosecutions and thus hastened national compliance with those federal standards.

Unlike SWGDAM, at least seven SWGs represent forensic disciplines that the NAS found to have lacked scientific validation or were not reliable, and/or were disciplines in which expert testimony extrapolated information that was beyond what could be

¹⁰ Public Law No: 103-322 (H.R.3355)

¹¹ Quality Assurance Standards for Forensic DNA Testing Laboratories, Forensic Science Communications, July 2000, Vol. 2, No.3.

¹² Quality Assurance Standards for Convicted Offender DNA Databasing Laboratories, July 2000, Vol. 2, No.3.

¹³ SWGDAM.org, History of SWGDAM, available at swgdam.org (last accessed, 8/9/2012).

¹⁴ Public Law No: 103-322 (H.R.3355), Sec. 210303.

supported by science. Most of these SWGs were established in the 1990s and survived NIJ reports in 1999 and 2004 on the status and needs of the forensic science community where recommendations were made for the validation of nearly all the major forensic disciplines employed by contemporary crime labs. Despite this, those SWGs – and much of the research sponsored by NIJ in those disciplines over the years – assumed the validity of the disciplines it addressed. This is, in part, why Judge Harry Edwards, Senior Circuit Judge and Chief Judge Emeritus for the U.S. Court of Appeals for the D.C. Circuit and the Co- Chair of the NAS report, called SWGs, “as a general matter, of questionable value”¹⁵ in testimony before the Judiciary Committee. While SWGs are helpful advisory bodies that can provide important practitioner input on the implementation of policies and protocols, as currently constituted and operated, most SWGs do not include a sufficiently robust research expertise in its membership to facilitate the scientific work that must be done.

We look forward to the day when non-DNA forensic sciences can undergo a similar renaissance through validation research, development of scientific standards by a body of researchers and independent scientists advised by practitioners, and the adoption of these standards by laboratories across the country.

¹⁵ *Hearing before the Senate Judiciary Committee on Strengthening Forensic Science in the United States: A Path Forward*, 111th Cong., 1st Session, Testimony of Judge Harry T. Edwards, pp. 3 and 4.

Table 1. Unvalidated and Improper Use of Forensic Science in the DNA Exonerations

The table below presents the types of forensic science problems in the DNA exoneration cases by specific discipline. In 53% of the DNA exoneration cases there was documented forensic science testimony or analysis which was unvalidated, improper, or was withheld from the defense (exculpatory forensic evidence).¹⁶

Discipline	Total*	Unvalidated Science Suggesting Inclusion	Improper Testimony/ Analysis	Failure to Disclose Exculpatory Forensic Evidence Favorable to the Defense
Serology	78	N/A	76	3
Hair	79	38	41	1
DNA	11	N/A	10	1
Fingerprints	5	0	3	2
Bite marks	7	2	5	2
Other (dog scent, shoe prints, fiber, tire tracks)	15	6	9	2

** Note: numbers across the rows will not always equal the number in the total column, as some cases involved multiple problems across disciplines.*

Definitions of Categories Displayed in Table

- **Improper Testimony or analysis:** testimony or analysis which drew conclusions beyond the limits of science as known at that time (see g/n article for more details of definitions). Also included in this category is where there was negligence in analysis, fabrications/alterations of reports and possible failures to conduct elimination testing or comparison. We do not separate out misconduct, as it is not possible in most cases to know the intent of the witness.
- **Unvalidated testimony or analysis:** discipline that has not been validated and the testimony or analysis suggested a possible inclusion (source is consistent with/similar to/cannot be excluded, etc).
- **Failure to disclose exculpatory forensic evidence:** withholding laboratory reports, analysis, or data, or the very existence of evidence.

¹⁶ The percentage of cases involving unvalidated/improper forensic science is 52% when excluding the cases where exculpatory forensic evidence was not turned over to the defense (n=11).