

HB

459

SFIN

FILE

SENATE FINANCE COMMITTEE REPORT

REPORTED OUT

MAY 05 2004

SENATE FINANCE
COMMITTEE

DATE: 5/2/04

FURTHER:

DATE TURNED
IN TO OFFICE:

5 May 2004

Finance Committee considered CS FOR HOUSE BILL NO. 459(STA)

HB 459 PAPER TRAIL FOR ELECTRONIC VOTING MACHINE

"An Act relating to optically scanned and electronically generated ballots; and providing for an effective date."

and recommends:

- be replaced with _____ CS _____ (_____)
- adopt previous _____ CS _____ (_____)
- attached amendment(s)
- adopt Letter of Intent by _____ Committee
- further referral to _____ Committee

Senate Bill:

- Same Title
- New Title

House Bill:

- Same Title
- Technical Title Change
- New Title w/ SCR # _____

NEW FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero.	FN#

PREVIOUS FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#
Gov	3/5/04	4428			#1

APPROPRIATION - no fiscal note

SIGNATURES AND RECOMMENDATIONS:	Do PASS	Do NOT PASS	No REC	AMEND
<i>[Signature]</i>			✓	
<i>[Signature]</i>			✓	
<i>[Signature]</i>			✓	
<i>[Signature]</i>		✓		
COCHAIR: <i>[Signature]</i>	X			
COCHAIR: <i>[Signature]</i>	✓			

FISCAL NOTE

REPORTED OUT

MAY 05 2004

STATE OF ALASKA
2004 LEGISLATIVE SESSION

Fiscal Note Number: 1 SENATE FINANCE
Bill Version: CSHB 459(STA) COMMITTEE
(H) Publish Date: 4/5/04

Revision Date/Time (Note if correction): _____ Dept. Affected: GOV
Title An Act requiring an auditable paper trail for RDU Elections
electronic voting machines Component Elections
Sponsor Representative Gara
Requester House State Affairs Component No. 21

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Personal Services						
Travel						
Contractual						
Supplies	1.8		1.8		1.8	
Equipment	441.0					
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	442.8	0.0	1.8	0.0	1.8	0.0

CAPITAL EXPENDITURES						
-----------------------------	--	--	--	--	--	--

CHANGE IN REVENUES ()						
-------------------------------	--	--	--	--	--	--

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF			1.8		1.8	
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type--Do not abbreviate)	442.8					
TOTAL	442.8	0.0	1.8	0.0	1.8	0.0

Estimate of any current year (FY2004) cost: 0.0
Mark this box (X) if funding for this bill is included in the Governor's FY 2005 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: (Attach a separate page if necessary)

At this time, the cost per unit to implement a modification to the touch screen voting equipment that would allow for voter verifiable paper records is unknown. This technology is currently in the research and development stage within the industry. However, it is estimated that each touch screen voting system would require additional hardware i.e., unit printer and 2 rolls of thermal paper. The division estimates the printer units may range in price from \$500.00 - \$1,000.00. If only one touch screen system were used in each precinct (441 precincts) the estimated cost would be \$441.0. The thermal paper required is estimated to cost \$2.00 per roll for an additional cost of \$1.8 in supplies. The total estimated cost of implementation by January 1, 2006, is \$442.8 (HAVA funds). The division will require GF appropriations of \$1.8 in future years for supplies (thermal paper) to support the equipment that provides a voter verifiable paper record.

Prepared by: Leonard G. Jones Phone 465-3051
Division: Division of Elections Date/Time 3/5/04 2:56 PM
Approved by: Laura A. Glaiser, Director Date 3/5/2004
Agency: Office of the Lt. Governor, Division of Elections

SENATE FINANCE COMMITTEE
5/5 / 2004 COMMITTEE ACTION

Bill Number	HB 459		
Amendment			
Motion	Pass from Committee		
<u>Motion by</u>			
<u>Objection by</u>			
<u>Removed</u>			
<u>Second Objection by</u>			
<u>Committee Member</u>	Y	Vote	N
Senator Stevens	✓		
Senator Bunde			✓
Senator Dyson	✓		
Senator Hoffman	✓		
Senator Olson	✓		
Co-Chair Green	—		
Co-Chair Wilken	✓		
<u>Tally</u>			
Yea	5		
Nay	1		
Absent			
<u>MOTION</u>	Pass		

Alaska State Legislature


REPRESENTATIVE JOHN HARRIS

District 12 - Eielson AFB, Valdez, Delta Junction, Palmer, Glennallen, Salcha, Paxson, Sutton, Chickaloon

MEMORANDUM

DATE: May 2, 2004

TO: Senator Gary Wilken, Co-Chairman
Senate Finance Committee

FROM: Representative John Harris 

RE: Hearing Request for CSHB 459, Voter Verified Paper Trails

I respectfully request that CSHB 459 (STA), Voter Verified Paper Trails for Electronic Voting Machines, be scheduled for hearing in the Senate Finance Committee. Please feel free to contact me or Tom Wright of my staff, if you need further information or have any questions.

Thank you for your consideration.

Co-Chair, Joint Armed Services Committee
Co-Chair, House Finance Committee
Member, Energy Council

Session: State Capitol, Juneau, Alaska 99801-1182 • Phone: (907) 465-4859 Fax: (907) 465-3799
Interim: P.O. Box 305, Valdez, Alaska 99686 • Phone (907) 835-2836 Fax: (907) 835-3732



Alaska State Legislature

REPRESENTATIVE JOHN HARRIS

District 12 - Eielson AFB, Valdez, Delta Junction, Palmer, Glennallen, Salcha, Paxson, Sutton, Chickaloon

HB 459, Voter Verified Paper Trails for Electronic Voting Machines Sponsor Statement

In the wake of the 2000 federal election, and with the impetus of the federal Help America Vote Act, states across the nation are replacing punch card and paper ballots with computerized vote casting, tabulation and reporting. Alaska has successfully used the AcuVote system of optically scanned ballots since 1998. New direct recording equipment (DRE) machines – also known as touch-screen – are scheduled to be used for the first time in 2004.

Unfortunately, computer experts have warned of numerous problems with both DRE and optical scan machines. Hardware problems, unreliable computer code and lack of security have raised serious questions about whether votes are being accurately recorded, tallied and reported. The experiences of many localities have demonstrated these failings. In Bernalillo County, N.M. a programming error caused a computer to delete 25 percent of the ballots cast by early voters. In Maryland voters for the Republican candidate for governor watched as their vote appeared beside the Democratic candidate's name. In Fairfax County, Va. a machine was found to have subtracted one vote for every 100 cast for a school board candidate. In one Texas matchup, optical scan machines declared two low vote getters to be landslide winners.

In the Texas case, elections officials were able to correct the mistake by hand counting the optically scanned paper ballots. Many DRE machines, however, produce no such paper trail to audit. Recognizing this crucial shortcoming of DRE technology, many observers are calling for voting machines to produce paper receipts that voters can verify before leaving the polling booth and that are subsequently held in lock boxes for audit purposes. The State of California recently moved to require such a voter verified paper audit trail in all elections. Senate Bill 296 would establish the same protections in Alaska.

Citizen trust in elections is the bedrock of democracy. Only an accurate count can assure voters that elections result in a true reflection of their will. Requiring a voter verified paper trail will assure Alaskans that no matter what technology is adopted in the future, their elections will be transparent and their votes counted accurately.

Co-Chair, Joint Armed Services Committee
Co-Chair, House Finance Committee
Member, Energy Council

Session: State Capitol, Juneau, Alaska 99801-1182 • Phone: (907) 465-4859 Fax: (907) 465-3799
Interim: P.O. Box 305, Valdez, Alaska 99686 • Phone (907) 835-2836 Fax: (907) 835-3732

Alaska State Legislature
House Finance Committee

REPRESENTATIVE
BILL WILLIAMS

Co-Chair

(907) 465-3424

Fax: (907) 465-3793

INTERIM ADDRESS

50 Front Street, Suite 203

Ketchikan, Alaska 99901

(907) 247-4627

Fax: (907) 225-7157



State Capitol, Juneau, Alaska 99801-1182

REPRESENTATIVE
JOHN HARRIS

Co-Chair

(907) 465-4859

Fax: (907) 465-3799

INTERIM ADDRESS

State Capitol, Room 507

Juneau, AK 99801-1182

Sectional Analysis: CSHB459 (STA) Voter Verified Paper Trail

Section 1: Restates the right of the Division of Elections to use the current Accuvote Optical Scanning machines for reading paper ballots.

Sections 2 & 3: Provides that voters may, upon asking, use the new DRE electronic ballot machines, but that no more than one of these machines will be placed in most precincts; and that these machines must produce a paper ballot for a voter's review, and for recounts.

Section 4: Definitions Section.

Section 5: Federal Law has funded the state's new DRE machines for blind and otherwise disabled persons. This section provides that by 2006, or before if technologically feasible, these machines must provide a paper trail so voters can see their votes on paper, and so that there will be paper for recounts.

Section 6: Immediate Effective Date.

Opinion

(Published: February 8, 2004)

Paper trail

Integrity of Alaskans' votes at risk

Here's a bill in the Legislature that should see speedy passage. SB 296, from Sen. Johnny Ellis, D-Anchorage, would help prevent vote fraud by requiring electronic voting machines to produce a paper record of the votes that are cast.

The state's main electronic vote counting machines, Accu-vote optical scanners, aren't a problem. They use paper ballots that are read and tabulated electronically. But the state recently bought 55 touchscreen electronic voting machines that leave no paper trail whatsoever. The paperless machines are meant to accommodate voters who are physically unable to handle or mark a paper ballot. Eventually the state plans to have at least one touchscreen voting machine in each of Alaska's 446 precincts.

That's a helpful accommodation for disabled voters. But where there is no paper trail, there is huge potential for voting fraud. According to The New York Times, "When the State of Maryland hired a computer security firm to test its new (paperless electronic voting) machines, these paid hackers had little trouble casting multiple votes and taking over the machines' vote-recording mechanisms." With no paper trail, there is no way to cross-check the vote count.

In an editorial, The Times concluded: "The Maryland study shows convincingly that more security is needed for electronic voting, starting with voter-verified paper trails." That's what Sen. Ellis aims to do with SB 296.

Alaska has a statewide primary and a statewide general election this year. Alaskans must have confidence their votes will be counted securely and accurately. The protections outlined in Sen. Ellis' bill should be put into place as soon as possible.

BOTTOM LINE: Alaska law should require electronic voting machines to produce a paper record of each vote.



NEWS RELEASE

CALIFORNIA SECRETARY OF STATE **KEVIN SHELLEY**

KS03:106

FOR IMMEDIATE RELEASE
Friday, November 21, 2003

Contact: Terri M. Carbaugh
Doug Stone
916-653-6575

Secretary of State Kevin Shelley Announces Directives To Ensure Voter Confidence in Electronic Systems

Beginning July 1, 2005, All Touch Screen Systems Purchased Must Have a Paper Audit Trail

SAN FRANCISCO --- Secretary of State Kevin Shelley today announced that beginning July 1, 2005, no county or city may purchase a touch screen voting system that does not include an accessible voter verified paper audit trail (VVPAT). As of July 2006, all touch screen voting systems used in California, regardless of when they were purchased, must have a VVPAT that can be used by all voters, including the visually impaired, to verify that their preferences are accurately recorded.

In making the announcement, Secretary of State Shelley said that a transition period is necessary in order to assure the fair and efficient conduct of elections in California.

"The schedule I have set forth for implementing a VVPAT will ensure that there is adequate time for new voting systems to be properly certified. This also allows time to train elections officials and poll workers and to educate voters," he said.

To further enhance voter confidence in new technologies, Secretary Shelley is adopting voting system reforms and new electronic certification procedures. Shelley will also call upon the federal government to substantially improve its testing process.

"As the state progresses with new technology, all Californians must have confidence that every vote cast is a vote counted," said Secretary of State Kevin Shelley. "These new requirements will provide this confidence."

In addition to providing for a VVPAT, Shelley's reforms call for additional requirements for software testing and auditing, new security protocols for manufacturers, random field testing on Election Day to ensure proper performance of individual voting machines, and the creation of a state Technical Oversight Committee.

In February 2003, Shelley convened an Ad Hoc Touch Screen Task Force composed of computer experts, members of the public, and representatives of the disabled community and election officials to make recommendations to increase the security of voting equipment software. The task force issued a series of recommendations for Shelley's consideration.

A complete copy of Secretary Shelley's directives and the recommendations of the Ad Hoc Touch Screen Task Force are available on the Secretary of State's website, at <http://www.ss.ca.gov/elections/touchscreen.htm>.

Fairfax Judge Orders Logs Of Voting Machines Inspected

By David Cho
 Washington Post Staff Writer
 Thursday, November 6, 2003; Page B01

It took more than 21 hours from the time polls closed Tuesday night for Fairfax County, the putative high-tech capital of the region, to get final election results from its new, computerized vote machines.

Widespread problems in the system, which the county paid \$3.5 million to install, also opened the door to possible election challenges by party leaders and candidates.

School Board member Rita S. Thompson (R), who lost a close race to retain her at-large seat, said yesterday that the new computers might have taken votes from her. Voters in three precincts reported that when they attempted to vote for her, the machines initially displayed an "x" next to her name but then, after a few seconds, the "x" disappeared.

In response to Thompson's complaints, county officials tested one of the machines in question yesterday and discovered that it seemed to subtract a vote for Thompson in about "one out of a hundred tries," said Margaret K. Luca, secretary of the county Board of Elections.

"It's hard not to think that I have been robbed," said Thompson, whose 77,796 recorded votes left her 1,662 shy of reelection. She is considering her next step, and said she was wary of challenging the election results: "I'm not sure the county as a whole is up for that. I'm not sure I'm up for that."

Meanwhile, attorneys for local Republicans and GOP candidate Mychele B. Brickner, who lost her bid to chair the Fairfax County Board of Supervisors, went before a circuit court judge yesterday morning, asking him to keep 10 voting machines under lock and key and not to include their tabulations in the results. The machines, from nine precincts scattered across the county, broke down about midday Tuesday and were brought to the county government center for repairs and then returned to the polls -- a violation of election law, Republicans argued.

The judge said the activity logs of all 10 machines will be inspected this week, with members of both major parties present.

"It's like Florida in many ways," said the Republicans' attorney, Christopher T. Craig, referring to that state's 2000 presidential ballot-counting controversy. "This is about ballot integrity. . . . A lot of people have been telling us they couldn't vote for someone. . . . I have been hearing that there are a lot of problems" with the county's new WINvote computer technology.

As more details emerged yesterday, county officials defended the system. Luca insisted that most of the problems had less to do with computer glitches than human error.

Read
 Dr. William
 Fortney's new
 column at
proplan.com



PET TOPIC
 OF THE MONTH:

The Dog's
 Digestive
 System.

<< LEARN MORE

Ask
 Dr. Fortney

Your question
 could be answered
 in a future column.

<< LEARN MORE



"The new machines get an A-plus," she said. "It's the plan to collect the vote that gets the failing grade."

Fairfax purchased the 1,000 touch-screen vote machines this year from Advanced Voting Solutions of Frisco, Tex. The machines, which resemble laptop computers, were used countywide Tuesday for the first time, and the problems that resulted mirrored what occurred in Montgomery County last year when similar new technology was used. The equipment in Montgomery County was blamed for delayed results and confusion at the polls.

Fairfax officials had confidently promised that their machinery would work much better, citing a battery of tests conducted last week. They also predicted that the system would greatly speed the reporting of results.

Instead, it churned out one of the slowest vote counts in memory.

Much of the delay occurred at 7 p.m. when the polls closed. Most of the county's 223 precincts attempted to send in their computer tallies at once, overloading the system. Many poll officials ended up calling in their numbers, but some couldn't get through and instead drove their results to the county government center.

In at least 19 precincts, results were officially sealed in the mistaken assumption that they had been sent by computer modem, officials said yesterday. Sealed results cannot be opened unless all three election board members are present, which led to further delays.

In addition, software errors kept the results from two precincts from being posted until about 4:30 yesterday afternoon.

"Everyone seems to be aghast at how this could happen," Thompson said. "But this seems like something you could have had the foresight to see."

John Service, 50, of North Springfield said it took him four or five tries to register his vote for Thompson, and he wondered whether some voters were disenfranchised. "I am concerned about voters who might have been in a rush and didn't go back and check to make sure all the names [they intended to vote for] appeared on the final ballot," he said.

The glitches forced a handful of precincts to return to paper ballots. And even at polls where computer problems didn't arise, voter unfamiliarity with the technology created long lines.

Some voters gave up -- a thought that crossed Jeff Fisher's mind.

Fisher, 43, of Annandale said he almost walked out of his polling place when a woman in front of him spent 10 minutes getting through the ballot.

Others, though, wondered why so many people had problems with the machines. "I thought it was very easy to vote, and I'm not even that bright of a kid," Al Richards, 61, of Falls Church said.

© 2003 The Washington Post Company

Posted on Sun, Feb. 01, 2004

ELECTRONIC VOTING'S HIDDEN PERILS

By Elise Adlerman
Mercury News

Poll workers in Alameda County noticed something strange on election night in October. As a computer counted absentee ballots in the recall race, workers were stunned to see a big surge in support for a fringe candidate named John Burton.

Concerned that their new \$12.7 million Diebold electronic voting system had developed a glitch, election officials turned to a company representative who happened to be on hand.

Lucky he was there. For an unknown reason, the computerized tally program had begun to award votes for Lt. Gov. Cruz Bustamante to Burton, a socialist from Southern California.

Similar mishaps have occurred across the country since election officials embraced electronic voting in the wake of the Florida vote-counting debacle of 2000.

When Californians go to the polls next month to choose a presidential candidate, many voters will cast a virtual ballot by pressing a computer touch screen that records their votes digitally. The only tangible proof that a citizen has voted -- and how he voted -- will be fingerprints left on the machine's screen.

Electronic voting removes the risk of election officials misinterpreting hanging chads. But it raises another electoral peril: that a digital ballot box might miscount votes without anyone noticing.

As the black box replaces the ballot box, concern is growing that local officials are becoming dependent on a handful of corporations to guarantee the integrity and accuracy of elections.

Counties, including Santa Clara County, rely on these voting-equipment companies to manage the software that runs digital voting machines and counts electronic votes -- and to fix things when they go wrong on election night. The companies, however, consider such software a trade secret, making independent confirmation of contested elections difficult, if not impossible.

To guard against error and fraud, the state requires that the companies only install approved software on electronic voting machines. But in California, one of the biggest voting-equipment companies, Diebold Election Systems, provided 17 counties with uncertified software that was used in recent elections.

Review of practices

County election officers remain responsible for overseeing electronic voting systems, but a review of past elections and current practices raises questions about how closely they're monitoring voting-equipment companies.

"My biggest concern is the lack of accountability," said David Dill, a Stanford University computer-science professor and a leading expert on electronic voting.

Election officials and company representatives dismiss concerns about computerized voting as overblown, citing safeguards designed to ensure the reliability of computerized voting systems.

"We have the best system available on the market. It is secure and reliable and the voting public had a wonderful experience," said Jesse Durazo, the registrar of voters for Santa Clara County, which uses touch-screen machines from Sequoia Voting Systems.

Alameda County officials still don't know why the computer program failed on election night. In fact, they only discovered the malfunction because they could compare the paper absentee ballots the software was counting to the computer's tally. The rest of the county's voters cast electronic ballots. Nor were election workers aware at the time that their touch-screen machines were running unauthorized Diebold software in violation of California law, as a state investigation later discovered.

"There was something in the software," said Elaine Ginnold, assistant registrar of voters for Alameda County. Alameda County officials refused to allow the Mercury News to review the software code used to test its electronic voting system, saying it was a Diebold trade secret.

"At no time were incorrect vote totals released," Diebold spokesman David Bear wrote in an e-mail. "The system is safe, secure and accurate." He attributed the malfunction to a computer-server error and the large number of candidates on the recall ballot.

"The counties are in over their heads," said Kim Alexander, founder of the California Voter Foundation, a Davis-based election watchdog group. "People are left depending on the vendors to tell them who won the elections."

That is especially the case on election night, when mechanical mishaps and buggy computer code could create crises only company employees could resolve.

For instance, in Riverside County during the 2000 presidential election, a computer from Sequoia began dropping touch-screen ballots from the vote tally. A Sequoia salesman who was on hand intervened and fixed the problem.

Unnoticed error

Two years later in Bernalillo County, N.M., neither local election officials nor a Sequoia representative noticed on election night that a programming error was causing a computer running Microsoft SQL server software to delete 25 percent of ballots cast by early voters. Three days later, a Democratic Party lawyer spotted a discrepancy between the number of voters who signed in at the polls and the number of digital ballots counted. Sequoia then managed to recover the lost votes.

"They messed up," said Mary Herrera, the Bernalillo County clerk, of Sequoia.

Responded Sequoia spokesman Alfie Charles: "It was just a bug in Microsoft that required an additional step in converting data into the database format. There was a patch that was later applied by Microsoft."

Alexander of the California Voter Foundation worries that such incidents mean the machines could miscount ballots or fail to register votes without anyone realizing.

Critics are alarmed that touch-screen voting systems do not create a paper record that allows for a physical recount of ballots. Rather, the machines record votes on digital memory cartridges. When the polls close, the cartridges are removed from the touch-screen machines and plugged into a computer which downloads and tabulates the voting data.

In November, California Secretary of State Kevin Shelley ordered that by July 2006 all touch-screen machines must print paper receipts so an election can be independently audited. To meet that mandate, the voting-equipment companies must manufacture new state-approved hardware and software.

Computer scientists acknowledge a paper trail will help ensure the accountability of electronic voting systems. However, they say such a requirement does not resolve concerns over counties' dependence on voting-equipment companies and the security of computerized voting.

Until voting machines produce paper receipts, the only way a candidate can investigate questionable election results is by examining the voting systems' software code.

But there's a catch: Election companies consider such software a trade secret not open to public scrutiny -- or subject to challenge from losing candidates, as Emil Danciu found out.

Danciu ran for city council in Boca Raton, Fla., in March 2002. A popular former mayor of the seaside town in Palm Beach County, Danciu expected to win in a landslide but lost by 16 percentage points.

After some voters complained that Sequoia's touch-screen machines appeared to have recorded ballots cast for Danciu as votes for his opponents, Danciu sued to obtain the Sequoia software code.

But Palm Beach County didn't have the code. "All of this stuff that they are asking for are all proprietary items owned by the manufacturer," a county attorney told the judge hearing the case. The attorney argued that even if the county did have the documents, it would be a felony to disclose "trade secrets."

The judge denied Danciu's request for the software code.

U.S., state inspectors

County election officers and voting-equipment company executives stress that voting machines and software are carefully examined by federal and state inspectors before receiving approval. Furthermore, they say, pre-election testing ensures ballots are counted correctly.

"There are checks and balances to ensure nothing has been compromised," said Charles, the Sequoia spokesman.

The goal of the government certification process is to make sure proprietary voting systems are accurate, reliable and secure. The certification process is crucial because it provides the only safeguard voters have that the machines are performing the way the election companies promise.

"Every single piece of hardware and software that is used in an election is certified by our office," state election official John Mott-Smith reassured the Santa Clara County Board of Supervisors last year. "Every modification to those systems has to come back for certification and testing if necessary."

Yet eight months later, a state audit revealed that voters in 17 California counties had cast ballots in recent elections on Diebold systems that were running software not approved by the state, according to a December 2003 report. The Diebold software is used to count both touch-screen electronic ballots and paper ballots read by an optical scanner. Three of the counties, including Los Angeles, the state's largest, were using Diebold software that had not been submitted for federal review.

Assurances by vendor

The audit also found that county election officials had not independently verified they were using certified software, as the law requires, but relied on assurances by Diebold it was complying with state regulations.

Even tech-savvy counties like Santa Clara can have difficulty tracking exactly what their voting-equipment company is doing for them. Computer scientists argue that a failure to keep close tabs on modifications to the machines or their software opens the door to tampering or the introduction of errors that might show up on election night.

Following November's election in Santa Clara County, Sequoia sent over a group of blue-coated technicians to make adjustments to voting machines that experienced battery problems. For three weeks, the workers, employed by a Sequoia subcontractor, took apart the machines, removing their circuit boards and making adjustments.

Nevertheless, Santa Clara County officials didn't know the name of the subcontractor and hadn't verified the identities of the workers it hired when the Mercury News made an inquiry. They also hadn't documented the changes being made to the machines.

To find out such information, "you'd have to contact Sequoia," said Assistant Registrar of Voters Elaine Larson.

In interviews with the Mercury News, registrars defended their close relationship with the companies. The world of elections administration is a small one, and the revolving door between state, federal and county elections departments and the voting-equipment companies has spun for years.

"I have a hundred percent confidence in Sequoia -- in their integrity and honesty and their ability to keep us compliant with the law of California," said Cathy Darling, assistant registrar of Shasta County.

That attitude bothers Dill, the Stanford computer scientist and electronic-voting expert. "From a computer-security perspective, handing over control of an important part of the election, I think, is not a good idea," said Dill. "I'd prefer to see that kind of control in the hands of local officials who are accountable to elected representatives."

Contact Elise Ackerman at eackerman@mercurynews.com or (408) 271-3774.



<http://www.sunspot.net/news/local/bal-te.md.machine30jan30,0,4050694.story?coll=bal-local-headlines>

Md. computer testers cast a vote: Election boxes easy to mess with

In Annapolis, tales of trickery, vote rigging

By Stephanie Desmon
Sun Staff

January 30, 2004

For a week, the computer whizzes laid abuse - both high- and low-tech - on the six new briefcase-sized electronic voting machines sent over by the state.

One guy picked the locks protecting the internal printers and memory cards. Another figured out how to vote more than once - and get away with it. Still another launched a dial-up attack, using his modem to slither through an electronic hole in the State Board of Elections software. Once inside, he could easily change vote totals that come in on Election Day.

"My guess is we've only scratched the surface," said Michael A. Wertheimer, who spent 21 years as a cryptologic mathematician at the National Security Agency.

He is now a director at RABA Technologies in Columbia, the firm that the state hired for about \$75,000 to look at Maryland's new touch-screen voting machines scheduled to be unveiled in nearly every precinct in Maryland for the March 2 primary.

The state has no choice but to use its \$55 million worth of AccuVote-TS machines made by Diebold Election Systems for the primary. The old optical scanners are gone.

Yesterday, Wertheimer calmly presented his eight-member team's findings to committees in the House and Senate, explaining the weaknesses they discovered and a plan for how to plug many of the cracks, at least in the short run.

Giddy geek speak

Yet on a recent morning at his offices, Wertheimer's computer programmers were practically giddy as they invented new ways to muck up an election. Some were simple - like the lock-picking or just yanking the cords out of a machine's monitor, disabling it for the rest of the day.

Other fiddling inspired round after round of excited geek speak, true gibberish to the untrained ear, to explain a host of attacks that could be launched up close or by modem.

One thing was clear: There are many ways to fool with Diebold's machines, some of which could lead to an Election Day disaster. At the same time, some scenarios were far-fetched and too difficult to pull off

Low-tech hacking is also a possibility, though.

Someone bent on causing trouble could call a polling place and tell workers that the state's modem is down and results should be called in on a new phone number. Then the troublemaker could simply change the results before sending them onto the state.

While results can now be encrypted - after criticism that they weren't being - something called authentication is missing. Authentication tells the main computer that the person sending in results is the one who is actually permitted to do so.

Sneaking in, via modem

Meanwhile, William A. Arbaugh, an assistant computer science professor at the University of Maryland, College Park and part of the team, easily sneaked his way into the state's computers by way of his modem. Once in, he had access to change votes from actual precincts - because he knew how to exploit holes in the Microsoft software.

Those holes should have been patched through regular updates sent to customers, patches that haven't been installed on the elections equipment since November.

"There's no security that's going to be 100 percent effective. But the level of effort [needed to get into the system] was pretty low," Arbaugh said. "A high school kid could do this. Right now, the bar is maybe 8th grade. You want to raise the bar to a well-funded adversary."

"Every system is vulnerable somehow," said Karl Aro, director of the state's Department of Legislative Services, who commissioned the study for the legislature. "The system's not bad but it needs some work."

No system is completely secure. In fact, the more elections the state holds, the more opportunities there will be for hackers to see how it works and launch new attacks, experts said.

"If you had the time and the money, the sky's the limit on what you could do to make a secure system," McLarnon said.

"You just need to raise the level of effort needed to exploit it so it's not feasible to do," said fellow consultant John Ormonde.

Copyright © 2004, The Baltimore Sun

SENATE FINANCE COMMITTEE

SIGN-IN

HB 459-PAPER TRAIL FOR ELECTRONIC VOTING MACHINE

NAME: Cindy Smith Subject/Bill No: HB459
Co./Dept./Title: staff, Rep Kara Phone: 465-2647
Address: Capitol Room 422 Zip: _____
Do you wish to testify? Yes No Respond To Questions

NAME: Laura Glaiser Subject/Bill No: HB 459
Co./Dept./Title: Div. of Elections, DIRECTOR Phone: 4611
Address: PO Box 110017 Zip: 99811-0017
Do you wish to testify? Yes No Respond To Questions

NAME: _____ Subject/Bill No: _____
Co./Dept./Title: _____ Phone: _____
Address: _____ Zip: _____
Do you wish to testify? Yes No Respond To Questions

NAME: _____ Subject/Bill No: _____
Co./Dept./Title: _____ Phone: _____
Address: _____ Zip: _____
Do you wish to testify? Yes No Respond To Questions

