



---

# MEMORANDUM

---

Date: April 27, 2009

To: The Honorable Chairman and Members  
Pima County Board of Supervisors

From: C.H. Huckelberry  
County Administrator

A handwritten signature in black ink, appearing to read "CHH", is written over the printed name "C.H. Huckelberry".

Re: **Database Anomaly Report to the Pima County Election Integrity Commission Regarding the Regional Transportation Authority Election**

The Election Integrity Commission requested a technical report from staff regarding certain database anomalies from the May 16, 2006 Regional Transportation Authority election. The report to the Election Integrity Commission is attached.

The release of this report to the Commission was delayed pending final results of the Attorney General's criminal investigation into flipping of the Regional Transportation Authority election results. The Attorney General released his findings on April 21, 2009, and indicated that the results of the official canvass of the Regional Transportation election vote was in fact valid and County staff had not engaged in any criminal activity in altering of the RTA election results. Based on this finding the attached report was released pursuant to my direction to the Election Integrity Commission last week.

CHH/jj

Attachment

c: Dr. John Moffatt, Office of Strategic Technology Planning  
Brad Nelson, Elections Director

## **Report to the Pima County Election Integrity Commission**

**Regarding:** *Anomalies in the GEMS databases from the May 16, 2006 Bond Election*

This report has been compiled in response to a request by the Pima County Election Integrity Commission for a response to a report presented by Dr. Tom Ryan, a member of the Commission.

In Dr. Tom Ryan's January 28, 2009 report "Anomalies in the GEMS databases from the May 16 2006 Bond Election" five questions are posed on page 2 of the report. Those questions are:

1. Why 8 precincts were uploaded three days after the election? Were these original uploads or replacement uploads?
2. Why were 23 more precincts, including 16 from Oro Valley, uploaded four days after the election?
3. Why were these 23 precincts uploaded twice?
4. Why do the vote and ballot counts change?
5. How can the vote and ballot counts decrease?

Dr. Ryan clearly indicated in his report that he did not feel the outcome of the election was impacted by these changes but wondered why such strange things would occur. Taken out of context, these questions are of interest. This report will clarify the context surrounding these issues and demonstrate that the issues raised are not anomalies at all, but common occurrences in all elections.

### **Background**

Following a vote of the Board of Supervisors on January 8, 2008, the RTA election files were turned over to the Democratic Party along with the results of the Primary and General Election of 2006 on January 11, 2008. Subsequently, the Court ruled all of the election databases from 1998 forward were to be turned over to the Democratic Party which was completed in July, 2008. In late summer, Dr. Tom Ryan, working with the Democratic Party and Attorney Bill Risner, began analyzing the RTA databases. On September 30, 2008, Dr. Ryan contacted Dr. John Moffatt to report some "anomalies" he had discovered when comparing the database from the night of the RTA Election (May 16, 2006) to the database from May 19 and May 20, 2006 and the final database for the election.

Dr. Ryan's report indicated that there appeared to be a number of precincts (31) where the vote count was either uploaded or reloaded (15) into the GEMS

## **Pima County Election Integrity Commission**

Election Server three or four days after the election. Also, when comparing the vote counts, the individual race counts for several precincts and candidates had changed by 1, 2 and up to 16 votes. In some limited cases the vote counts went down – four precincts by 1 and one precinct by 2.

Once the processing of General Election for 2008 was complete, the detailed findings provided by Dr. Ryan were discussed with the elections technical staff involved in the RTA election. This included the current staff plus Tomas Kalesinskas who was involved in the operation of the election systems for the RTA election. Mr. Kalesinskas currently works in the Information Technology Department. Mary Martinson was also involved at this time as Bryan Crane was having severe medical problems with his back and subsequent to this election had back surgery. In addition to different staffing being involved, there are a number of events that occurred during that election that provide a normal and logical explanation for the differences in the file contents. Those conditions are explained below. Additionally, normal processes in finalizing an election (any election) bring about many of the circumstances that would result in the anomalies that were identified in Dr. Ryan's report.

No standard reports relating the original or replacement uploads for the May 2006 election are available out of the GEMS system. Analysis of each backup database as accomplished by Dr. Ryan is the only way to identify this kind of activity. Given the requirements of the audit procedure, staff's best recollection of the nearly three year old event is that the belt problems were definitely affecting the Oro Valley area more frequently and discrepancies were likely found during the audit process that required the ballots to be re-tallied and reloaded prior to official canvass. Given the lack of documentation from standard GEMS reports, it is not possible to determine which were original or replacement uploads. New manual procedures will provide the documented details needed for a future review.

## **Equipment**

The AccuVote (ballot scanner) is the precinct tabulation device utilized in Pima County. This device scans the pertinent areas of a voted ballot to detect ballot orientation, ballot speed, and votes. If the scan detects no errors, the ballot is deposited in the integrated ballot box and the votes cast on that ballot are added to the memory device within the scanner. Additionally, a public counter on the AccuVote increases by an increment of one. If the scanner finds an "error" in scanning; the ballot is not counted and the ballot is returned to the voter for review/correction. The most common "errors" that are detected by the scanner are an over-voted ballot, a blank ballot or a ballot that has been marked in such a manner that the ballot cannot be read. The latter most often occurs when a voter marks their ballot in such a way that the scanner can no longer detect the ballot orientation or speed.

## **Pima County Election Integrity Commission**

The process of a ballot being accepted or rejected by the AccuVote is very similar to buying a product out of a vending machine with a dollar bill. The scanner in the vending machine must scan and accept the bill to complete the transaction. If the dollar bill cannot be successfully scanned, the vending machine returns the dollar to the customer and no transaction occurs. The same is true of the ballot scanner. If the ballot can be read and passes all of the edit logic criteria; it is accepted and the transaction is complete. If not, the ballot is returned and no votes reflected on the rejected ballot have been cast.

### **Environment at the Polls**

During the audit of a large (countywide) election it is common for a number of precincts to have ballots cast by voters at the polls that have not been scanned by the AccuVote. Incidents such as power outages, paper jams, inoperable AccuVotes, etc..... do not cause voting to stop. When such incidents occur the voters continue to cast their ballot by placing their voted ballot in an emergency bin for eventual count on the AccuVote once the power is restored, paper jam cleared, or faulty AccuVote replaced, etc.... However, there are some cases where the ballots never get scanned at the polls at all. These voted/unscanned ballots are added to the ballots that were scanned successfully at the polls and the entire batch is rerun through the precinct AccuVote at the Elections Technical Center. Thereafter, assuming the counts are consistent with the controls, the new/complete results are reloaded into GEMS so that an accurate vote total can be reflected for the precinct.

It is noted above that one of the ways in which an AccuVote can become inoperable is due to a paper jam. If the paper jam condition is detected by the AccuVote the phrase "Paper Jam" will appear on the AccuVote LCD. Poll workers are instructed to handle paper jams in two different ways. If the LCD indicates that the jammed ballot was counted; the poll worker is instructed to clear the jam and allow the counted ballot to drop into the ballot box. If the LCD indicates that the jammed ballot was not counted the poll worker is to clear the jam and re-feed the ballot through the scanner. It is possible that a small number of poll workers did not note that the LCD displayed that the jammed ballot had been counted. These same poll workers may have fed a jammed ballot through a number of times before the ballot dropped into the ballot box. However, each time the poll worker attempted to process that ballot the ballot count (and the associated votes) increased. During the audit of such a precinct, the ballots cast from the AccuVote would not match the ballot report. To remedy the discrepancy, all of the voted ballots would be rerun and reloaded into GEMS. Thus, some of the original/unofficial ballot counts and vote counts could change (increase or decrease).

## Pima County Election Integrity Commission

### Processes

1. Normal circumstances - The counts that exist in the system on election night are not the final numbers. In fact GEMS reports prior to the official canvass have the phrase "UNOFFICIAL AND UNAUDITED" prominently printed in the heading of the report. It is inappropriate to compare those totals to the Final numbers.
  - a. Additional "Early" votes are still to be tallied.
  - b. Provisional ballots need to be verified by the Recorder and then counted.
  - c. Inspection of the ballot bags reveals ballots that were possibly not counted – or, there is a question whether the ballots were counted twice, so all of the ballots are tallied again to validate the accurate number.
  - d. In the days following any election an audit is performed in accordance with the *Arizona Secretary of State Election Procedures Manual*. In the audit procedure the Audit Board receives the precinct "Official Ballot Report & Certificate of Performance" ballot reports from each precinct, an AccuVote unofficial results tape resulting from closing out the election at the precinct, and a copy of the transmitted (modemed) precinct results from the GEMS system. Thereafter, the audit board verifies the counts from the various reports and tapes. If a discrepancy is found, the audit board resolves the problem. Resolution of a discrepancy could be as simple as an apparent math error on the hand written precinct ballot report. Other discrepancies may be resolved by contacting the poll workers from the precinct and asking the workers questions about discrepancies in their unofficial returns. Some discrepancies require the ballots cast at the polls on Election Day to be tabulated once again and reloaded into GEMS. This triggers the retrieval of the precinct ballots (including write-ins) and a re-tally process. This same process occurred in the General Election of 2008 as there were some precincts that did not balance. The Audit process performed for the Special Election in May, 2006 still occurs, but now is completed in cooperation with the political party observers on site at the Elections Technical Center for the election count.
  - e. In the RTA election, the results were submitted by modem. Due to certain risks, this process has since been discontinued. In some cases, a precinct's votes could not be uploaded via modem. If the precinct could not be uploaded, the AccuVote for that precinct is brought directly to the Counting Room and uploaded directly when received at the Technical Center. Regardless of the method of communicating the results (modem or direct upload) the results are unofficial and subject to audit prior to the official canvass of the election

## **Pima County Election Integrity Commission**

Once the AccuVote machine was received at the technical center, if the seals had been broken or tampered with (or there is any concern over the integrity of the count i.e. belt slippage problems), the modem results are removed from the tally and the ballots are tallied again using the precinct AccuVote machine. When a precinct's results are in question, the process is to gather all of the ballots (including the write-ins that were separated from the other ballots on election night) and re-tally all of the ballots. This often takes several days to recapture all of the critical information as the write-ins go through a separate process at a different location.

Once the re-tally is completed on the AccuVote, it is then uploaded onto the GEMS database and the new AccuVote control tape is used as a part of the process to confirm the number of ballots cast matches the precinct reports. In the General Election of 2008, over 10 Precincts were not updated for several days due to this type of procedure. This is a normal occurrence.

- f. As mentioned above, the process to re-tally a precinct includes removing or backing out the original tally in the GEMS system, then recounting the ballots through the precinct machine and finally downloading the results to the GEMS database. Unfortunately, the removal process is not logged on the GEMS audit log or any other log that we have been able to determine. Having this detail would be useful in investigations such as this.

### **2. Unique circumstances for the RTA election:**

- a. The election also included races for Oro Valley Town council and two Psychiatric Healthcare Questions.
- b. The belts that drive the ballot through the AccuVote scanning machine were not from the normal supplier and upon post election inspection, many were found to be out of specification. More on this later. There were many instances where the belts slipped causing misfeeds of the ballots that are described in more detail below. These belt problems generated many calls for technical support and questions as to the validity of the reported results. A majority of the scanning issues occurred in the Oro Valley area precincts (many of which are on Dr. Ryan's table of questioned precincts), but occurred in other precincts as well. This resulted in the following conditions at various precincts:
  - i. When the ballot is normally scanned, the ballot is held by the trailing edge until the system validates that all votes were counted in accordance with the normal rules. If the rules were all met, the tally is added to the AccuVote counters for the

## Pima County Election Integrity Commission

appropriate races and the ballot is released into the normal ballot bin. If the AccuVote detects that there was something wrong, it will not add the tally to the counters and reject the ballot – sending it back through the scanner to the feed trough. Several of the precincts reported that the ballots would drop into the receiving bin even though they got an error indication on the video indicator. Some reported that they re-sent the ballot through the counter and it was OK the second time. This process could have lead to duplicate votes being cast from one ballot if the poll worker had mis-interpreted the readout on the AccuVote. This condition called several of the precinct counts into question. This situation could also result in the number of votes increasing and in some cases decreasing when the actual ballot count is compared to the amount transmitted via modem.

- ii. In some cases Precinct workers reported that the ballots would correctly reject, but they could not find anything wrong with them so they fed them through again. In some cases the ballot scan was successful, but when they did not work, the workers often put them into the Emergency Bin. In at least one of the precincts, the emergency bin ballots were combined with the correctly tallied ballots, and could not be uniquely identified, so all of that precinct's ballots had to be re-tallied.
  - iii. Other precinct reports included the occurrence where ballots did not release into the counted ballot bin, but did not reject back to the feeder either. Since there was a belief by the precinct workers that a successfully counted ballot would properly drop into the bin, they would remove the ballot and run it through again – causing a double tally of those votes. Once the ballots were counted again, the double counted ballots would not appear in the totals resulting in a reduction.
  - iv. The anomalies reported by Dr. Ryan applied to other races (meaning the Oro Valley Council) as well as the RTA, which makes sense since many of the re-tallied precincts were from Oro Valley.
3. Both the normal and unique circumstances described above resulted in a number of precincts being reloaded. Under normal circumstances, it is not unusual for the count for a precinct to change from election night to the final file. Given the large number of feed belt problems and inconsistent activities at the precincts, the normal approach would have been to recount them. Thus, the questionable precincts were reloaded.
4. Brad Nelson has a procedure whereby he summarizes an election in a report to the County Administrator. In this case, his normal written summary of the

## **Pima County Election Integrity Commission**

election did not contain any detail references to the belt problems clarified herein but did reference some precinct problems. Logging procedures instituted following the 2006 election cycle identify these kinds of issues, in writing, to improve the ability to recall the details of these kinds of anomalies.

### **The May 16, 2006 Special Election (RTA) - More specifics**

Prior to the May 2006 Special Election all AccuVote scanners were thoroughly inspected and serviced. During that inspection, the drive belts that turn a succession of wheels that propel the ballot through the scanner were replaced. Prior to 2006, these replacement belts had been purchased from the AccuVote vendor at a fairly steep price. In hopes of finding a suitable (and less costly) replacement, staff at Pima County Elections searched for other drive belt vendors. Vendors were informed of the necessity of meeting the exact belt specifications and were asked to send Pima County Elections samples of their belts to see if the belts met specification. A vendor's sample did meet specification and several hundred drive belts were purchased and installed in the AccuVotes prior to the May 2006 Special Election.

On Election Day May 2006, Pima County Elections began to receive phone calls from poll workers reporting that their precinct AccuVote was not working properly. The general observation by these poll workers was that ballots were being accepted by the AccuVote but the public counter on the AccuVote was not advancing. Troubleshooters were immediately dispatched to investigate the problem further. At some of the affected precincts the troubleshooter exchanged the initial AccuVote with a replacement and the problem was solved. The "bad" AccuVote was then returned to Pima County Elections for further investigation. There it was discovered that some of the replacement belts did not meet specifications. These non-spec belts were too loose and were allowing some ballots to drop into the integrated ballot box prematurely instead of being returned to the voter for review/correction.

At the end of Election Day all poll workers closed their polling places appropriately and (as was the practice at the time) modemed the unofficial results from the precinct AccuVote to the County. These modemed results were logged by the GEMS system as Precinct "decks" and updated to the database, so they became part of the unofficial counts released to the public at 8PM election night.

Per statute, the unofficial results for all precincts were audited prior to the canvass. An audit consists of a review of the Official Ballot Report and Certificate of Performance, the Unofficial Results tape from the precinct AccuVote, the precinct poll list and the unofficial results that were modemed on election night. If a discrepancy in the count is found, one of the remedies is to count the ballots a

## **Pima County Election Integrity Commission**

second time using the precinct polling place AccuVote. If this "new" count is found to be consistent with the audit, it is then uploaded into the election server and those "new" results replace the previous (modemed) results from election night. Since the GEMS system recognizes and rejects duplicate update attempts for a precinct, the original "Deck" must be backed out or deleted prior to the second upload. Unfortunately, there appears to be no log of the removal of these decks in the system. What does appear in subsequent logs is the NEW update date and time.

### **Summary**

During the May 2006 RTA election a majority of the precinct AccuVotes did operate correctly. The ballots cast in precincts with faulty AccuVotes were audited and, as necessary, recounted.

The official canvass of the May 2006 Election is the only audited/accurate outcome of the entire election and is the result of a very deliberate set of processes created to assure confidence in the process.