

Report and Analysis of the 2006 Post-Election Audit of Minnesota's Voting Systems

Prepared by:

Citizens for Election Integrity Minnesota

Principal Authors:

**Mark Halvorson, Director, Co-founder
Laura Wolff, Observation Project Coordinator**

April 4th, 2007

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Introduction

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The first post-election audit of Minnesota's voting machines took place in November 2006 as a direct result of Minnesota's Post-Election Review Law. Minnesota is one of just sixteen states to require a post election audit. Passage of this law was possible because Minnesota requires paper ballots, and with the exception of a few precincts where ballots are hand-counted, Minnesota uses optical scan voting machines.

Citizens for Election Integrity Minnesota (CEIMN) is a non-partisan, non-profit organization dedicated to ensuring accurate and verifiable elections. CEIMN worked with legislators, election officials and the secretary of state's office to help revise the Post-Election Review law in the 2005/2006 legislative session.

In the spring of 2006, CEIMN partnered with the League of Women Voters Minnesota to conduct the nation's first citizen observation of an election audit. Statewide, 208 volunteers observed audits in 70 of Minnesota's 87 counties. The volunteer reports generated from the observation project have given CEIMN an up-close look at Minnesota's voting system, and contributed to the recommendations included in this report.

CEIMN wishes to thank its organizing committee, its advisory board, the observation project volunteers, the League of Women Voters Minnesota, and Ramsey County Director of Elections Joe Mansky for the invaluable assistance they have provided to the audit observation project.

Questions about this report or the observation project can be directed to CEIMN Director Mark Halvorson at 612-724-1736 or at mark@ceimn.org.

Overview of Minnesota's Post-Election Review Law

The Post Election Review Law was first passed in 2004 and amended in 2006 (Appendix 1.) The bill's chief author was Minnesota State Representative Bill Hilty. The purpose of the review law is to assess the accuracy of Minnesota's optical scan voting machines. The law mandates a manual audit of two to four randomly selected precincts per county in the races of governor or president, U.S. Senate, and U.S. Representative.

If the audit reveals a difference greater than one half of one percent (0.5%) between the manual audit and the machine tally from election day, this will trigger further precincts to be audited.

Because the audit is limited to assessing the accuracy of the optical scanners, ballots that are marked outside the vote targets and cannot be read by the optical scanner are not included in assessing voting machine accuracy (Subdivision 4 of the review law.) For example, if a voter circled the oval rather than filling it in, the optical scanner would not detect this.

Scope of the Audit

The minimum number of precincts required to be audited is 192 of the state's 4,123 precincts. Several factors led to an increase to 202:

- Itasca County found a discrepancy rate greater than 0.5%, and was determined by the secretary of state's office to have "triggered" the need to audit three more precincts. CEIMN's interpretation of the law, however, is that the further review was unnecessary, as the discrepancies were linked to voter error, not machine error. The three additional precincts did not reveal an undue number of discrepancies.
- Watonwan County made a decision on its own to move to the next step of the audit by auditing three extra precincts. However, it was later determined that it was not required to do so, as the "triggering" discrepancy was caused by human, and not machine, error. Again, the three additional precincts were well within the margin of error.

- Hennepin County audited eight precincts, at the request of the secretary of state's office, instead of its required four, in order to be able to audit both of the congressional districts located within its boundaries.

Fifty-seven counties reported no errors and 30 counties reported at least one error in one or more precincts. The number of votes cast in the selected precincts ranged from 2 to 2,393. In most counties the time involved in conducting an audit ranged from one to five hours per precinct. Most counties chose to audit their precincts simultaneously, with multiple teams of counters.

Although counties did a good job overall of counting the ballots in an organized and transparent manner, volunteer reports indicate that counting methods varied.

In an informal survey of election officials the estimated cost of the election judges' wages to count votes ranged from \$80 to \$500 per county. This variation is due to the different hourly wages paid to election judges as well as differing numbers of precincts that were audited in each county and variation in the size of the precincts audited. Hennepin County, (largest county in the state with 426 precincts) audited eight precincts in five cities. The estimated cost for election judges in Hennepin County was \$900. Based on this informal survey the projected total statewide cost for election judges is between \$24,500 to \$27,000.

Results of the Audit

Please note: All results compiled by CEIMN in this report are based on the post-election review reports submitted by Minnesota's counties to the secretary of state's office in November, 2006. These reports can be viewed online at <http://www.sos.state.mn.us/home/index.asp?page=544>.

Results of the Audit by Race (among audited precincts)

Race	Audited Votes	Discrepancies	Discrepancy Rate
U.S. Senate	94,073	53	.00056
Governor	92,194	44	.00047
Cong. District 1	15,253	5	.00032
Cong. District 2	12,091	1	.00008
Cong. District 3	3,205	4	.00124
Cong. District 4	6,451	3	.00046
Cong. District 5	6,688	19	.00284
Cong. District 6	17,131	7	.00040
Cong. District 7	12,656	8	.00063
Cong. District 8	17,435	12	.00068

Note: The overwhelming majority of "discrepancies" fall into two categories: 1) the voter used an odd-colored pen, or pressed too lightly with a pencil, in which case the vote was misread as an under vote, or 2) the ballot got jammed in the optical scanner. Some discrepancies may also be a reflection of a voter filling out the ballot incorrectly, i.e. circling the oval as opposed to filling it in as directed. An accurate report of this type of discrepancy could not be documented by CEIMN, due to varying reporting methods on the part of Minnesota counties.

Procedural Recommendations

In compiling comments from volunteers and data from Minnesota's counties, CEIMN is making the following recommendations for streamlining the audit process:

- 1) ***CEIMN recommends that the audit be conducted as soon as possible after completion of the random selection.***

Conducting the audit as soon as possible after the random selection will increase ballot security.

- 2) ***CEIMN recommends that counties list voter errors separately as they conduct their audits, so that the discrepancy counts are as accurate as possible.***

The Post-Election Review Law specifically excludes voter error from being included in the total count of discrepancies. Optical scan machines should not be faulted for failing to read a ballot that was filled out incorrectly.

- 3) ***CEIMN recommends that all counties should use a standardized form, provided by the secretary of state, to ensure accurate and thorough reporting.***

While most counties recorded the same categories of information, a few recorded only the results of the hand count, leaving out the election day results. Some counties did not provide a separate column for the total number of discrepancies found between election day and the audit, and those that did sometimes tabulated those totals differently. Some counties took undervotes into consideration, others did not use this category.

- 4) ***CEIMN recommends that the existing counting standard, known as the "piling method," be followed by all counties for the audit.***

Minnesota law (Appendix 2) describes procedures for hand counting paper ballots referred to as the "piling method," whereby the ballots are separated by candidates within each political office, then counted, in piles of 25. Verifying and double checking the hand counts and piles of 25 is important to detect any potential human error involved in the hand count.

Concluding Remarks

Based on observer reports from 70 counties we found that the voting machines audited were very accurate and we were impressed by the professionalism of our local and county election officials.

CEIMN considers routine manual audits with a paper based system to be an essential part of ensuring the accuracy and verifiability of our election outcomes. This position is shared by several national groups such as the Carter-Baker Commission on Federal Election Reform, the U.S. Government Accountability Office, the American Statistical Association and the Brennan Center for Justice.

Minnesota has a compelling model to offer other states given our exclusive use of paper ballots, random manual audits and mandatory recounts for races with a margin of victory within 0.5%. We have identified two issues, beyond the scope of this report, that need to be addressed.

First, to help plan for future audits, it would be useful to have estimates of the cost involving in hiring election judges and the wages for election staff.

Second, we plan to undertake a rigorous study of our audit protocols. This will include an analysis, using a statistical approach, to assess the accuracy and efficacy of our current audit law. As part of this study process we will consult closely with election officials at all levels.

Appendices:

1. Text of Post-Election Review Law SF 2743

Sec. 34. [206.89] POSTELECTION REVIEW OF VOTING SYSTEMS.

Subdivision 1. **Definition.** For purposes of this section "post election review official" means the election administration official who is responsible for the conduct of elections in a precinct selected for review under this section.

Subd. 2. **Selection for review; notice.** At the canvass of the state primary, the county canvassing board in each county must set the date, time, and place for the postelection review of the state general election to be held under this section. At the canvass of the state general election, the county canvassing boards must select the precincts to be reviewed. The county canvassing board of a county with fewer than 50,000 registered voters must select at least two precincts for postelection review. The county canvassing board of a county with between 50,000 and 100,000 registered voters must select at least three precincts for review. The county canvassing board of a county with over 100,000 registered voters must select at least four precincts. The precincts must be selected by lot at a public meeting. At least one precinct selected in each county must have had more than 150 votes cast at the general election. The county auditor must notify the secretary of state of the precincts that have been chosen for review and the time and place the postelection review for that county will be conducted, as soon as the decisions are made. The secretary of state must post this information on the office Web site.

Subd. 3. **Scope and conduct of review.** The county canvassing board shall appoint the post election review official as defined in subdivision 1. The post election review must be conducted of the votes cast for President or governor; United States Senator; and United States Representative. The post election review official may conduct postelection review of the votes cast for additional offices. The postelection review must be conducted in public at the location where the voted ballots have been securely stored after the state general election or at another location chosen by the county canvassing board. The post election review official for each precinct selected must conduct the postelection review and may be assisted by election judges designated by the post election review official for this purpose. The party balance requirement of section 204B.19 applies to election judges designated for the review. The postelection review must consist of a manual count of the ballots used in the precincts selected and must be performed in the manner provided by section 204C.21. The postelection review must be conducted in the manner provided for recounts under section 204C.361 to the extent practicable. The review must be completed no later than two days before the meeting of the state canvassing board to certify the results of the state general election.

Subd. 4. **Standard of acceptable performance by voting system.** A comparison of the results compiled by the voting system with the postelection review described in this section must show that the results of the electronic voting system differed by no more than one-half of one percent from the manual count of the offices reviewed. Valid votes that have been marked by the voter outside the vote targets or using a manual marking device that cannot be read by the voting system must not be included in making the determination whether the voting system has met the standard of acceptable performance for any precinct.

Subd. 5. Additional review. (a) If the postelection review reveals a difference greater than one-half of one percent, the post election review official must, within two days, conduct an additional review of at least three precincts in the same jurisdiction where the discrepancy was discovered. If all precincts in that jurisdiction have been reviewed, the county auditor must immediately publicly select by lot at least three additional precincts for review. The post election review official must complete the additional review within two days after the precincts are selected and report the results immediately to the county auditor. If the second review also indicates a difference in the vote totals compiled by the voting system that is greater than one-half of one percent from the result indicated by the postelection review, the county auditor must conduct a review of the ballots from all the remaining precincts in the county. This review must be completed no later than six weeks after the state general election.

(b) If the results from the countywide reviews from one or more counties comprising in the aggregate more than ten percent of the total number of persons voting in the election clearly indicate that an error in vote counting has occurred, the post election review official must conduct a manual recount of all the ballots in the district for the affected office. The recount must be completed and the results reported to the appropriate canvassing board no later than ten weeks after the state general election.

Subd. 6. Report of results.

Upon completion of the postelection review, the post election review official must immediately report the results to the county auditor. The county auditor must then immediately submit the results of the postelection review electronically or in writing to the secretary of state not later than two days before the State Canvassing Board meets to canvass the state general election. The secretary of state shall report the results of the postelection review at the meeting of the State Canvassing Board to canvass the state general election.

Subd. 7. Update of vote totals. If the postelection review under this section results in a change in the number of votes counted for any candidate, the revised vote totals must be incorporated in the official result from those precincts.

Subd. 8. Effect on voting systems. If a voting system is found to have failed to record votes accurately and in the manner provided by the Minnesota election law, the voting system must not be used at another election until it has been examined and recertified by the secretary of state. If the voting system failure is attributable to either its design or to actions of the vendor, the vendor must forfeit the vendor bond required by section 206.57 and the performance bond required by section 206.66.

Subd. 9. Costs of review. The costs of the postelection review required by this section must be allocated as follows:

(1) the governing body responsible for each precinct selected for review must pay the costs incurred for the review conducted under subdivision 2 or 5, paragraph (a); (2) the vendor of the voting system must pay any costs incurred by the secretary of state to examine and recertify the voting system; and (3) the secretary of state must reimburse local units of government for the costs of any recount required under subdivision 5, paragraph (b).

Subd. 10. Time for filing election contest. The appropriate canvass is not completed and the time for notice of a contest of election does not begin to run until all reviews under this section have been completed.

2. MN Statute 204C.21 COUNTING BALLOTS; PILING SYSTEM.

Subdivision 1. **Method.** The election judges shall take all the ballots of the same kind and count the votes cast for each office or question, beginning with the first office or question on the ballot. They shall make one pile of the ballots for each candidate who received votes for that office, or one pile for the "Yes" votes and one pile for the "No" votes on a question. They shall make a pile of totally defective ballots and a pile of totally blank ballots. They shall make a pile of ballots that are not totally defective but are defective with respect to the office or question being counted and a pile of ballots that are not totally blank but are blank with respect to the office or question being counted. After the separation into piles, the election judges shall examine each pile and remove and place in the proper pile any ballots that are found in the wrong pile. The election judges shall count the totally blank and totally defective ballots and set them aside until the counting is over for that ballot. The election judges may pile ballots crosswise in groups of 25 in the same pile to facilitate counting. When their counts agree, the election judges shall announce the number of ballots in each pile, and shall write the number in the proper place on the summary statements.

The election judges shall then return all the counted ballots, and all the partially defective or partially blank ballots, to the original pile to be separated and counted in the same manner for the next office or question.

Subd. 2. **More than one candidate to be elected; piling.** Where more than one candidate is to be elected to an office, the votes for that office shall be counted and canvassed in the manner provided in subdivision 1 as far as practicable.

Subd. 3. **Primary.** At a primary the election judges shall first separate the partisan ballots by major political party and then count the votes for each office as provided in subdivision 1. The nonpartisan primary ballots shall be counted separately after the partisan primary ballots have been counted.

History: 1981 c 29 art 5 s 21

3. CEIMN Observation Project Board of Advisors

Arlen Erdahl, Former Minnesota Secretary of State, Republican
Rhoda Gilman, Green Party of Minnesota
Joan Growe, Former Minnesota Secretary of State, Democrat
Alyssa Macy, Center for Civic Participation
Lorraine Nelson, Retired County Auditor, Rice County, Minnesota
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