

May 24, 2007

To: NIST and the Technical Guidelines Development Committee:

I wish to record my disagreement with certain provisions of the VVSG Recommendations (Draft) of May 21-22, 2007; specifically those in Volume 3, Chapter 6, Voter Verified Paper Records. This chapter permits the use of post-vote printouts from DREs that are contained on a continuous roll of paper. In my opinion, this method of providing a voter-verified paper record is seriously defective and should not be permitted.

It is a bad idea to standardize defective methods in the hope that the minimal requirements imposed will make a sufficient improvement to overcome the fundamental flaw. This procedure was tried in the 1990 voting-system standards published by the Federal Election Commission. In those standards, the use of pre-scored punch card ballots was permitted. The standards stated:

"When pre-scored ballot cards are used ... [the stylus] shall incorporate features ... to ensure that the chad (debris) is completely removed."

No state that used pre-scored ballot cards, and they were used in many states, ever required a spring-loaded stylus, the only method that would have ensured that the chads were completely removed. The Florida debacle of 2000 resulted partly because of the failure of that state to carry out the provisions of the standards that they had adopted. It may be noted that no provision of the Help America Vote Act requires the elimination of pre-scored ballot cards, and they are still being used in Idaho by about 60% of the voters in that state. Idaho never requested HAVA money to replace them, and the federal government has no legal method of forcing their removal, despite their defective character.

In my report to NIST of August 22, 2006, carried out under contract, and entitled "Independent Verification: Essential Action to Assure Integrity in the Voting Process," I listed several serious problems with post-vote printouts from DREs. I listed these in more detail elsewhere. These defects are:

(1) **A Majority of Voters Do Not Review Their Printouts:** An analysis of a videotape from an actual election using DRE printouts, carried out with experienced and respected individuals in attendance, demonstrated that a majority of voters did not review their printouts. A bill being considered in the House of Representatives mandates instructions to voters calling for them to review their printouts. Experience suggests the failure of this strategy. In the many years that pre-scored punch cards were repetitively used, instructions to remove all chads from the backs of ballot cards were routinely ignored.

(2) **Printouts Should Not Be Identified as "Ballots of Record" of the Voters' Choices:** The concept behind implementation of printouts is that the computer program is not trusted to record the voters' sets of choices correctly. By that very fact, then, if a voter fails to completely and thoroughly review the printout before accepting it, the printout remains just a piece of paper produced by a computer program that is not trusted. No claim can be made that these printouts, if not completely reviewed, exactly represent the voters' choices. It is meaningless and a waste of time and resources to recount these printouts. Furthermore, as

these printouts cannot be guaranteed to be *exact copies* of their respective summary screens, it is improper to declare the printouts the *ballots of record*, as has been done in some states.

(3) Human Factors Prevent Effective Reviews of Printouts, Even When Reviews are Attempted: In verifying that the computer has recorded his or her vote correctly, a voter would have to compare the DRE summary screen against the printout. Both the Caltech/MIT Voting Technology Project and the Center for American Politics and Citizenship at University of Maryland - College Park have noted serious human factors issues that prevent an effective comparison. The MIT researchers have written that the different formats, graphical layouts and lighting conditions make comparison difficult. They stated further that “comparing dozens of selections on voter-verified paper receipts will take special care. Complications of comparing a separate paper trail in a different ballot format might add extra difficulty for people with learning or reading difficulties.” The researchers at College Park have written that “questions were raised about the paper record’s utility when used for a long ballot.”

(4) The Time to Vote is Increased: The addition of a paper trail to a DRE and the necessary comparison of the printout with the electronic screen increases the time to vote. This fact was noted in a recent study of some vote-verification technologies carried out by Donald F. Norris and associates at University of Maryland at Baltimore County. The increase in voting time is a serious concern for the use of DREs, in that a voter must monopolize the equipment during the voting process. The likelihood of waiting lines is greater. Election administrators know that increasing the time to vote is unacceptable to voters. The increased time is one reason that many of voters do not review their printouts.

(5) A Voter’s Loss of the “Secret Ballot” Occurs if an Error is Discovered: The reason for requiring a printout is to attempt to determine if the computer’s printed record is different from the votes shown on the DRE summary screen. If a voter finds a difference, that voter must lose his or her right to a secret ballot in the demonstration of the difference to a poll worker and to other election administrators who must assure the correctness of what the voter is protesting. Since the right to a secret ballot is typically required in law, the demonstration of an error would put the voter and the election administrators in a double bind. The determination of a computer error would be very important to be revealed, and yet it would be a violation of a fundamental right of a voter. The use of these printouts requires voters to serve as the front line against computer error and to be severely wounded if the enemy appears.

(6) Blind Persons Cannot Use the Printouts: The American Association for People with Disabilities has strongly opposed the use of the printouts as discriminatory and unlawful. The Help America Vote Act requires that persons with disabilities be given the same opportunity to vote independently as non-disabled persons. The requirement that voters read their printouts to determine if they exactly represent the voters’ choices cannot be carried out by blind persons. The requirement that blind persons use a different system than sighted persons to cast their votes stigmatizes this community.

(7) An Extra Onus for Verification is Placed on the Voter: The requirement that a voter review a printout from a DRE in order to verify correctness of his or her choices is an unnecessary extra requirement imposed on the voter. In a different implementation for a DRE, a

voter can review and approve an instantaneously appearing printed copy, on a hard-copy ballot, of each vote cast, as it is cast. This latter method adds no time and no human-factor difficulty to the verification process. If independent verification is established in law, it becomes the duty for the election administrators to carry out this important responsibility. Then, independent verification becomes an aspect of “due process” in determining the results of elections.

Therefore, I request that the TGDC eliminate the use of post-vote printouts from DREs as an acceptable method of voter-verification. With DREs, if the voter is not permitted to touch and handle the hard-copy printout, the only acceptable method, in my opinion, is one in which the voter sees the selected candidate's name printed on the ballot immediately following the candidate's selection on the touch-screen or with a pushbutton or micro-switch. I have seen a system with this characteristic; it is being proposed for use in New York state. Furthermore, this system cuts off each voter's set of selections on the hard-copy ballot from the continuous roll and drops them in a large ballot box, thereby eliminating the issue of loss of privacy that could result from a matching of the sequence of voters with the sequence on the continuous roll.

Roy G. Saltman
Consultant and Author on Election Technology
5025 Broken Oak Lane
Columbia, MD 21044
Phone: 410-730-4983
Fax: 410-997-4355