UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF FLORIDA

CASE NO. 00-9009 CIV-MIDDLEBROOKS/BANSTRA

NED L. SIGEL, GEORGETTE SOSA DOUGLAS, GONZALO DORTA, CARETTA KING BUTLER, DALTON BRAY, JAMES S. HIGGINS, and ROGER D. COVERLY, as Florida registered voters,

and

GOVERNOR GEORGE W. BUSH and DICK CHENEY, as candidates for President and Vice President of the United States of America,

Plaintiffs,

vs.

THERESA LePORE, CHARLES E. BURTON, CAROL ROBERTS, JANE CARROLL, SUZANNE GUNZBERGER, ROBERT LEE, DAVID LEAHY, LAWRENCE KING, JR., MIRIAM LEHR, MICHAEL McDERMOTT, ANN McFALL, and PAT NORTHY, in their official capacities as members of the County Canvassing Boards of Palm Beach, Miami-Dade, Broward and Volusia Counties, respectively,

Defendants.
_____/

DECLARATION OF REBECCA T. MERCURI

Rebecca T. Mercuri, being first duly sworn upon oath and under penalty of perjury, does hereby state and affirm that if called to testify in the above captioned proceedings, she would testify as follows:

1. My name is Rebecca T. Mercuri. My title is President, Notable Software, Inc. of Lawrenceville, New Jersey, a computer consulting firm I founded in 1981. I am also a full-time member of the Computer Science faculty at Bryn Mawr College, Bryn Mawr, Pennsylvania. On October 27, 2000, I successfully defended my Ph.D. thesis at the School of Engineering and Applied Science at the University of Pennsylvania. The title of my thesis is: "Electronic Vote Tabulation Checks & Balances."

2. I hold a Bachelor of Science degree in Computer Science from The Pennsylvania State University, a Master of Science degree in Computer Science from Drexel University, and a Master of Science in Engineering degree from the University of Pennsylvania. My Ph.D. from the University of Pennsylvania will be awarded upon the final approval of the dissertation manuscript.

3. I have been involved with electronic vote tabulation since 1989, primarily in the capacity of an expert witness, but occasionally as a system examiner. Nearly all of this work has been pro-bono. My other expert witness work, which is for pay, has been through Notable Software, Inc. Some of my clients have included: The Public Defender's Office, State of New Jersey; The Office of Attorney Ethics, State of New Jersey; and numerous private law firms in Pennsylvania and New Jersey. Cases in which I have been involved include: criminal investigations, civil and municipal matters, product performance claims, and patent reviews. My expert witness work has, on occasion, involved forensic collection and examination of physical evidence (such as data media, computer hardware, and software), and review and reconstruction of damaged or deleted files.

4. I have published numerous papers and articles regarding voting machines over the last decade in a variety of forums, including the National Institute of Standards and Technology's National Information Systems Security Conference proceedings, and the Association of Computing Machinery's Communications. Many of my papers are available on my website at: www .seas.upenn.edu/~mercuri (follow the electronic voting link and also the [somewhat outdated] interactive resume link). My writings have focused on the flaws in computerized vote tabulation and ballot casting systems, primarily those related to auditability (a major factor in recounts) and anonymity (privacy).

5. I was heavily involved in expert testimony through the 1990's regarding the New York City voting system procurement. For that project, I read the extensive requirements for purchase as well as the subsequent system evaluation documents, and provided comments and sworn testimony at numerous New York City Board of Elections hearings on the ability (or inability) of the proposed systems to meet the stated requirements. (The $60M purchase was ultimately cancelled.) During 1993 I examined documents and provided comments pertaining to the mayoral election in St. Petersburg, Florida, where significant anomalies in the vote tally ultimately resulted in a manual recount. Over the years, I have also provided comment on voting system procurements in Pennsylvania, Nevada, and Hawaii.

6. Although I am new to the Bryn Mawr faculty as of this year, I have served as a Professor of Computer Science at other colleges and universities, including Drexel University in Philadelphia. My specialties in the computer science field are: computer languages, computer architecture, computer-related risks, and digital multimedia. Through Notable Software I also led training sessions in computer languages and applications for such agencies as the

Philadelphia Stock Exchange, the Federal Aviation Administration, and the U.S. Army (at Fort Dix).

7. Prior to my return to academics, I was employed as a computer scientist and computer engineer in industry, working for such companies (either as a regular employee or consultant) as: Intel Corporation, AT&T Bell Laboratories, Merck Corporation, Sarnoff Corporation, and RCA Laboratories. My responsibilities for those companies included computer software and hardware analysis, design, user interfaces (ergonomics), engineering, production, and product testing. I am fluent in many computer languages, ranging from assembly through object-oriented programming, and am conversant with various operating systems. I can read circuit diagrams both digital and analog, and am also an amateur radio licensed operator (KA3IAX General Class).

8. All voting systems (from punched-cards to internet balloting) are inherently flawed. These flaws include technological problems (such as failures in hardware, like card readers), sociological problems (from ballot-switching to subversive computer code in tabulation systems), and socio-technical problems (like legislation that fails to adequately address technologies that are deployed for use in elections). For example, it is my understanding that Florida Election Law requires that card readers be certified to process cards with an error rate of only one in a million reads. This law fails to address the ballot error rate that involves the punching of cards by the voters, a rate that is well known to exceed 2% (and sometimes as much as 5%) of the votes cast for typical elections. These ballot errors include the well-known problem of “hanging chad,” misaligned cards, and ballots with holes that are not completely punched.

9. The cards that are read through the readers for pre- and post-election purposes are (to my understanding) pristine sample cards (that also may include defects so the code that rejects double-punched ballots can be exercised), but not the typical set of poorly-punched ballot cards produced by voters, which is actually the norm on election day. The true cards would have the hanging chad problem, which results in re-reads producing different result totals.

10. Given the card-reader manufacturer's claim (which I have discerned through media reports) that after four re-reads, the ballots will stabilize such that hanging-chad will not be a problem, the election law should also specify that all cards be read through four times, in order to produce the most accurate count possible when using a machine. The ballot cards at issue here have only been sent through the reader at most twice, with resulting inaccuracies and undercounts due to hanging chad and other ballot errors. This is but one example of the many socio-technical problems to which I referred above.

11. All voting systems should have redundant mechanisms whereby each voter could verify the content of the ballot that they cast, thus providing the "checks and balances" that are critical to the democratic process. With punched cards, it has long been recommended (by Roy Saltman in his 1988 NIST treatise on Accuracy and Integrity in Computerized Vote-Tallying, and others, including myself) that paper balloting systems (punch-card and mark-sense) should contain identification of the candidate directly on the ballot itself so that each voter can visually verify that their ballot is correct before placing it into the box.

12. Many States and municipalities have done this with their ballots, but apparently those being scrutinized in Florida have not, despite the fact that it was well known that this would effectively lower the voted ballot error rate, and also despite the enormous problems

experienced in Florida with ballot problems during the 1988 Senate election. One might think that this is all water under the bridge, but since the voters were not given the opportunity to scrutinize their ballots, other humans should be permitted to do this. Indeed, election workers should be charged with the task of visually checking the ballots, in order to accurately ascertain the intent of voters where possible. The goal should be to determine the true will of the voters, not to slavishly cling to a machine count that is not fully accurate.

13. The cards themselves are the physical evidence of the election. They are, in fact, both the audit trail for the election as well as the expression of the intention of how each voter cast his or her ballot. In the truest sense, they represent the material upon which the forensic investigation of the election must take place. Since the card reader does not have the ability to do anything with the cards other than to verify that the ballot is "correct" (i.e. not double-punched in the same office) and to tally votes on those cards deemed correct, it is up to humans to inspect each individual card to determine what votes were actually cast.

14. All voting systems should provide an unimpeachable audit trail. In this case, it is the ballot cards themselves that provide this audit trail. The value of this fail-safe mechanism is rendered meaningless if it is precluded from use when verifying election results. This would be akin to saying that the corpse could not be examined for the cause of death in a murder investigation.

15. I must strongly urge you, therefore, to permit the manual investigation of the paper ballots to proceed. Given the critical importance of the Presidential vote in Florida, it would be inappropriate to enjoin the requested and ongoing manual hand recounts, which will proved a more accurate reflection of the votes cast on Election Day. Having been an election

worker at the polls for over 15 years, first in Pennsylvania and later in New Jersey, I know the seriousness with which each individual charged with the task of tallying the election takes their responsibility. It is my belief that the humans who will examine the cards will provide a better interpretation of the will of the voters than any machine can currently produce.

I declare under penalty of perjury that the foregoing is true and correct. Executed on November ____, 2000.

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Rebecca T. Mercuri
Lawrenceville, New Jersey