

Declaration of William C. Thompson, J.D., Ph.D.

1. **Overview.** I have reviewed testimony and closing arguments presented in the trial of Robin M. Lovitt, the Certificate of Analysis produced by the Division of Forensic Science concerning results of its DNA analysis in the case, and a portion of the underlying laboratory data (photocopies of gel images and StarCall printouts). Based on my review, I have several concerns about the fairness of the trial and about the truthfulness and accuracy of the testimony and arguments that the jury heard about the DNA test results. I strongly recommend that additional analyses be performed of existing electronic data (data that the Division of Forensic Science should still possess) in order to resolve important ambiguities in the DNA test results that relate directly to whether Mr. Lovitt actually committed the murder for which he is scheduled to be executed. Based on my review, I have reached the following conclusions:
2. **DNA on the Murder Weapon.** The DNA evidence that the prosecution used to link Lovitt to the murder weapon (a pair of scissors) was highly problematic. I believe most forensic DNA analysts would have regarded this evidence as inconclusive or even exculpatory rather than incriminating. Yet this evidence was presented and argued to the jury in manner that suggested it provided significant support for the proposition that Lovitt handled the murder weapon.
3. **DNA on Lovitt's Jacket.** The underlying DNA test results (as revealed by the StarCall printouts) strongly suggest that the blood on Lovitt's jacket, which the prosecutor attributed to the victim, could *not* have come from the victim and in fact came from Lovitt himself. The test results on the jacket are weak by conventional standards and were deemed "inconclusive" by the Division of Forensic Sciences. Yet these results are far more complete and revealing than the test results that were used to link Lovitt to the murder weapon. It appears that the government applied a double standard in this case. The extremely weak and problematic results that linked Lovitt to the murder weapon were presented to the jury and used as a basis for arguing that he was the killer. But the jury was never told about the relatively stronger and more convincing results that supported Lovitt's innocence by showing that the blood on his jacket did not come from the victim, as the prosecutor had argued, but came from Lovitt himself.
4. **A More Definitive Analysis Is Still Possible.** New scientific techniques have recently been developed that could be used to cast additional light on the DNA test results in this case. These techniques do not require retesting of the original samples (which, as I understand it, were mistakenly discarded) but instead entail re-analysis of the electronic files and data that were produced by the Division of Forensic Science during the testing of the original samples. It is standard practice for forensic laboratories to retain the electronic files that are produced during DNA testing. Consequently, it is likely that electronic data are still available that could allow a more definitive interpretation of the DNA test results in this case.

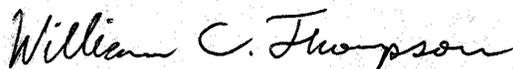
In particular, re-analysis of the electronic data could allow more definitive conclusions to be reached about whether Lovitt could or could not have been a contributor to DNA found on the murder weapon and whether Lovitt (rather than the victim) is the source of the DNA found on Lovitt's jacket.

5. **ASCLD Auditors' Conclusions.** I have been told that a group of ASCLD auditors reviewed the test results and Certificate of Analysis in the Lovitt case and reported that they saw nothing amiss. The auditors' conclusion does not contradict the points I am making in this declaration. I believe most experts would find that the Certificate of Analysis issued in this case was a reasonable summary of the underlying laboratory results. Consequently I am not surprised that the auditors saw nothing amiss. The problem does not lie in the Certificate of Analysis but in the way the test results were presented in court. The Certificate of Analysis does not say that Lovitt's DNA was found on the murder weapon. It quite properly expressed no conclusion on this point. Yet the jury heard testimony and argument that the DNA results did show DNA consistent with Lovitt's on the murder weapon. I suspect the auditors were also unaware of the double standard applied by the government in telling the jury about "inconclusive" results that supported Lovitt's guilt while failing to present the more convincing "inconclusive" results that supported his innocence. Reasonable people can differ about what standards are appropriate for distinguishing "conclusive" from "inconclusive" DNA test results, but no reasonable person can believe that different standards should apply depending on whether the results support or contradict the government's position in a criminal prosecution. To the extent the ASCLD auditors viewed the test results in isolation, without considering how those results were presented and used in the trial, they failed to see the whole picture and their report is of little value in assessing the fairness of Lovitt's trial.
6. **Details of Test Results.** I have attached to this declaration and incorporate by reference a table (Table 1) showing some of the Division of Forensic Science's Powerplex DNA typing results in the Lovitt case. The table shows the alleles that were detected at eight genetic loci during the laboratory's computer analysis of the test results. These are the results that are recorded on laboratory's StaRCall printouts. As can readily be seen, the DNA profile on the scissors matches perfectly with the profile of the victim, Clayton Dicks, with the exception of a single additional allele at locus vWA. This extra allele, allele 17, is one that Lovitt happens to possess. But it is a very common allele, possessed by approximately 40% of the human population, and therefore its value for linking Lovitt to the scissors is negligible. More importantly, Lovitt also has another allele at locus vWA, allele 16, that was *not* detected on the scissors. I believe most experts would conclude that the failure to detect the 16 allele has more value for excluding Lovitt than the discovery of the common 17 allele has for including him, and therefore that this evidence, on balance, is more exculpatory than incriminating. The DNA profile of the blood on Lovitt's jacket, which the prosecutor attributed to the victim, clearly does not match the victim—it matches

Lovitt himself. The laboratory's computer detected alleles at five genetic loci. Ten of the eleven alleles match Lovitt. There is one additional allele, allele 11 at locus D5S818, which does not match Lovitt, but it does not match the victim either. The probability that a randomly selected man's DNA profile would be consistent with the profile found on Lovitt's jacket is approximately 1 in 10,000 among Caucasian-Americans and approximately 1 in 20,000 among African-Americans. Lovitt's profile is consistent. The victim's profile is not.

7. **Qualifications.** I am a professor in the Department of Criminology, Law & Society at the University of California, Irvine (UCI). I am also a member of the California Bar. I have been studying forensic DNA evidence since 1988 and have published over 25 articles on the subject. My articles have appeared in scientific journals (e.g., *Genetica*, *Journal of Forensic Sciences*) as well as legal publications. I hold the title of Senior Research and Development Scientist at Forensic Bioinformatics, a company that specializes in the analysis and re-analysis of electronic data and computer files generated in forensic DNA testing. I frequently conduct workshops and training sessions on the evaluation and presentation of forensic DNA evidence. I served as Reporter for the American Bar Association Standards Committee Study Group on DNA Evidence, and on the ABA Task Force on Biological Evidence. I have delivered invited addresses on the evaluation of DNA evidence at professional conferences sponsored by a number of organizations, including the National Institute of Justice, the Association of Forensic DNA Analysts and Administrators (AFDAA), the California Association of Criminalists (CAC), the International Association of Forensic Science, the Missouri Advanced Judicial Studies Institute (a training program for Missouri judges), and the Australia/New Zealand Forensic Science Society. I frequently attend and participate in scientific meetings related to forensic DNA testing. I have participated in a number of workshops and training programs on forensic DNA evidence, and specifically on systems for automated analysis of STRs. I have consulted with police departments, a state coroner, innocence projects, news organizations and a number of lawyers on the interpretation of DNA evidence. I have reviewed and evaluated STR based DNA tests in more than 100 cases and was personally responsible for uncovering several serious DNA testing errors, including one that caused a false conviction.

I declare under penalty of perjury that the forgoing is true and correct.



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Irvine, California
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Table 1: Summary of Powerplex Typing Results—Commonwealth v. Lovitt (Numbers in parentheses are the optical densities of the bands as shown in the STaRCaII bench notes)

Item #	Description	CSF1PO	TPOX	THO1	vWA	D16S539	D7S820	D13S317	D5S818
1	Blood Sample from Clayton Dicks	8, 13	8, 9	7, 7	11, 14	12, 13	8, 11	10, 14	8, 12
6	Blood sample from Robin Lovitt	10, 12	8, 11	7, 9.3	16, 17	9, 12	8, 12	11, 12	10, 12
2B	Scissors--Stained area B	8 (271), 13 (169)	8 (296), 9 (272)	7 (2314)	11(2553) 14(2508) 17 (131)	12 (75) 13 (61)	8 (146) 11 (129)	10 (140) 14 (101)	8 (456) 12 (483)
12	Jacket (as reported in Certificate of Analysis)	-INC-	***	-INC-	-INC-	-INC-	-INC-	-INC-	-INC-
12	Jacket (alleles detected by computer, as shown in StaRCaII bench notes)	10 (102), 12 (62)	***	***	16 (15), 17 (85)	***	8 (3), 12 (32)	11 (51), 12 (5)	10 (25), 11 (24), 12 (26)