Federal agency finds defects in ballot scanners [DS200]
By Gregory Korte, USA TODAY
Updated 12/23/2011
http://usatoday30.usatoday.com/news/politics/story/2011-12-22/defective-voting-machines/52172034/1

WASHINGTON – The federal agency responsible for inspecting voting equipment said Thursday that a ballot scanner used in several key battleground states can freeze up without warning, fail to log errors and misread ballots.

The U.S. Election Assistance Commission said the ballot reader, made by Omaha-based ES&S, is not in compliance with federal standards. And while it's the first time the 8-year-old agency has taken such a step, it falls just short of decertification — a move that could force election officials to abandon the machines on the eve of the 2012 presidential primaries.

The ***DS200 optical-scan system*** is designed to read paper ballots fed into the machines by voters themselves at their precincts. It's used in all or part of Florida, Illinois, Indiana, Ohio, New York and Wisconsin.

The commission found three problems with the machines:

• Random screen-freezes that prevent ballots from being fed.
• Failure to log errors in a file that would let election officials know of problems.
• Skewing of ballots as they're fed into the machine, making votes cast in some parts of the ballot unreadable.

ES&S responded in a statement to customers Thursday. "While we may not necessarily agree with all of the findings or recommendations within the report, we have nonetheless pledged our full cooperation."

The commission first learned of the problems in a story in The (Cleveland) Plain Dealer, which reported last year that 10% of the voting machines in Cuyahoga County, Ohio, had failed a pre-election test.

Jane Platten, the Cuyahoga County elections director, said the county had to switch to shorter ballot pages to fix the problems, and later reached a $208,197 settlement with the company. Later fixes offered by ES&S also led to system freezes, so the county went back to the previous, flawed software as "the devil we know," she said.

Candice Hoke, a Cleveland-Marshall College of Law professor and an expert on voting equipment, credited local election officials for the rigorous testing that helped discover the problems. The logging issue, while seemingly technical, is a fundamental question of integrity, she said.

"If someone were to hack into the machine, if the logging is not secure and doesn't protect it from rollbacks, that would allow someone to tamper with it and leave no trace," Hoke said.

Because Ohio is one of 13 states that requires EAC certification for voting machines, decertification could throw elections in Cuyahoga County — and nearby Mahoning County, which uses the same system — into chaos in a presidential election year.

"Our goal is not to decertify systems. We never want to be in a situation of putting counties in a position where they cannot run an election," the EAC's Brian Hancock said last week.

The agency may lack the ability to force compliance. The four-member commission hasn't had enough members for a year, with Senate Republicans blocking President Obama's nominees. House Republicans have moved to kill the EAC, calling it a "zombie agency."

E-voting machine freezes, misreads votes, U.S. agency says

DS200 optical scanner from ES&S doesn't meet federal standards, but remains certified, Election Assistance Commission says

Jaikumar Vijayan
Computerworld

06 January, 2012
https://www.computerworld.com.au/article/411620/e-voting_machine_freezes_misreads_votes_u_agency_says/

An electronic ballot scanning device slated for use in the upcoming presidential elections, misreads ballots, fails to log critical events and is prone to freezes and sudden lockups, the U.S. Elections Assistance Commission has found.

The little noticed EAC report on the DS200 Precinct Count Optical Scanner in the Unity 3.2.0.0 voting system built by Election Systems & Software (ES&S) was released late last month.

The 141-page Formal Investigative Report (download pdf) highlights multiple "substantial anomalies" in the DS200: intermittent screen freezes; system lockups and shutdowns; and failure to log all normal and abnormal system event.

For example, the DS200 in some cases failed to log events such as a vote being cast, when its touch-screen is calibrated or when the system is powered on or off, the EAC said.

In addition, the EAC report said the system failed to read votes correctly when a 17-inch ballot was inserted at an angle. The voter's intended mark was either registered as a different selection or the vote was not registered at all, the EAC noted.

The tests also showed one DS200 system accepting a filled-in ballot without incrementing the public counter or without counting any of the marks. In that instance, the EAC found two ballots in the DS200 ballot bin, but only one was counted.

Though the EAC concluded that the problems found prevent the DS200 from meeting federal e-voting system standards, it stopped short of decertifying the system altogether.

The Elections Assistance Commission is responsible for for inspecting and certifying all electronic voting equipment

Had the EAC decertified the ES&S equipment, jurisdictions that had planned on using it in upcoming elections would have to quickly find alternative certified technology.

Instead, the EAC issued a Notice of Non-Compliance for the Unity 3.2.0.0 system which allows ES&S to remediate the problems. The commission will also conduct a site visit to audit the Omaha-based company's development, testing and quality assurance practices.

The DS200 system is a paper-based vote tabulation system that contains an internal printer. Voters complete paper ballots and insert them into the DS200 scanner, which records and tallies the results, and prints them out after the polls are closed.

The ES&S system is no stranger to controversy.

In January 2010, the Florida Fair Elections Coalition (FFEC) released a report on an earlier DS200

implementation. The report called for Florida election officials to decertify the system due to what it contended were very high over-vote rates.

Estimates vary in terms of how widely the DS200 system is currently deployed.

According to an EAC map , the DS200 is used in a handful of jurisdictions in Ohio, Indiana, Wisconsin and Pennsylvania. ES&S says that only one jurisdiction in Ohio and a "few" in Wisconsin use the version referenced in the EAC report.

Election watchdog group Verified Voting estimates that 29 jurisdictions in Florida, New York, Ohio and Wisconsin currently use the device. Those jurisdictions account for 12 million registered voters or more, according to Verified Voting.

The EAC investigation was prompted by an April 2010 report in The Cleveland Plain Dealer, which cited a freeze/shutdown issue with the DS200 during pre-election testing in Ohio's Cuyahoga County.

In a statement, ES&S said it has worked in good faith with the EAC to address all reported issues in its technology.

"All reported issues have been addressed in a new version of software, Unity 3.4.0.0 which, upon certification, will be made available to every jurisdiction that currently uses Unity 3.2.0.0," the company said.

The statement contended that the issues cited in the EAC report do not compromise election results. The company said it welcomes an EAC audit of its facilities. In fact, the company says it had extended an invitation to the commission to do so prior to the release of the report.

"Our door is always open to not only the EAC, but to our customer base as well, to visit us and witness first hand our stringent development and testing practices," the company noted in its statement.

Pamela Smith, president of Verified Voting, said that the concerns that prompted the 10-month EAC investigation are serious.

"Any time such concerns are raised, one would hope that the jurisdictions using those systems take additional measures to ensure correct outcomes in the interim while the issues are being examined," Smith said.

What is significant, she said, is the fact that the DS200 scanner is being used in conjunction with a voter-marked paper ballot.

Thus election officials have a hard copy ballot showing the voter's original intent, and therefore have the capability to do recounts and audits. "Any jurisdiction using the DS200 [or similar technology] should be doing a robust post-election audit routinely after every election," Smith said.

For the near-term, the system should not be used in any jurisdiction that doesn't do robust audits or inexpensive and easy to obtain recounts, Smith suggested.

"Even where non-discretionary, mandatory recounts are done when margins are within a certain percentage, I'd want to be able to improve on those mandatory recounts because of the doubt that such a system can cast on the outcome," she said.

We told you so: Newfangled voting machine screwed up

Board of Elections must be more vigilant about testing equipment

New York Daily News (editorial)
May 14, 2012
http://www.nydailynews.com/opinion/told-newfangled-voting-machine-screwed-article-1.1076807

You know those new electronic vote-scanning machines that are supposed to be foolproof in reading and counting every ballot in an election? Well, they're anything but foolproof.

In fact, they can screw up voter tallies to a fare-thee-well even after technicians carefully calibrate and test them.

So state and city election officials have discovered, along with the machine's manufacturer, thanks to insistent prodding by this page.

Their learning experience began at a polling place at Public School 65 in the Bronx, where official tallies for 2010 primary and general elections showed that as many as 70% of the voters had cast invalid ballots, disqualifying them.

The Brennan Center at NYU Law School brought the obviously impossible discrepancy to the attention of the city Board of Elections. The board responded, in essence, "Who cares?"

The answer was, "The Daily News Editorial Board cares." Using the Freedom of Information Law, we compelled election officials, for the first time, to open to public inspection photographs that the machines take of every ballot. The look-see proved that a machine had gone haywire.

The election board responded, "Impossible."

The manufacturer, a company called ES&S, responded, "Doubly impossible."

Election officials theorized that fault rested with ballots that must have gotten wet or warped when left on a radiator. Which was a statement of severe psychological denial, because the same machine had shown the same failures in two elections that used completely different ballots.

The city board ran a test.

The machine passed.

The state Board of Elections then stepped in to investigate. Technicians calibrated the machine and ran ballots through. The device did fine. But later on, after a few hours had passed, it began to fail with an error rate of close to 100%.

ES&S then ran its own tests and concluded that if a machine is not cleaned correctly, it will lose its calibration once the device warms up to working temperature. Test it while cool, and the count will be perfect; test it warm, and the count will be nonsense.

This is no small matter.

The city Board of Elections fields more than 3,000 machines. Each is supposed to be calibrated and tested before voting starts. The board must now let all 3,000 run for several hours before test-balloting.

Its leadership promised that this will be done but, insanely, rejected a state recommendation calling on the board to audit results whenever a machine reports an unusually high number of invalid ballots.

Such irresponsible laxity should be no surprise.

After all, the board refused to make even a cursory check of the PS 65 vote tallies — and discovered that its vaunted machines could drastically fail only because someone forced the issue.

Paper Ballot Op-Scan Systems in FL, WI, NY, OH Confirmed to Overheat, Mistally 70% of Votes

Similar systems used by millions of voters in majority of states also found to have failed as 2012 Presidential election looms...

Brad Friedman
May 14, 2012
http://www.bradblog.com/?p=9302

New paper ballot optical-scan computer tabulator systems used to tally millions of votes in New York --- as well as "swing states" such as Florida, Ohio and Wisconsin --- do not tally votes correctly. That stunning admission comes courtesy of a new report released by the private company which manufactures, sells, services and programs the systems which are now believed to have mistallied tens of thousands of ballots in New York in 2010.

The votes of more than ten million voters could be affected by a newly revealed failure in the voting systems set for use in those four states in this year's Presidential election, and in more than 50 different jurisdictions in Wisconsin during next month's historic recall elections.

Election Systems & Software, Inc. (ES&S), the largest e-voting machine company in the U.S. and the maker of the paper ballot op-scan tally systems in question, have confirmed that their systems may overheat when used over several hours (for example, during an election!), and that they then may mistally and/or incorrectly discard anywhere from 30% to 70% of votes scanned by the machines.

The only way to know that a hand-marked paper ballot had been mistallied by the system would be to examine the ballots by hand to assure that the computer had read and recorded the voters' selections correctly.

The *New York Daily News* editorial board --- which has been persistently forcing the issue on state Election Officials who initially ignored massive mistallies discovered in the South Bronx during the state's 2010 election --- reports on ES&S' confirmation of the latest failure in a story headlined "We told you so: Newfangled voting machine screwed up". Their article today begins this way [See previous article]

...

The result, as confirmed by ES&S, tens of thousands of perfectly valid votes may have gone uncounted, while thousands of "phantom votes" in races that voters hadn't intended to vote in at all were counted as valid votes.

The *Daily News* characterizes the initial response by election officials in NY, after the paper had discovered the massive failures, as "a statement of severe psychological denial."

All of the above likely sounds *very* familiar to long-time readers of The BRAD BLOG, where we are considering changing the name of our news site to "We Told You So: Newfangled Voting Machines Screw Up," as a tip of the hat to the *NY Daily News*, and to better reflect a great deal of our nearly 10 years worth of content here.

Unfortunately, the latest example of secret vote-tallying computers made by private companies failing to accurate tally our once-public elections, is not only affecting New York. Moreover, the failure isn't isolated to the ES&S model DS200 paper ballot optical-scan system. As we've reported here for years, and on a number of recent occasions over just the past few months, similar failures have been discovered in other states and on other similarly designed paper ballot optical-scan systems.

If you think that simply because you are not forced to vote on a 100% unverifiable touch-screen voting machine that your ballot will be counted and counted accurately this year, think again...

ES&S Confirms Latest DS200 Failure

New York's public radio station, WNYC has also been reporting the problem discovered in the Empire State. They describe, (rather conservatively, based on the numbers reported via the *Daily News*' study of actual ballots in the South Bronx) that "overheating" of the op-scan computers "may have caused upwards of 30 percent of the votes in a South Bronx voting precinct to go uncounted.

That amounts to "tens of thousands of votes in the 2010 elections...uncounted because electronic voting machines counted more than one vote in a race," says WNYC.

ES&S has now confirmed that the failure occurred, and has been able to replicate the "overheating" problem when the systems have been on for several hours in a row. According to the company's report, "After lunch almost every ballot was read incorrectly, in all orientations, even ballots that had read correctly just before lunch."

The "overheating" failure led to thousands of properly cast votes being tallied as "overvotes". An overvote occurs when a voter selects more than one candidate in a particular race, where only a single candidate can be selected. If more than one candidate is chosen in such races, the vote is ignored entirely as "invalid."

In the case of the overheating ES&S DS200 machines, non-existent "phantom" votes (or more than one "phantom" vote) were added by the op-scanner to races on the ballot, resulting in the initial correct vote being disregarded as "invalid." In other cases, where a voter had chosen to *not* vote in a particular race on purpose, the machine added a phantom selection, and then tallied it as if the voter had voted in that race after all.

So, for example, in New York's 2010 election, if a voter had properly voted for Democrat Andrew Cuomo in the gubernatorial contest, the machine might have seen another non-existent, or "phantom" mark for Republican Carl Palladino on that ballot in the same race. If so, it would have been seen as an overvote, and neither selection would be tallied. The voter would have been disenfranchised and never even knew it.

In other cases, a voter might have chosen to vote for nobody at all in that race, but the DS200 added a vote for Palladino or Cuomo or one of the other five long-shot candidates in the contest and then counted the vote as valid in a race the voter had specifically chosen not to vote in.

Again, these failures would only be discovered by a *hand-count of the paper ballots* otherwise tallied by the machines. In this case, it was nearly two years following the 2010 election, after a public records request to hand-count the paper ballots, before the tens of thousands of incorrectly tallied votes came to light.

The failure had not been discovered during pre-election testing of the new op-scan computers in New York City, because the machines, reportedly, had not yet heated up enough to lead to the failure.

The *Daily News* reports the initial attempts by election officials to determine the cause of the massive failures this way:

> The city [election] board ran a test.
>
> The machine passed.
>
> The state Board of Elections then stepped in to investigate. Technicians calibrated the machine and ran ballots through. The device did fine. But later on, after a few hours had passed, it began to fail with an error rate of close to 100%.

> ES&S then ran its own tests and concluded that if a machine is not cleaned correctly, it will lose its calibration once the device warms up to working temperature. Test it while cool, and the count will be perfect; test it warm, and the count will be nonsense.

That ES&S suggests the problem is related to a system "not cleaned correctly," seems to strain credulity. New York was the last state in the union to "upgrade" to electronic voting systems in 2010 in response to the federal Help America Vote Act (HAVA) of 2002. They had just started using their new op-scan systems for the first time in 2010, when they failed.

Previously-known ES&S DS200 Failures

The massive failure is not the only one to affect the company's DS200 paper ballot optical-scanners, even though the systems are currently set for use this November (and on June 5th in Wisconsin's recall elections), by more than 12 million registered voters, according to VerifiedVoting.org's database.

Over 4 million registered voters in FL, more than 6.5 million in NY, over 1 million in OH, and voters in more than 50 WI municipalities (Verified Voting's database does not include registered voter numbers for WI) are set to have their votes tallied --- accurately or otherwise --- by the failed ES&S DS200 this year.

But the "overheating" problem is not the only known flaw to plague this particular failed system.

As we reported last December, in a first-of-its-kind report from the U.S. Election Assistance Commission (EAC), the federal agency tasked with certification testing for electronic voting systems at the federal level issued a warning that the DS200 may freeze up during elections; fail to log system events correctly; and either misread ballots or lose votes entirely.

It was the first time that the EAC --- the wholly compromised and frequently-failed federal agency formed by 2002's HAVA --- bothered to issue a "Formal Investigation Report" for any system that it had previously certified for federal use. Naturally, they stopped short of ***de***certifying the systems, as they agency has largely become a tool of the e-voting industry.

The EAC's investigation came about after yet another newspaper, the *Cleveland Plain Dealer* in that case, reported that some 10% of Cuyahoga County (Cleveland)'s ES&S precinct based optical-scan systems had failed during pre-election tests in 2010.

The failed (but, at the time, new) paper ballot op-scan systems had been purchased as a replacement for the 100% unverifiable Diebold touch-screen systems used previously in Ohio's largest county, after a massive analysis of all of the state's e-voting systems, overseen by former Sec. of State Jennifer Brunner (D), revealed serious security issues and other major flaws in the touch-screen voting machines used there and in many other states.

In *USA Today*'s report on the EAC's confirmation of DS200 failures last December, the paper quoted Cleveland-Marshall College of Law professor and e-voting expert Candice Hoke explaining her concerns about the disturbing system logging failures.

"If someone were to hack into the machine," Hoke warned, "if the logging is not secure and doesn't protect it from rollbacks, that would allow someone to tamper with it and leave no trace."

In short, these machines may fail on their own, or someone can cause them to fail and then hide the evidence of

the manipulation.

As DeForest Soaries, the George W. Bush-appointed first chair of the U.S. EAC said when he resigned in 2005 after determining that White House and Congressional efforts to reform elections in the wake of the 2000 Presidential debacle were "a charade" and "a travesty", the electoral system in use in this nation is "ripe for stealing elections and for fraud."

That was true in 2005, and it remains equally so as we barrel towards the 2012 Presidential election.

Not Just the DS200 --- and Not Just ES&S' Systems

The DS200 is one of ES&S' newer paper ballot op-scan systems. Their older systems, such as the M-100, used in dozens of states, are similarly flawed.

Back in 2008, for example, The BRAD BLOG wrote about the M-100s when Oakland County, MI was trying to get help from the EAC concerning that particular precinct-based op-scanner after pre-election testing had "yielded different results each time" the "same ballots were run through the same machines."

According to the letter [PDF] sent to the EAC by Oakland County election officials at the time...

> The issue is this - four of our communities or eight percent - reported inconsistent vote totals during their logic and accuracy testing with the ES&S machines. The same ballots, run through the same machines, yielded different results each time.
>
> ES&S determined that the primary issue was dust and debris build-up on the sensors inside the M-100.
> ...
> Unfortunately, [local clerks] are prohibited from performing any maintenance/cleaning on the machines as it voids the warranties. ES&S has not performed any preventative maintenance under the state contract, since the machines were delivered three years ago.

The ES&S M-100s, according to VerifiedVoting.org, are set for use this year by more than 31 million registered voters in more than 700 counties in 32 different states, including Alabama, Arkansas, Arizona, California, Colorado, Florida, Iowa, Idaho, Illinois, Indiana, Kansas, Kentucky, Maine, Michigan, Minnesota, Missouri, Mississippi, Montana, North Carolina, North Dakota, Nebraska, New Mexico, Ohio, Pennsylvania, South Dakota, Tennessee, Texas, Virginia, Washington, Wisconsin, West Virginia and Wyoming.

And, of course, it's not only optical-scan system made by ES&S that produce flawed results and tallies that are not confirmed as accurate by anyone before they are announced to the world.
<snip>

[The article goes on to discuss other companies' optical scan systems.]

WI Paper Ballot Scanners Failed to Count 1000s of Votes in 'Citizens United' Ballot Referendum

Popular, oft-malfunctioning computer tabulator used in WI, many other states, tallied just 16 votes out of 5,350 cast in Stoughton, WI...

(Update 11/11: Hand-count finds 4,440 YES votes, 992 NO votes -- but with 0 votes in 3 of 13 wards (!))

By Brad Friedman

November 19, 2014

http://www.bradblog.com/?p=10931

(many links and several screen shots in the original)

Though some 5,350 voters are known to have voted in the city of Stoughton in Dane County, Wisconsin on Tuesday, just 16 of those voters were interested in voting in a local ballot referendum calling for an amendment to the U.S. Constitution to help overturn the infamous Citizens United decision --- at least according to the results reported by paper ballot optical-scan computer tabulators there.

"A malfunction with the voting machines in Stoughton Tuesday led to an incomplete outcome of the city's referendum on whether to amend the U.S. Constitution, Stoughton clerk Lana Kropf said," according to a terse and somewhat cryptic report in the Wisconsin State Journal on Thursday.

The city's ES&S DS200 paper ballot optical-scanners (a computer tabulation system plagued with problems in many states over the years) reported zero votes for the initiative in five of the city's six voting wards, and just 16 votes (7 Yes, 9 No) in the other.

"Never in my years working in clerks' offices have I seen something like this," Kropf told the Journal.

The initiative in question was added to the ballot after citizens gathered enough signatures last July to have it included on the November ballot. According to the wording of the measure, it seeks "to reclaim democracy from the expansion of corporate personhood rights and the corrupting influence of unregulated political contributions and spending." It is similar to referenda passed overwhelmingly in other WI communities.

"Last Tuesday, nearly 5,350 good citizens of Stoughton went to the polls," writes Karen McKim of the progressive Wisconsin Grassroots Network. "If you believe the city's voting machines, exactly 16 of them had an opinion they cared to express on the matter. The rest thought 'Whatevs' and left the referendum blank."

She adds: "Fortunately, no one believes the city's voting machines"...

The referendum was based on a Move to Amend campaign calling for a 28th Amendment to the U.S. Constitution. The version of the Amendment on Stoughton's ballot reads:

> 1. Only human beings - not corporations, limited liability companies, unions, non-profit organizations, or similar associations and corporate entities - are endowed with constitutional rights, and
> 2. Money is not speech, and therefore regulating political contributions and spending is not equivalent to limiting political speech.

The city of Stoughton's measure was the *only* item to appear *on the back* of the hand-marked paper ballots in Stoughton last week. But is it possible that only 16 voters out of more than 5,000 turned over the ballot to notice it and/or had an opinion on the resolution either way?

Well, the good news is, we now appear to know what actually happened and should be able to determine what last Tuesday's voters *really* thought about the referendum.

The bad news is, whatever caused this problem could easily have affected any number of other elections in any number of other places both in Wisconsin and elsewhere where identical and similar tabulation systems are used. Without a hand-count of those ballots, it's just as likely that nobody would ever notice a similar problem.

McKim of the progressive Wisconsin Grassroots Network offered a terrific piece explaining the problem and why it *appears* to have happened in Stoughton, according to local election officials:

> The Dane County clerk's office sets up ES&S DS200 opscan voting machines for each municipality before every election. To do that, they program ballot-reading instructions onto 'memory sticks,' which look like (and may be for all this non-IT person knows) flash drives. DS200 ballots are marked along the edges with black index marks. Each of the bubbles where votes are marked is close to one of these index marks. Translated to English from computer-ese, the instructions say, "If the bubble closest to the top index mark on the right edge of the front of the ballot is filled in, count a vote for Candidate Smith. If the bubble closest to the second-from-the-top index mark is filled in, count a vote for Candidate Jones.
>
> When Stoughton's ballots came back from the printers, the referendum was perfectly placed on the ballot right where it was intended to be. However, the person who programmed the sticks wrote instructions that told the machine to look at the areas two index marks below the referendum, in white space. That explains the thousands of apparently blank ballots.
>
> But what explains the 16 votes? Did 16 of Stoughton's voters know they could get their vote counted by making a black mark an inch below the bubbles that everyone else was filling in? Nope. Truth is, they were voting so enthusiastically for someone on the front of the ballot that their votes were bleeding through the paper into the white space below the referendum on the back.
>
> Bleed-though usually isn't a problem, Dane County Clerk Scott McDonell told me today, because when two-sided ballots are designed, the bubbles are placed so that any bleed-through from particularly heavily marked votes will fall into white space on the other side--as these marks did. Usually, the machines are not looking for votes in the white spaces. Not usually, but they did on Tuesday in Stoughton.

Presuming the explanation from officials is accurate, McKim goes on to speculate about a few potential reasons it might have occurred in Stoughton:

- The previous veteran City Clerk resigned around the time that the petitions were handed in and the measure was added to the ballot and someone less experienced took over;
- The late addition to the ballot and confusion about WI Republicans struck-down, then back on, then back off Photo ID voting restrictions may have exacerbated the problem by eating in to time normally spent proof-reading ballots and testing computer tabulators;
- The machines may not have gone through their mandated pre-election tests at all, even though the City Clerk claims they did.

That last seems the most likely and troubling, since it's difficult to see how the issue as explained would not have been discovered during pre-election Logic and Accuracy (L&A) testing. Poor L&A testing, or complete lack thereof, has been a fairly regular problem with electronic voting and tabulation systems over the years in the U.S.

As McKim notes, while the City Clerk is *claiming* testing was done, "No citizens were present at the public pre-election voting machine test to ensure that it was done properly." She further explains: "I don't see any way that test could have been conducted properly and not discovered the faulty programming."

While the Wisconsin Grassroots Network did observe pre-election testing in other towns, McKim says that nobody did so in Stoughton. "Citizens have got to do our bit," she appropriately cautions. "We cannot relentlessly demand transparency in government and relentlessly fail to show up for things like public demonstrations of the voting machines' ability to produce --- or in this case, not produce --- an error-free count."

Fortunately, the problem this time in Stoughton --- whether the result of malfunction, malfeasance or misfeasance --- was quickly noticed and should soon be easily rectified. A hand-count of those hand-marked paper ballot will take place on Monday to determine the *real* results of the referendum. Luckily, the town votes on paper. If it didn't, there would be no way to *ever* determine the actual intent of the voters.

But the issue, even as explained above, also reveals once again how easy it is to "trick" these systems --- even computer-tabulated paper-ballots systems --- via simple, standard ballot programming procedures...not that anyone would ever do such a thing either accidentally or on purpose.

The very same failed ES&S DS200 tabulation systems are used in Florida, Ohio, New York and other states in addition to Wisconsin. As The BRAD BLOG reported in 2012 after the company's manufacturer ES&S confirmed some of the problems that appear to have led to *thousands of votes* being mistallied in New York's 2010 election, "Over 4 million registered voters in FL, more than 6.5 million in NY, over 1 million in OH, and voters in more than 50 WI municipalities...are set to have their votes tallied --- accurately or otherwise --- by the failed ES&S DS200" during that year's Presidential election.

Optical-scan paper ballot systems made by other manufacturers have failed in similar and even more spectacular fashion. Occasionally it gets noticed, as it did, for example, in Palm Beach County, FL's municipal elections in March of 2012, when, luckily, a sharp-eyed election official noticed that the op-scan paper ballot system declared incorrect "winners" in four different races. Only a hand-count there was able to determine the real winners of the contests. (The manufacturer of that system, used in dozens of states, was forced to admit the failure was due to a "bug" present in *all* of the company's voting and tabulation systems --- many of which are also used in Wisconsin.)

"If the hand count goes well on Monday," McKim notes (presuming the chain of custody of the hand-marked paper ballots in Stoughton has been secure since Election Day), "the municipal referendum results will be final and certified --- and more guaranteed-accurate than anything else on the ballot."

She then offers this important, cautionary, spot-on reminder:

> Had this programming error been a simple flip --- telling the machine to count 'yes' votes from 'no' bubbles and vice-versa --- and not the blatantly obvious error it was, the municipal canvass would almost certainly have certified the results without examining even one actual ballot; the Stoughton newspaper would be coming up with perfectly believable reasons why theirs was the first city ever to vote 75% no instead of 75% yes, and a few referendum backers and election-integrity activists would be saying "That's got to be a miscount" to anyone who would listen --which would not be many.

Bingo.

[Hat-tip WI election integrity champ John Washburn]

Verified Voting's DS200 Security Concerns
(Date uncertain, apparently sometime after May 2012)
https://www.verifiedvoting.org/resources/voting-equipment/ess/ds200/

Security Seals -- Ideally, the DS200's exposed ports, memory card access areas, ballot box doors and case seams would be covered with tamper-evident security seals. The integrity of these seals should be maintained at all times, and only breached under controlled, explained circumstances. Seals should be logged to maintain chain of custody of sensitive materials.

Ballot Box Access -- Optical scan systems have at least one and possible more ballot boxes. Each ballot box should be inspected by a voter at the beginning of voting to make sure that they are empty. These ballot boxes should locked and/or be sealed with tamper-evident tape.

The Memory Card is Sensitive -- Corrupt memory cards may be able to introduce viruses, cause the main election server to crash and falsify votes. Access to the memory card should be controlled, monitored and logged at all times.

Correct Inks -- Some Optical Scan systems have trouble reading red inks or inks with red in them. Voters should use the writing instrument provided at the polling place or, if voting at home, black ballpoint pen that does not bleed through paper.

Unresponsive Touchscreens[1] -- During EAC testing on the Unity 3.2.1.0 voting system, some DS200s stopped responding to interactions with the user interface. The anomaly presented itself at random times during the testing process. ES&S informed the EAC that the root cause of touch screen unresponsiveness is linked to an improperly implemented internal system log. This log is only accessible to ES&S technicians when troubleshooting errors with the fielded system. One specific event tracked by this log is the presence of the election media USB memory stick. If the unit is powered on without a memory stick inserted, the system records an event eight (8) times per second to the log. When the log reaches capacity, it causes a section of the internal compact flash (CF) card to become inaccessible. This same section of the CF card contains the calibration settings for the DS200's touch screen interface. When this section of the CF card is inaccessible the calibration settings are no longer available to the system so the screen becomes unresponsive.

Skewed Ballots[2] -- During testing on the Unity 3.2.1.0, a DS200 did not count a valid mark for a race. The anomaly was discovered when county testers reviewed the printed election summary report for the DS200 unit. The count for a single contest did not match the expected results. The test was performed to verify that ES&S had corrected a previous anomaly with similar symptoms. The county testers were using a 17" ballot with contests concentrated in the lower sections of the ballot. In discussion with the EAC, ES&S stated that they have only been able to replicate this issue in testing by removing the plastic guides and physically altering the ballot (cutting of a corner). In an effort to understand the issue the EAC focused on reviewing ballot images from several states and previous test campaigns. The review included 11", 14", 17" and 19" ballots. In the course of the review, the EAC found various degrees of ballot image distortion; with the 17" ballot having the largest degree of skew. The EAC is working with jurisdictions, VSTLs and the manufacturer to understand and resolve this issue.

During the EAC Certification process[3] it was revealed that a DS200 coded for Election Day counting will not support more than 18 precincts, the DS200 does not support more than 40 ballot styles in a single absentee precinct in a ballot by-style election. If an election definition contains more than 40 ballot styles, the user has to define more than one absentee precinct and then separate the ballots into groups for processing. In addition, all optical scan ballots used in a given election must be the same size and have the same position capacity, an early vote station will only support a maximum limit of 9999 precincts meaning that a large number of precincts may

result in small ballot processing delays, and an early vote station will not be able to print a precinct-by-precinct report by default.

1. EAC Certified System Technical Advisory – ESS2011-02
   http://www.eac.gov/assets/1/Documents/Unity3210-Screen_Unresponsiveness.Technical_Advisory-07.28.2011-FINAL.pdf
2. EAC Certified System Technical Advisory – ESS2011-03
   http://www.eac.gov/assets/1/Documents/Unity3210_Ballot_Skew-Technical_Advisory-07.28.2011-FINAL.pdf
3. Certificate of Conformance Unity 3.2.00 Rev. 3, 2011
   http://www.eac.gov/assets/1/Documents/Unity%203200%20Rev3%20CertofConformance%20and%20Scope%20of%20Cert%20FINAL%205.16.12.pdf