



ILLINOIS BALLOT INTEGRITY PROJECT SUBURBAN COOK COUNTY CHAPTER

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Robert A. Wilson
Chairperson

Via Priority Mail

22 December 2005

Honorable Jesse Smart, Chairman
Illinois State Board of Elections
C/O Smart Seeds, Inc.
2302 East Oakland
Bloomington IL 61701

Dear Chairman Smart:

At the December 20, 2005 meeting of the Illinois State Board of Elections, the Board voted 6-2 with certain qualifications to certify the Diebold AccuVote TSx DRE terminal as equipped with the AccuView Printer.

During the discussion, significant questions were raised regarding security issues surrounding the Diebold AccuVote components. Ms. Dianne Felts stated that she believed that such issues had been addressed by the ITAs and during the certification process. While Ms. Felts relied on the NASED certification which appears proper under the Board's procedures, we suggest that the underlying documentation may lead to a different conclusion.

From Page 21 of a Ciber Labs Report on Diebold:

"All software (including firmware) for all voting systems shall incorporate measures to prevent access by unauthorized persons, and to prevent unauthorized operations by any person. Unauthorized operations include, but are not limited to: modification of compiled or interpreted code, run-time alteration of flow control logic or of data, and abstraction of raw or processed voting data in any form other than a standard output report by an authorized operator."

While this item was declared: "Passed," in the comments section it states, "Firmware not reviewed by software ITA."

Further on the same page:

"The vendor shall provide a penetration analysis relevant to the operating status of the system, and its environment. This analysis shall include the individual use of program units, the planned or inadvertent sharing of program units, and the resulting transitivity relationships. It shall identify all entry points and the methods of attack to which each is vulnerable. Such penetration analysis will be subject to strict confidentiality and nondisclosure by the test authority. For security reasons, the pre-election analysis shall not be routinely distributed to the jurisdictions that program elections. The penetration analysis, however, will be part of the escrow deposit."

This item was declared: "Not Applicable," with the following comment: "Penetration Analysis not reviewed by software ITA."

It would appear that NASED certification, relying on what may well be flawed or incomplete ITA procedures may not have been sufficient to answer the Board's concerns regarding security issues. [A copy of the Ciber Labs page is attached hereto and incorporated by reference.]

During the discussion of the motion to certify, Mr. Mark Radke of Diebold stated that the testing done in California several months ago was favorable to the Diebold Accuvote TSX. I believe that my comments regarding the July 20, 2005 testing quoted from the report, "Analysis of Volume Testing of the AccuVote TSX/AccuView" prepared by the California Voting Systems Technology Assessment Advisory Board on behalf of the California Secretary of State, are sufficient to refute that contention. During the discussion you appeared to view the possibility of a "few errors" during the election process as inevitable (and I agree that's true). However, the Report indicates that more than a few are likely to occur.

A total of 96 AccuVote TSX machines were tested. A minimum of 34 incidents of failure were recorded by the 96 machines during 5.33 hours, a failure rate of 35.4% in terms of total failures. A total of 20 software errors and 14 printer jams were recorded. These failures involved 29 distinct machines, which means that 30.2% of the machines tested incurred one or more failures during a relatively short testing period.

The report calculated two different metrics of failure, the mean *time* between failure (MTBF) and the mean *votes* between failure (MVBF). The Report found:

"When considering only software failures, the estimated MTBF is approximately 25.6 hours. This means we expect a typical TSx machine to experience a software failure about once every 25.6 hours, under the conditions experienced during the volume testing. The estimated MVBF, when considering software failures only, is approximately 536 votes, meaning that one might expect a software failure about once every 536 votes."

"And further: During the volume test, approximately 20% of machines experienced a software failure, so one might expect roughly 20% of machines to experience a software failure and need to be taken out of service during an election of comparable scale. Under these assumptions, some polling places would be left without any working machine by the end of the day."

The Report concluded that the Diebold AccuVote TSx does not meet EAC standards: "The observed failure rate appears to be far larger than the MTBF called for in the relevant federal standards. Both the 1990 and 2002 FEC standards require a MTBF of at least 163 hours. On the surface, then, the aggregate failure rate observed during the volume test would appear to be more than 10 times higher than permitted."

We suggest that this failure rate, when translated into actual election day experience has the potential to cause more than a "few errors." In addition, there is an issue of lost votes from the standpoint of audit and/or recount. In examining the 13 of 14 paper jams, the testing results showed:

"For 6 of these 13 cases where counts were available, the number of VVPAT records matched the number of electronic ballot images, and so we assume no VVPAT records were lost. However, for the other 7 jams, some number of VVPAT records were lost. These involved 6 distinct machines; machine numbers #8, #10, #33, #45, #55, and #60 were associated with 1, 5, 4, 2, 1, and 8 lost VVPAT records, respectively. Machine #10 experienced two printer jams. In total there were 21 lost VVPAT records, out of a total of 1535 ballots cast on those particular machines."

The Report describes the results of the paper jams as being consistent with those found by Dianne Felts during her evaluation: "In every case where a printer failure occurred, the loss of VVPAT records would be evident upon inspection of the paper trail. In every such case, the paper stopped advancing and the printer overprinted multiple lines of text to the same place on the paper."

This type of failure is particularly relevant when considering the 5% audit contemplated under the revisions to the Illinois State Election Code embodied in HB 1968. The concludes that : "The loss of

VVPAT records would be problematic during any recount of the VVPAT records. If the VVPAT were to govern in the event of any discrepancy between the electronic and paper records . . . then lost VVPAT records might constitute lost votes.”

During the test, a total of 21 VVPAT records were lost out of 1,535 votes cast, a failure rate of 1.37%. Projected against the two million votes cast in Cook County during the last presidential election, for example, this would be approximately 4,100 lost votes, rendering any audit or recount virtually meaningless. For this reason, it would appear that the Diebold AccuView printer does not meet Illinois standards.

We concur with this statement of the Report: **“These calculations provide evidence that the failures observed during the July 20th test are serious. It is hard to escape the conclusion that any system with failure rates this high is not ready for use in an election.”** [A copy of this Report is attached hereto and incorporated herein by reference.]

Mr. Radke also stated that the Diebold TSx had been “certified in California” on several occasions. And while that may be true in some previous elections, that certification is certainly in question at this time. In fact, even as the Board was debating certification for Illinois, the California Secretary of State’s Office was sending Diebold a letter stating:

“Unresolved significant security concerns exist with respect to the memory card used to program and configure the AccuVote-OS and the AccuVote-TSX components of this system because this component was not subjected to federal source code review and evaluation by the Independent Testing Authorities (ITA) who examined your system for federal qualification. It is the Secretary of State’s position that the source code for the AccuBasic code on these cards, as well as for the AccuBasic interpreter that interprets this code, should have been federally reviewed.”

“Furthermore, we strongly believe it is the duty and responsibility of the Secretary of State and you to make certain that the ultimate users of your products – the voters of California – have a voting system that has been thoroughly and rigorously evaluated. Therefore, we are requesting that you submit the source code relating to the AccuBasic code on the memory cards and the AccuBasic interpreter to the ITA for immediate evaluation.”

“We require this additional review before proceeding with further consideration of your application for certification in California. Once we have received a report from the federal ITA adequately analyzing this source code, in addition to the technical and operational specifications relating to the memory card and interpreter, we will expeditiously proceed with our comprehensive review of your application.”

Had the contents of this December 20, 2005, letter from Caren Daniels-Meade, Chief, Elections Division to David Byrd, Vice President, Diebold Election Systems, Inc. been known to the Board, we suggest that the outcome of the vote on certifying the Diebold AccuVote TSx might well have been substantially different. [A copy of this letter is attached hereto and incorporated herein by reference.]

This request by the California Secretary of State places Ciber Labs in an almost untenable position. Note Ms. Daniels-Meade’s use of the terminology “AccuBasic interpreter.” We suggest this is a deliberate methodology to force Ciber to adhere to Federal Election Standards which prohibit interpreted code – thus **the entire Accubasic interpreter fails FEC standards and should not have been certified.** We seriously doubt that Ciber, or any other ITA is likely to again flout the FEC in so public a manner. We believe the ultimate result may very well be the withdrawal of Diebold’s certification.

During the discussion, Mr. Radke also alluded to "misinformation" and also brought up the issue of last week's successful penetration of a Diebold product, overstating the level of access that was given by the Leon County, Florida election supervisor to the experimenters. Contrary to Mr. Radke's statement, the access given was only that that might be provided to a poll worker on election day. Moreover, the discussion was somewhat beside the point in that the machine in question was not the Diebold AccuVote TSx DRE terminal, but rather the AccuVote OS optical scanner. (Though this point may well be relevant to the continued use of the AccuVote OS previously certified by the Board.) While this is not particularly germane, it certainly did prove to be a distraction for the Board in their consideration of the Diebold AccuVote TSx and AccuView printer.

While we agree with Member William McGuffage that press reports ought to be taken with a grain of salt, the basic facts don't seem to be at issue: According to the Tallahassee Democrat, on December 13th, supervisor Ion Sancho got approval from county commissioners to switch to optical-scan voting machines made by Election Systems and Software (ES&S). The machines will be used in conjunction with the AutoMARK devices. This action followed Diebold's refusal to permit the use of its AccuVote OS optical scanner with the AutoMARK, adopting an "all or nothing" approach to Leon County's system. (The same type of configuration suggested by the Illinois Ballot Integrity Project White Paper, December 12, 2005)

"Is it really wise to get rid of these?" Sancho asked as he held paper ballots in his hand. "Absolutely not. At this point . . . only a paper ballot audit trail can verify 100 percent of the votes cast in any jurisdiction." We couldn't agree more.

Member Robert J. Walters asked a very pertinent question during the certification discussion, saying, "We know what you don't want us to do, what do you want us to do?" [I believe this to be an accurate paraphrase if not an exact quote.] The answer to that question was given in our December 12th submission to the Board on pages 15-16: The Board has already certified two disabled-accessible terminals, the AutoMARK and the Sequoia AVC Edge. While the Illinois Ballot Integrity Project opposed (and still does) the use of the AVC Edge, we recommended the AutoMARK as a potential solution. The AutoMARK was certified by the Board on September 13, 2005 and the AVC Edge at the Board's regular meeting in October. The AutoMARK can be used with the regular optical scan paper ballots that most Illinois voters will use in the upcoming March Primary. Thus, there is no compelling need to certify another DRE for use in Illinois. IBIP would strongly recommend the use of the AutoMARK over any DRE device.

The above discussion and documentation previously submitted to the Board clearly demonstrates that security concerns with Diebold systems are well-founded and not alleviated by ITA certification. Further, volume testing of the Diebold AccuVote TSx and AccuView printer conducted on July 20th revealed unacceptable error rates and that Diebold has misled the Board with respect to the status of certification in California. For these reasons, the Board ought to immediately reconsider its action of December 20th and withdraw certification of the Diebold AccuVote TSx and AccuView printer.

The Board has met by telephonic conference on the issue of certification (September 13, 2005, for example). We strongly urge the Board to do so with all due dispatch and reconsider the interim certification of the Diebold AccuVote TSx and AccuView printer. We believe the consequences of not doing so will be the needless expenditure of millions of dollars on Diebold equipment that may be de-certified prior to the March 21, 2006 elections.

We would like to again emphasize that the Illinois Ballot Integrity Project is not opposed to electronic voting devices, *per se*. However, we believe that Diebold has failed to provide election officials with reliable and secure systems, therefore should not have been certified. Fortunately, the mechanism exists to undo that action. We urge the Board to make use of its existing procedures to protect the franchise of Illinois voters.

Honorable Jesse Smart
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Our purpose is to assist the Board in providing the best election systems for the voters and taxpayers of Illinois. We adhere to the principle that ensuring fair, accurate, and completely transparent elections is paramount to the securing of American democracy. We trust that this letter is in furtherance of that objective. Again, we wish to thank you and all the Members of the Illinois State Board of Elections for your careful consideration of these matters.

Sincerely,

A handwritten signature in blue ink, appearing to read "J. Wilson".

Attachments: Ciber Labs Report – Page 21
CA Volume Testing Report
CA Secretary of State Letter

Copies w/attachments to:

Wanda L. Rednour, Vice Chair – SBOE
John R. Keith, Member – SBOE
William M. McGuffage, Member – SBOE
Patrick A. Brady, Member – SBOE
Robert J. Walters, Member - SBOE
Albert Porter, Member – SBOE
Brian A. Schneider, Member – SBOE
Daniel White, Executive Director – SBOE
Dianne Felts, Director, Voting Systems & Standards
Diebold Election Systems, Inc.
Executive Committee – IBIP