# Regarding Meaningful Election Reform-
# A Voter Verified Paper Audit Trail - Not a Reliable Back Up

As recently as October of 2004, the first voter verified paper audit trail (VVPAT) printer was qualified for use on Direct Recording Electronic (DRE) voting machines used in this country. These printers came about due to the insistence of the voters that there be a means of auditing elections. However, even in that short time, we have found that the printers often do not work as we expected them to. The printers have proven to be a placebo rather than a reliable tool. In fact the printers fail as often as the DREs they are mounted on and because of those failures they cannot be relied upon to produce ballot printouts to be used for audits.

In August 2006, Election Science Institute (ESI) released a report entitled, "DRE Analysis of May 2006 Primary; Cuyahoga County, Ohio"[1]. Election Science Institute is a non-partisan, non-profit election science organization, which was commissioned by Cuyahoga County to review how the county's new election system manufactured by Diebold Election Systems Incorporated (DESI) performed in the early stages of use. The findings of ESI as reported were shocking and point to why merely adding a voter verified paper audit trail (VVPAT) printer to a DRE is not a solution. The report points to the dangers of keeping DRE voting systems at all.

In order to understand the report the reader must understand the four types of vote data Diebold DRE voting machines provide:

- **VVPAT summary** data printed when the VVPAT tape is full or at the end of the day
- **VVPAT printouts** of individual, internally-stored ballots
- **DRE memory card** totals, recorded electronically and used to tally the votes
- **DRE election archive** totals, recorded electronically inside the machine

The report found the following staggering discrepancies in the vote data:

1. **Paper vs. paper.** Discrepancies occurred between the VVPAT summaries and the corresponding VVPAT ballots in **16.2% (over sixteen percent)** of the vote centers audited.
2. **Paper vs. electronic.** Discrepancies occurred between the VVPAT totals and the electronic totals **in 72.5% (over seventy-two percent) of the audited vote centers.** The voter-verified paper audit trail totals didn't match the electronic totals!
3. **Electronic vs. electronic.** Discrepancies occurred between the two "redundant" electronic totals in **26% (twenty-six percent) of the audited vote centers.** The electronic totals in the machines didn't match the electronic totals on the memory cards!

Another instance of discrepancies between the electronic ballot and the voter verified paper audit trail happened in Sacramento, California during a demonstration of Sequoia's DRE with VVPAT printer. While demonstrating the machine to members of the California legislature, a Sequoia representative voted on the demonstration machine, and the votes printed out properly on the VVPAT tape. **Then the machine was switched to Spanish language and votes were cast. One eye witness noticed that when cast in Spanish, no votes for two propositions were being registered on the VVPAT while they showed on the review screen.**[2] **The representative tried casting votes in Spanish again, and the same error occurred the second time.** This exemplifies the inherent problem with casting votes on electronic ballot.

It is clear that VVPAT printers don't serve their purpose. Why were there problems in Cuyahoga Co.? Why didn't the voters notice that their votes were not being recorded on the VVPAT's? That's the problem. Voters tend not to look at the VVPAT tapes for a number of reasons. A new, improved VVPAT printer will be no different and if the voter doesn't verify the paper audit trail the paper audit trail may be worthless. The answer is to use only voter marked paper ballots and ban the use of electronically marked electronic ballots that unverifiable because no one can review internal data inside a computer..

[1] http://www.cuyahogacounty.us/bocc/gsc/pdf/esi_cuyahoga_final.pdf

[2] http://www.wired.com/politics/security/news/2004/08/64569

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