# Arizona Democratic Party

## State Committee

January 23 2010

Prepared for the State Committee Members of the Arizona Democratic Party

**PROPOSED ARIZONA DEMOCRATIC PARTY**
**RESOLUTION**
**As passed Jan 23, 2010**

WHEREAS Elections with the honest counting of all votes is the bedrock of any democracy and is fundamental in Arizona's Constitution, and

WHEREAS all Arizona's votes are counted with computers, and

WHEREAS it is unlawful to hand count the actual paper ballots in Arizona in any recount and whatever the computer reports for its second count must be accepted, and

WHEREAS our election computers can be easily rigged to falsify which person or which issue actually won any election, and

WHEREAS the Arizona Secretary of State is prohibited by law from looking inside an election computer database to check what any county has done with its computers, and

WHEREAS the Arizona Secretary of State is prohibited from looking at election computers from the outside to see if they are safely protected, and

WHEREAS Maricopa County's “Sequoia” system was recently de-certified by the State of California and then re-certified with special security procedures not required in Arizona, (see note1) and

WHEREAS our Superior Court claims it does not have jurisdiction to consider cases about cheating, let alone do anything about future cheating,

THEREFORE, be it resolved that the Arizona Democratic Party urges the people of Arizona to elect Democratic legislative candidates who are pledged to see that the sanctity of the vote is protected.

Be it further resolved that the Arizona Democratic Party urges each county to use a graphic scanning system that would allow all political parties and persons to examine all the ballots cast in any election which would prevent election rigging by inherently flawed computers or could reveal unconstitutional computer errors.

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Note 1: http://www.sos.ca.gov/elections/voting_systems/ttbr/sequoia_redline-100109.pdf

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***PARALEGALS***
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MARCELO C. RUIZ
CATHERINE A. CASEY


November 17, 2009

Dear Committee Member:

The stolen elections such as Florida in 2000 and Ohio in 2004 have awakened many of us to the problems with counting votes by computers. I've been working with the Pima County Democratic Party as an attorney and as a member of its election integrity committee. I am also a member of the state party election integrity committee. This resolution is co-sponsored by state committee members: Donna Branch-Gilby and Sandra Spangler Co-Chairs of PCDP-EIC, Dave and Joan Safer, Jeffrey Latas, Dan O'Neal, Carol Corsica, Kristie Foss, Ben Love and Stephen Brittle.

Included with the resolution is a background memorandum related to the points in the resolution. Also attached are two pages concerning to a new company developing ballot graphic scanning technology. Another company from Humboldt, California has an open source program. That information is included as part of the education process to familiarize you with the developing ability of citizens and political parties to confirm the accuracy of reported computer counted votes.

I realize that the memorandum is quite long but the problem of protecting our votes is not amendable to sound bites. The problem and the solution need to be understood. I will be at the Kingman meeting and speaking and answering questions at the Election Integrity Committee session.

Sincerely,

Bill Risner

**Bill J. Risner**

**RISNER & GRAHAM**

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**MEMORANDUM**

TO: Democratic Party State Committee Members
FROM: Bill Risner, District 27 Member
RE: A Proposed Resolution Regarding Election Integrity
DATE: November 11, 2009

## Executive Summary

Our election systems are vulnerable to cheating and software bugs, but there is a good solution that would effectively eliminate all of these election integrity concerns:

a) It's easy to cheat and there are undoubtedly unknown bugs in the system, both of which can corrupt election results;

b) It's impossible, for all practical purposes, to challenge an election outcome under Arizona law;

c) Current checks on the system, including logic and accuracy tests and hand counts, are better than nothing but still insufficient to ensure accurate elections;

d) It is currently difficult, if not impossible, to obtain the paper ballots to investigate suspected problems;

e) The Secretary of State has no jurisdiction to examine election electronic databases that currently provide the best window into election integrity;

f) The political parties are responsible for election observation and auditing;

g) There is a relatively simple solution, a way to obtain an independent count using graphic scanning of ballots. This approach not only provides an independent check on the election outcomes, but may provide sufficient evidence to overcome Arizona's restrictive challenge laws in are there are discrepancies.

The solution is the graphic scanning of all ballots after they are counted in each county. There is now available computer software that can automatically analyze ballot images. This means that our political party and any citizen can within hours of the approval of the official canvas confirm the accuracy of the reported results. Fortunately, the solution is achievable under current Arizona law.

This resolution has been prepared by Bill Risner who has been a lawyer in Tucson for the past forty-one years and active in the Democratic Party for years longer. Risner first represented the Pima County Democratic Party in a re-districting case some thirty-eight years ago and a number of election related cases since. He is a member of the state party election integrity committee and the Pima County party committee. Many of the facts asserted in the resolution were uncovered or highlighted during several years of litigation on behalf of the Pima County Democratic Party to obtain the computer election database of past elections from the Pima county Board of Supervisors.

Until that lawsuit by the Pima County party no one in Arizona had ever examined an election computer database: not any county board of supervisors, not the Secretary of State, not any political party, nor any contractor or any member of the public.

Arizona's fifteen counties use three different private company software programs to count votes. Twelve counties, including Pima County, use the Diebold/Premier system. Maricopa County uses the Sequoia company system and Cochise and Graham use the ES&S company product. The actual coded instructions of each company's product is treated as a company secret that is kept from the public at large and is not revealed to any Arizona state or county official.

## Easy to Cheat

The central problem of our current computerized system is that it is easy to cheat with the election

computers. When the fact of *"easy to cheat"* is combined with the *"impossibility of challenge"* and the "nobody is looking" facts, the seriousness of the present vulnerability of our election system is obvious.

The easy to cheat proposition is unanimously endorsed. As astonishing as this claim might seem, I am not aware of any knowledgeable person or group that disputes that claim. Here are some examples of statements confirming the problem.

> – iBeta company report to Arizona Attorney General Terry Goddard: *"During testing it was discovered that the GEMS software exhibits fundamental security flaws that make definitive validation of data impossible due to the ease of data and log manipulation."*
>
> – Arizona Secretary of State's Office by Election Director Joseph Kanefield concerning the iBeta report: *" ... this is no secret. These issues have been known by not only our office but election offices all over the country."*
>
> – Pima County Chief Civil Attorney Christopher Straub during his Opening Statement at trial against the Pima County Democratic Party's database lawsuit: *"Because it can be easily manipulated, the bottom line is in this whole thing is we're only going to catch stupid people, all right, because one could also alter the audit logs and one could do anything."*
>
> – David Jefferson, Ph.D., computer expert and nuclear physicist who has advised six successive California Secretaries of State: *"The security mechanisms that are there are 'in general hopelessly inadequate to prevent manipulation of ballot records or vote totals by anyone with even a very short period of access to the system."*
>
> – California Source Code Review of the Diebold Voting System: *"Our analysis shows the technological controls in the Diebold software do not provide sufficient security to guarantee a trustworthy election. The software contains serious design flaws that have led directly to specific vulnerabilities that attackers could exploit to affect election outcomes."* (Executive Summary)

**Impossible to Challenge**

Under Arizona law it is, as a practical matter, impossible to challenge any election where the votes are counted by computer. Those who are precise users of the English language might argue that it is simply extremely difficult. They may be technically correct but the difference between those two positions is so slight that impossibility more closely describes the reality.

An election challenge in Arizona can only be made pursuant to the requirement of A.R.S. § 16-673. The relevant portions are:

> A.R.S. § 16-673
>
> A. The elector contesting a state election shall, within five days after completion of the canvass of the election and declaration of the result thereof by the secretary of state or by the governor, file in the court in which the contest is commenced a statement in writing setting forth:
>
> 4. The particular grounds of the contest.

That statute contains a time deadline of five days and a particularity requirement. In simple terms, the details must be set out under oath and those details must allege how the election outcome itself would have

been different and not simply that there were *"problems"* or *"questions."* The law requires specific facts.

The first step for any challengers would entail obtaining a copy of the electronic database created by the secret and insecure computer software. All Arizona counties use secret databases owned by companies that protect their software and often the data itself.

In Maricopa County (58% of Arizona voters), the Sequoia Corporation claims that the data itself is secret because *"proprietary code"* is buried in the data. The Maricopa County Recorder's Office claims they must comply with the company's view. Therefore, no voter in Maricopa County can gain access to their election computer data. Election activists have attempted to do so and have been refused.

In Pima County, the County Democratic Party incurred attorney's fees and expenses in excess of $350,000 over a twenty-month period in order to obtain public record electronic data. Pima County uses Diebold/Premier Corporation software that is a *"trade secret."* Luckily, the Pima County Democratic Party has a copy of an older version of the *"secret"* software that enables it to analyze some of the older data. In the future, it will be difficult for the Party to examine data or to *"open"* important password protected portions of the data as each new version of the software creates new problems for examination using older software.

Since the County Democratic Party has a specific court order in place in Pima County, it can obtain *"data"* in the future, at least as much of the data that has not been erased. Their lawsuit has secured the same right for all political parties and even individual citizens. It is extremely difficult, however, to obtain initial data in other counties in Arizona. Prior to the 2008 general election, the Arizona State Democratic Party mailed requests under its letterhead to twelve Arizona counties requesting copies of their public record computer data. Only six counties chose to respond to the request at all, and not one county provided data within the five day window.

For sake of further analysis, let us assume that someone could actually obtain, in a timely manner, the requested public record computer data. That data would not likely reveal any information that could be used to plead with particularity sufficient grounds for an election contest.

The election computer experts are unanimous that examining the computer data itself cannot provide specific information that complies with A.R.S. §16-673. There are simply too many ways to cheat and cover up the crime. Such falsification efforts are possible, among other reasons, because the Diebold/Premier audit log that might otherwise record activities can be *"edited"* and specific activities simply erased. Data can be copied and altered off-line at the office or at home by election personnel and re-inserted into the system through a process known as *"forking."* The Diebold *"memory cards"* that record precinct votes can be programmed by a *"crop scanner™"* device to produce false results. Pima County owns such a device and Pima County's computer operator is highly skilled in the use of that "hack tool" by his own admission.

During court testimony in the *"database"* trial, Pima County election computer operator Bryan Crane testified that he practiced using Pima County's *"crop scanner"* to alter vote counting instructions in memory cards so that the optical scanners would print a false poll tape reflecting the votes desired by the programmer and not the choices of the voters. In Crane's opinion, *"any person with computer knowledge wouldn't have a problem with it."* The revealed database after an election would not show the pre-election programming. It would show only the downloaded false results that could be *"confirmed"* by examining the printed false poll tape.

**The bottom line is that A.R.S. §16-673 can never be a remedy for a computer election challenge.**

The Sequoia system used in Maricopa County appears to be no more secure than the Diebold/Premier

system used in twelve Arizona counties. The California Secretary of State recently decertified the Sequoia system. Jim Marsh of Black Box Voting is now analyzing Sequoia data from Riverside County and has discovered that it contains federally prohibited code among other problems. The key issue for us at this point is that the Sequoia data could not be analyzed within five days. At the moment, this is a certainty because the Maricopa County Recorder has refused to release the database at any time.

Thomas W. Ryan, Ph.D. is a member of the state party's election integrity committee and the Pima County party's committee. He was the primary investigator and author of the Pima County party's position statement on electronic voting more than five years ago. He is a retired computer engineer whose careful views are accepted by all sides of the computer disputes.

Dr. Ryan provided a declaration for the Pima County Superior Court after his examination of a portion of the Pima County electronic database. He concluded:

> *13. It is well established that the GEMS databases are vulnerable to software errors and can be manipulated using simple software applications or scripts.*
>
> *...*
>
> *15. Detection of fraudulent manipulation or software errors in a GEMS database would most likely be difficult, if not impossible, depending on the nature of the manipulation or error.*
>
> *16. Detection of errors, if possible, would require a thorough analysis of the sequence of database "snapshots", looking for anomalous data either within a single database or, more likely, among the various snapshots.*
>
> *17. Software tools are under development to detect logical inconsistencies but these tools are not yet fully automated and will probably never address all possible forms of manipulation or bugs.*
>
> *18. Unless the manipulation or software errors are blatantly obvious, it will take several weeks to fully analyze the database set for an election.*
>
> *19. Discovery of manipulation or other errors in election databases would almost certainly take longer than the five-day contest period allowed under A.R.S. 16-673.*

Michael A. Duniho is a "*master computer scientist*" who retired to Tucson from a career with the National Security Agency, our nation's premier computer security agency. He has worked with the Democratic Party's Election Integrity Committee since 2006 and was appointed to the Pima County Election Integrity Commission where he serves along with Dr. Thomas Ryan, another appointed member.

Mr. Duniho confirmed in his sworn court declaration that manipulation of GEMS is generally undetectable:

> *It is important to understand that manipulation of the GEMS database is generally undetectable without comparing the database data with actual ballots and poll records. Such a comparison takes not a few days but rather a year or more of intense forensic analysis to compare every computer information record with every paper information record.*
>
> *...*
>
> *The only way to confirm the integrity of a computer-counted election is to compare actual ballots with the data in the databases. In 2006, the Arizona legislature enacted changes to election law requiring a statistical hand count audit of elections in Arizona, and we have applied that new law*

*to better confirm election integrity in Pima County.*

*Because the GEMS system has no capability for publishing vote totals by early ballot scanning batch after the election is complete, the current process for hand counting randomly arriving early ballots is a jury-rigged effort that compares a batch of early ballots with a couple of vote total summary reports printed before and after the batch of ballots is scanned (4% of the early ballots are selected for possible audit and then 1% are actually hand counted). A computer operator bent on fraud always knows which early ballots will be hand counted before they are scanned and could easily manipulate the vote totals for the 96% of the early ballots that are guaranteed not to be hand counted.*

**We Can't Examine the Paper Ballots and We Must Accept Machine Results**

In September 2004 a very interesting election "recount" occurred in Maricopa County concerning a Republican Party legislative primary election in District 20 between John M. McComish and Anton Orlich. The issues, court testimony, attorney conduct and the court decision provide important lessons on how our ballots are counted.

Mr. Orlich *"won"* his primary election by four votes. Arizona has the most narrow recount laws of all fifty states and permits only automatic recounts and then only when an election is within one-tenth of one percent. The original count was within that narrow limit.

Karen Osborne, on behalf of the Maricopa County Recorder's office suggested that the most accurate way to recount would be a hand count of the ballots. Secretary of State Jan Brewer immediately sent her a memorandum prohibiting a hand count and reminding Ms. Osborne that no matter how logical or practical such a hand count would be, it was illegal in Arizona to hand count ballots.

The recount then proceeded with the result that Mr. McComish won by thirteen votes.

The issue that was most interesting was not the *"flip"* result but that the machine counted an additional 489 votes cast that had not counted when those same ballots had been originally counted by the same machine.

Karen Osborne testified under oath that the machine that counted the mail-in ballots had an error rate of 18.3%. (*See* hearing transcript of proceedings, page 92, line 6) but that such an error rate was not out of the range because every machine reads differently. For a flavor of the testimony:

Q. By Ms. Hauser: *So as I understand it, what was stated is that there is expected to be an eighteen percent error rate on early ballots.*

A. Karen Osborne: *I believe what I said is that there was not – it was not out of the range of possibility for there to be this much of a swing on a recount for ballots for marginal marks; I believe that's what I said.*

(Transcript, page 116, lines 18-25)

Later, Karen Osborne testified there was *"no way"* to know why the count was off by so much.

Q. Last question: *Is there any concrete way you would have of knowing for certain, absolutely dead-on certain, exactly why the primary count for early and provisional ballots generated, you know, 464 more votes in the recount?*

A. *No.*

Q. *Is there any way to know for sure?*

A. *No. — I don't know of a way to assure that.*

(Transcript, page 119, lines 2-10)

The court was required to accept the machine count because the machine had passed a counting *"logic and accuracy"* test before the election. Judge Edward P. Ballinger, Jr. made some pertinent observations before he signed the order in favor of Mr. McComish:

The Court: *If the system is designed to tally accurate counts to show the intention of voters, then I have questions about whether it works with respect to those that file early ballots.*

(Transcript, 161:15-18)

*I feel really bad for you, Mr. Anton Orlich and the reason is this is the only time I've been unable to say to someone, "If I'm wrong, you can go up the street, and three smart people at the Court of Appeals can fix it. Unfortunately, there isn't any way to remedy the order if I'm incorrect, and I'm sorry about that; there is nothing I can do.*

(Transcript, 167:8-15)

In the District 20 race the court did not have specific evidence of cheating. If such evidence, even conclusive evidence of cheating, is obtained more than five days after the approval of the canvass, our court claims there is nothing that can be done.

Judge Charles V. Harrington of the Superior Court in Pima County ruled in *Beth Ford v. Democratic Party of Pima County* (Case No. C-20085016) that the court did not have subject matter jurisdiction to consider past cheating for even the limited purpose of consideration of future changes to prevent cheating. The rule of law is that one must catch the cheaters within five days. Unless that happens, the courthouse door is shut and can't be opened, even if only to prevent cheating in future elections.

**The Secretary of State Has No Jurisdiction to Examine Election Computer Databases**

It is a historical fact that no one except the Pima County Democratic Party has ever examined an Arizona election database. One might assume that at least the Arizona Secretary of State could do such an examination, even if they had never done so. Such an assumption would be wrong.

On April 11, 2008, the Pima County Democratic Party and the Pima County Board of Supervisors took the deposition of the Office of the Secretary of State. The Secretary of State chose Joseph Kanefield, the *"State Election Director,"* to testify under oath concerning some fourteen topics and to provide official answers on behalf of the Office of the Secretary of State.

Mr. Kanefield is an attorney who previously handled election matters within the Attorney General's office.

Mr. Kanefield was asked by Mr. Risner:

Q. . . . *First, can we clearly establish that your office never has gone in and examined a database to see if there's been any fraud or manipulation?*

A. *Our office doesn't have the authority, under law, to do such an examination...*

(Deposition Transcript, 65:22-25 to 66:1)

Q. *Are you aware of any county in Arizona that has ever conducted a post election examination of the database for evidence of fraud or manipulation?*

A. *I am not aware, other than what's occurred in Pima County. But that doesn't mean it hasn't happened. It's just that I'm not aware.*

Q. *Okay. So the result, then, is that the Secretary of State, because it has no authority to, does not examine and has never examined an election database after an election in any county in Arizona, correct?*

A. *That is correct.*

(Deposition Transcript, 67:3-15)

The Pima County Democratic Party requested prior to the 2006 general election for Pima County to make numerous changes in the physical security of its election computer. Those physical changes have made it impossible for the election computer to be hacked into by outsiders and collectively constitute major security improvements. Since, however, the major security risk has consistently been identified by election security analysts as *"insiders"* such as vendors and election department personnel, the physical protection of the computer is only part of the necessary security for any election. Another surprising point of testimony from the Secretary of State's office was that it had *"no responsibility"* to examine the physical security of election computers. In other words, when the Secretary of State sends a representative to each county for the so-called logic and accuracy test before elections, they are unconcerned about the actual physical security of the election computers.

Q. *By Mr. Risner: Does the Secretary of State, county by county, examine the physical security of its election computers?*

A. *Mr. Kanefield: Well, we're not tasked with that responsibility of actually physically examining and auditing the security . . .*

(Deposition Transcript, 79:16-21)

**What Is Graphic Scanning and Why Is It the Answer to Election Security**

High speed commercial scanners are currently available that would permit the graphical scanning of every paper ballot after the original ballot has been scanned by the election department. The graphic images of these ballots could then be made available to all political parties or interested citizens, candidates or groups who could then themselves count the ballots and votes to confirm the accuracy of the official canvass.

This system was used in a cooperative way in the 2008 election in Humboldt County, California with excellent results. The Humboldt Transparency Project produced an open source computer program which they used to count the images of the official ballots. The major difference they uncovered was a group of 192 ballots in one precinct that the official count had not included. Upon further inquiry by the county and the citizens, they learned that the Diebold GEMS software had a programming *"glitch"* that erroneously deleted that block of votes. The California Secretary of State and Diebold itself then informed all counties across the country of that particular computer software error which had previously not been noticed.

A second group has developed another elegant software system to scan and then computer count graphic images of ballots. The usefulness of such a system is difficult to overstate. The current system nationwide uses computer software developed by several corporations with various versions of each being operated in thousands of voting jurisdictions.

They all are full of security holes. It would be a many decade problem to find the holes and get them corrected. Even if that could be accomplished, there would still remain the problem of insiders or hackers that might choose to rig an election.

Graphic scanning solves all of those problems because the same ballots can be counted by anyone. If the citizen or political party count is different, they can quickly analyze why.

The Humboldt County effort again provides an example. One of the races was close enough for a recount to be considered. The losing candidate examined the graphic images and concluded that a recount would not be necessary.

**Responsibility**

The issue of responsibility to see that our votes are accurately counted lurks through this letter. The Secretary of State says checking on election computers isn't their responsibility. They make rules for computer physical security but say it's not their responsibility to see if their own rules are followed.

The Secretary of State doesn't know what is contained in the software systems that operate in Arizona. The Secretary of State says they take the vendors' – private, for profit corporations – word for it. They trust the companies even though they know that the company that Diebold itself hired to *"certify"* the Diebold software was stripped by the federal government of its ability to do so in the future. The *"certifying company"* hired by Diebold claimed they didn't conduct a test they should have because Diebold lied to them. The *"certifying company"* concedes that they were never even asked to do a security check on the software which was sent to Arizona and accepted by our Secretary of State without further inquiry or examination.

Judge Harrington ruled the court system could not hear nor consider any case concerning a rigged election even when the objective was to prevent cheating in the future.

The Office of the Attorney General considers itself to be the lawyer for the Secretary of State and not an independent actor except in limited circumstances.

No Board of Supervisors in any Arizona county has audited or examined its election computer database.

No County Attorney has ever audited or examined its county's election computer database.

Arizona law does not require any hand audits of county races, including those of the county board members that run the election itself. Pima County claims it would be unlawful for the Pima County Board of Supervisors to permit any county races to be audited. Hand count audits of *"early ballots*," the majority of all ballots, are inconclusive.

That leaves us. It is political parties that have the responsibility. We must ensure honest elections. Fortunately, we know how. Let's get it done.

William "Bill" Risner

# The Clear Ballot Group Company Overview, Trial Results & Team Members

Transparency Tools for America's Elections

CLEAR BALLOT

## What We Do

Across America nearly every election jurisdiction is feeling the effect of budget cuts, increased operating costs, the financial impact of aging voting equipment and the threat of unbudgeted litigation costs for contested elections. At the same time they are faced with demands for increased transparency and security yet lack a clear methodology and the tools to support it.

The Clear Ballot Group is a Boston, Massachusetts company formed to help address these issues directly with a new system of methods and tools for election officials who seek improvement for their stakeholders – elected officials, canvassing boards, candidates, political parties and citizens. These tools provide four critical benefits as they,

- **Independently, accurately and rapidly verify an election** - all contests, across all precincts within 48 hours after the close of polls.
- **Save money** by providing additional features, like security, without requiring a costly round of voting machine purchases; reducing unbudgeted litigation costs and providing rigorous tools to ensure voting machine firms' compliance with service-level agreements.
- **Improve election administration** with rigorous methodology and tools for election officials that highlight the areas that need administrative improvement and to minimize discrepancies between the canvass and the audit.
- **Pinpoint the source of discrepancies** between the voting machine count and the audit using a new class of election forensic tools. These discrepancies may include: identification of uncounted damaged ballots not returned to the voter, missing precincts, ballots voted more than once and instances where a blank vote should have been recorded instead of a vote for a candidate.

## How We Do It

The Clear Ballot Group has developed a system that extends an elegantly simple idea developed during the 2008 election cycle in Humboldt County, California.

> The idea: scan the paper ballots; post the images on the Internet; let candidates, political parties, interest groups and citizens to do their own counts.

The Clear Ballot Group has developed a rigorous system of software and methods designed to fit with the existing voting systems and still meet the demanding conditions of a live election in large jurisdictions. This system includes the following components:

- **High-speed scanning** of ballots into secure image files that can be linked back to their respective physical ballots ensuring trust in the process.
- **The audit,** a rigorous, high-speed, independent count of ballots and races with easy comparison to the voting machines' count across thousands of points
- **Visualization and forensic tools** provide new methods of examining and searching very large ballot image populations to identify quickly ballots that may require human judgment. The forensic tools can, for example, find and display ballots with uncaptured voter intent or ballots that may benefit from human analysis.

## Scanning Performance

| Number of Scanners Required * | | | |
|---|---|---|---|
| | Scanning Hrs. until Deadline | | |
| # Ballots | 48 hrs | 72 hrs | 96 hrs |
| 100k | 1 | 1 | 1 |
| 500k | 3 | 2 | 2 |
| 1,000k | 6 | 4 | 3 |
| 3,000k | 18 | 12 | 9 |

*Assumed Scanner Speed: 3,500 ballots/ hour

Fujitsu 5900C Scanner

## The Leon County Trial Results

In June 2009, Ion Sancho, the Supervisor of Elections in Leon County, FL, invited the Clear Ballot Group to test its methodology and software by auditing the ballots from the Nov. 2008 general election. Once the nearly 150,000 ballots were scanned into image files, the audit was done in two stages:

**1. Ballot Accounting Stage:** This stage asks the question, "Before we start counting the votes for candidates, do we have a good population of scanned images? More precisely, does the count of ballot images scanned match the official canvass of 'cards cast' across precincts and voting times?"

**Results**: A net of seven (7) more images were recorded than the 149,000 cards cast reported by the Canvass – a discrepancy of less than five one-thousandths of one percent (.0047%) of the Canvass. The discrepancies in lines 1-3 are due to the comingling of ballots during the canvassing period when provisional ballots were being examined by hand. Leon County's Elections Department will institute new procedures to prevent ballot comingling in the future. Out of 165 precincts the vast majority had no discrepancies.

| Ballot Accounting Phase<br>Leon County, Florida 2008 General Election | | | | |
|---|---|---|---|---|
| | Official Canvass | Ballot Audit | Discrepancy | |
| Voting Time (165 precincts) | Auditable Paper Ballots | – Total Ballot Images Scanned | = Discrepancy (Ballots – Images) | % Discrepancy as a Percent |
| **1.** Absentee & Other | 29,407† | 29,405 | **2** | .0068 % |
| **2.** Early Voting | 41,841† | 41,810 | **31** | .0741 % |
| **3.** Election Day | 75,594† | 75,634 | **(40)** | (.0053 %) |
| **4.** Precinct 5225 | 2,158 | 2,158 | **0** | 0 % |
| **5.** Total all 166 Precincts | 149,000 | 149,007 | **(7)** | **(.0047 %)** |

† During the hand count of precinct 5225, ballots were co-mingled and the identity of voting times was lost. Accordingly, precinct 5225 was broken out separately (Line 4).

**2. Race Accounting Stage:** This stage asks the question, "To what degree do the votes assigned to each candidate in the Canvass match the independent tabulation from scanned images for every race, for each precinct and voting time?"

**Results for Precinct 5225*:** 2,158 ballots were cast each having 21 contests for a total of 45,318 "Ballot-Contests". Two races showed that the voting machine assigned one more vote to a candidate and one less blank vote than was assigned by the audit. The likely explanation is that the algorithm used in the voting machine counted a vote that the audit software interpreted as a blank vote.

| **Race Accounting Phase: Precinct 5225***<br>**Leon County, Florida 2008 General Election** | | | | |
|---|---|---|---|---|
| | Official Canvass | Ballot Audit | Discrepancy | |
| Race / Candidate (Races with discrepancies.) | Votes per Voting Machine | – Votes per Count From Images | = Discrepancy (Voting Mach. – Audit) | % Discrepancy as a percent of "Ballot-Contests" (45,318) |
| **District Court – Retain Judge Robert T. Benton (Yes or No)** | | | | |
| Yes | 1,286 | 1286 | 0 | |
| No | 448 | 447 | 1 | |
| Blank Voted | 447 | 448 | -1 | |
| Totals (absolute values) | 2,158 | 2,158 | **2** | |
| **Circuit Judge Group 7** | | | | |
| Lisa Raleigh | 810 | 810 | 0 | |
| Frank E. Sheffield | 938 | 937 | 1 | |
| Blank Voted | 410 | 411 | -1 | |
| Total (absolute values) | 2,158 | 2,158 | **2** | |
| Total | | | **4** | **.0088%** |

* Due to an undetected hardware malfunction, the votes from the images for all 166 precincts could not be tabulated. Instead, a second trip was made to scan a precinct 5225 to obtain the above results.

## "Match Points™" Defined

The "Match Point™" concept is tool used to measure the rigor of an audit. A Match Point is defined as an independent point of comparison between the canvass and the ballot audit. It is computed by subtracting the value of the audit from the value of the canvass at that point.

The Match Point concept provides:

- An objective measure of the degree to which the audit agrees with the canvass.
- A forensic tool to pinpoint the location of discrepancies that could change the outcome of an election and to reduce the time and cost associated with manual recounts.
- Rigorous results because the count derived from the scanned images should match the voting machine results across *hundreds or thousands* of match points.

Examples:

1. The number of cards cast during Early Voting in Precinct 1301 is one match point.
2. The total number of cards cast in precinct 1301 is not a match point because it is derived from Absentee, Early and Election Day results and is not itself independent.
3. The number of votes counted cast on Election Day for Candidate Jones in the race for first Congressional district in Precinct 2251 is one match point.
4. The number of blank votes recorded on Absentee ballots in the race for President in Precinct 3469 is one match point.

**Ballot Accounting Stage**

For the Ballot Accounting Stage, in the Leon County trial there were 498 possible match points. Match Points are Precinct/Voting Time pairs and discrepancies are measured as the difference between the voting machine's count of cards cast on paper ballots minus the independent count of images. Since Precinct 5225's ballots were co-mingled thus losing the identity of the number of ballots cast according to voting times, two of the three possible match points for that precinct were lost resulting in 496 actual match points.

Ballot Accounting Stage
Calculation of Number of Match Points
Leon County 2008 General Election

| | | |
|---|---|---|
| | Number of Precincts | 166 |
| X | Number of Voting Times [Absentee, Early, Election Day] | X 3 |
| = | Total Possible Match Points | 498 |
| - | Match points lost (co-mingled ballots in precinct 5225) | - 2 |
| = | Total Match Points | 496 |

**Race Accounting Stage**

The number of match points in the Race Accounting Stage is computed by summing the product of the number of precincts per ballot style (column 3 below) and the number of voting positions per ballot style (column 4). With three voting times – absentee, early and election day – there are a total of 36,189 independent match points.

Race Accounting Stage
Calculation of Number of Match Points
Leon County 2008 General Election

| Ballot Style | Unique Races | # Precincts | X Voting Pos (incl. Blank) | = Match Points |
|---|---|---|---|---|
| [1] | [2] | [3] | [4] | [5] |
| 1 | 21 | 5 | 77 | 385 |
| 2 | 20 | 29 | 74 | 2,146 |
| 3 | 19 | 17 | 71 | 1,207 |
| 4 | 18 | 7 | 67 | 469 |
| 5 | 20 | 46 | 74 | 3,404 |
| 6 | 19 | 1 | 70 | 70 |
| 7 | 19 | 34 | 71 | 2,414 |
| 8 | 20 | 6 | 74 | 444 |
| 9 | 21 | 10 | 77 | 770 |
| 10 | 21 | 1 | 76 | 76 |
| 11 | 23 | 1 | 82 | 82 |
| 12 | 20 | 1 | 72 | 72 |
| 13 | 21 | 1 | 77 | 77 |
| 14 | 20 | 1 | 74 | 74 |
| 15 | 19 | 1 | 69 | 69 |
| 16 | 20 | 2 | 73 | 146 |
| 17 | 18 | 1 | 66 | 66 |
| 18 | 20 | 1 | 73 | 73 |
| 19 | 2 | 1 | 19 | 19 |
| | | 166 | | 12,063 |
| | | | x # Voting Times | 3 |
| | | | Total # Match Points | = 36,189 |

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## The Clear Ballot Group Company Overview, Trial Results & Team Members

Transparency Tools for America's Elections

CLEAR BALLOT

### Who We Are

#### Founders & Directors

**Larry Moore,** CEO was the Sr. VP. of Lotus/IBM and the driving force behind the launch of Lotus Notes – a product that has generated over $7B in sales and still generates $450M annually. He also led the creation of the Lotus Notes reseller channel that, at its peak, had over 6,000 resellers of Notes. He founded Isys Corp. a financial information company and sold it to Lotus. He was also a two-time CEO of venture-backed startups and was VP, Strategy of two venture–backed RFID companies. He is a graduate of Georgetown Univ., holds a Masters degree and has completed the orals for a PhD in Economics.

**Harri Hursti,** Chief Technology Officer, is one of the world's leading experts on voting systems and is known for his conclusive demonstration of the vulnerability of America's voting systems in the HBO documentary, "Hacking Democracy". He has been one of the lead technical resources in the major independent technical reviews of America's voting systems: Ohio's Sec. of State-ordered EVEREST Study and the New Jersey's Superior Court judge-ordered review of the Sequoia voting machines. He was a consultant to the California Secretary of State-ordered "Top-to-Bottom Review".

#### Board of Technical Advisors

**Dr. David Jefferson** – is an internationally recognized expert on voting systems and election technology. He has been a pioneer in research at the intersection of computing, the Internet, and elections for 15 years, and has been an advisor to five successive Secretaries of State of California on technology-related issues. He is a member of the Board of Advisers of ACCURATE, an NSF-sponsored research project on voting technology. In 2009 he served as the Co-Chair for the EVT/WOTE '09 conference – the primary academic voting technology and security conference in the U.S. Dr. Jefferson is currently a computer scientist at Lawrence Livermore National Laboratory, where he leads research in cyber security and simulation for national security applications.

**Dr. Philip Stark** – is Professor of Statistics at UC Berkeley and the leading expert on statistical methods to validate election results. He serves on the California Sec. of State's Post Election Audit Standards Working Group. He has been recognized for his work in designing and conducting the first "risk limiting" post election audits and has testified to the U.S. House subcommittee on the census. Dr. Stark graduated from Princeton as an undergraduate in 1980 and received his Ph.D. from the University of California, San Diego in 1986. A list of his election-related publications may be found at http://statistics.berkeley.edu/~stark/Vote/index.htm.

**Dr. H. Hugh Thompson** – is chief security strategist at People Security and a world-renowned expert in election security. He appeared in the Emmy nominated HBO documentary "Hacking Democracy". In 2006, he was named one of the "Top 5 Most Influential Thinkers in IT Security" by SC Magazine. Dr. Thompson has written more than 60 academic and industrial articles and has delivered award-winning presentations and keynotes on software security throughout the world at conferences such as STAR, SD, RSA and Gartner. He is currently an adjunct professor of Computer Science at Columbia University in New York.


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## Below is another Graphic Scanning system from:

## TEVSystems - Developers of Ballot Browser

Elections are too important to trust to secret, proprietary vote counting software. Our first product, Ballot Browser, has already discovered a problem in Diebold's GEMS that Diebold had not reported to the California Secretary of State's office.

In 2009, we will be releasing our first turnkey alternative to secret vote counts -- the TEVStation Jr. Incorporating our Ballot Browser software, an industrial strength scanner, and a high reliability

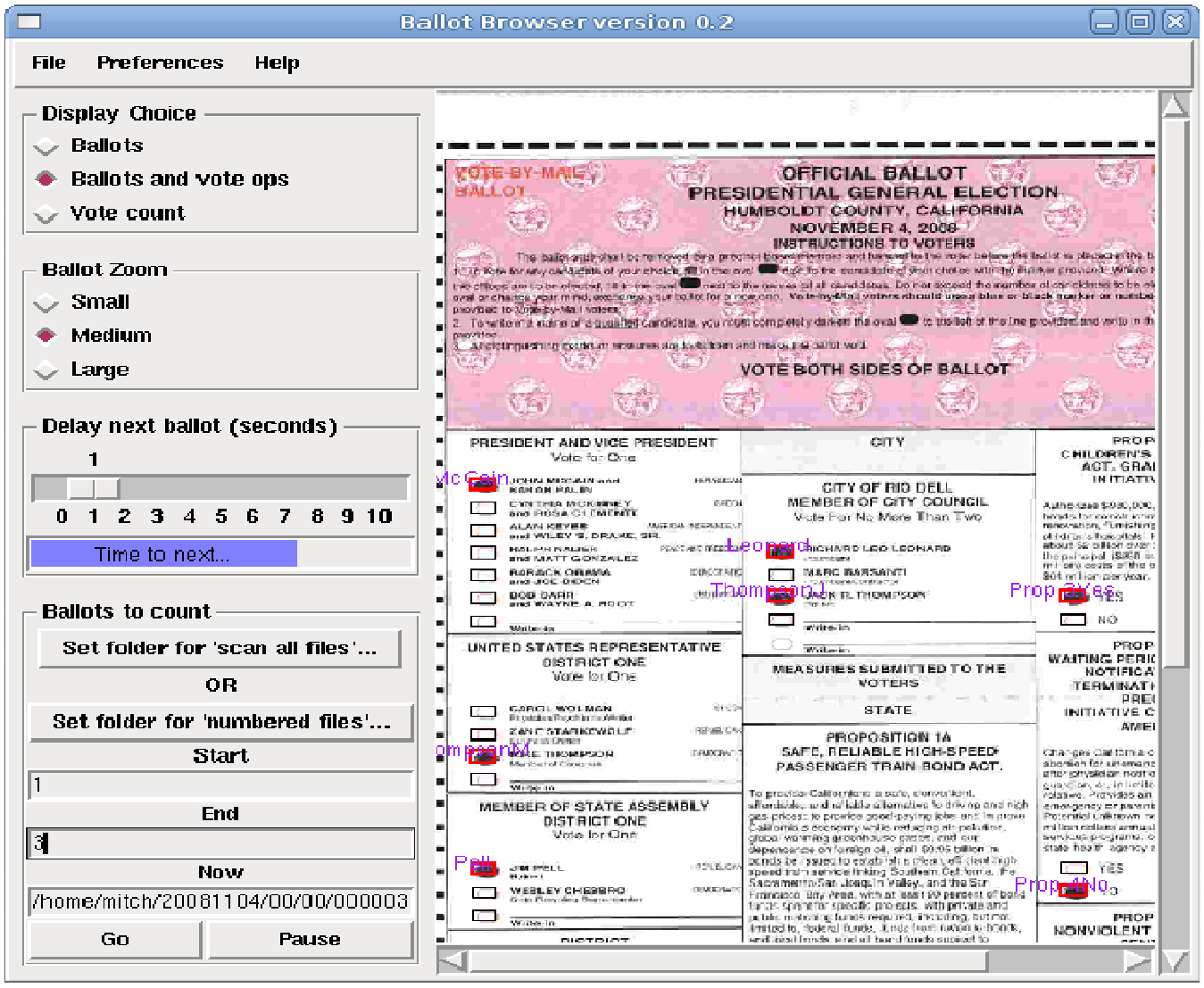
computing platform, the TEVStation Jr. will allow elections managers the opportunity to determine for themselves the benefits of our transparent solution, at a very affordable price point.

### *Recent media coverage*

- Brad Blog *The go-to blog for election integrity activists.*
- Wired *Unique Transparency Program Uncovers Problems with Voting Software*

***Mission Statement:*** *Our goal is to ensure the highest possible confidence in the results of elections, by enabling accurate, timely, transparent, and verifiable vote counts.*

### *Ballot Browser screen shot*




The picture above is a screen shot of an auditing program that was developed by Mitch Trachtenberg. This free and open source program provides the transparency that is missing from the proprietary software currently in use by Humboldt County. This program counts ballots for precincts.

**Programmer Mitch Trachtenberg Discusses How the Ballot Browser Program Works at Counting Ballots**
(Go here to see video): http://humtp.com/page1.html

**TO KNOW MORE GO TO: Election Transparency Project -** http://humtp.com/page1.html

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## Graphic scanning combined with improved accounting standards works to quickly verify election results. By John Brakey

## Here are some key elements:

- Graphic scanning provides a strong chain of custody. Graphic scanning of all ballots starts election morning with early ballots in audited batches of at least 1,000 ballots per box with Diebold results printed before and after, allowing them to be audited starting after 7:PM election night.

- Election night 7 to 10% of precincts are randomly selected election day, scanned and transferred to a DVD given to political parties and then uploaded to the internet with the Diebold official precinct results as the process goes forward.

- Over the next week remaining balance of ballots are scanned.

- All spoiled and left over ballots are accounted for.

- 100% of the ballots are made available to the public on the internet.

- Certain parts of the canvass board are NOT made up of election department employees as it is done at this time.

- This system can be done properly and independently as part of the canvas and is verifiable to the public.

- The computer that does the scanning should be limited in scope to scanning – that machine has no ability to read the "content" of the ballots. This is an application of "artificial stupidity" and prevents that system from being programmed to cheat. Counting the ballot graphical scans is possible, but on a separate machine.

- We are looking a future where people can do their own ballot analysis at home, and on election night the various media outlets will bring their most powerful computers and software to the election HQ to get the tabulation out first. Any variances between various people's counts (including the county's official count) will get sorted out in short order. During the Humboldt County test, the graphic scan totals didn't match the official results, and the problem was traced to a previously unknown Diebold bug.

- **Voting is a secret process. Counting in Arizona use to be a public process and must be again a public process.**