

Problems with Cuyahoga's May 2006 Primary Election

The Fortress

Use of electronic-voting machines requires the development of a **Fortress** to prevent fraudulent breaches of cyber votes. That **Fortress consists of** thousands of touch-screen e-voting units, printer housings, canisters, paper roles; thousands of \$135 memory cards; thousands of access cards and encoders, thousands of different types of security seals, new logs, forms, spreadsheets and databases to capture, in electronic form, the information logged on those forms; passwords, locks, lanyards, keys, and power strips; "D/R pairs of poll-workers," election day technicians, roaming technicians; zone stations, uploading stations; blue bags, red bags, green bags, clear memory-card bags, each requiring security seals; training manuals with expensive colored photographs, troubleshooting posters and guides, updates to the manuals, new procedures, extra trainers, extra training, longer hours, tired workers, etc.

Tracking all the components

Keeping track of all of these elements of the Fortress is a huge undertaking, and, not surprisingly, there were many holes. There were many instances where the chain of custody of memory cards and access cards was broken or unknown. Many memory cards were unaccounted for at the end of the day. Many memory cards could not be "mapped" to the voting unit in which it resided. Some of the unaccounted-for or un-mapped memory cards may not have been inserted into the Zero unit and its "results" uploaded to the Accumulating unit. How would we know? How many bags reached the "pink room" unsealed? I heard that there were quite a few.

Security Plan

I had asked for any Security Plan, protocol, documentation produced by the CCBOE's Security Team, as early as Nov 2005, and never received a copy of this documentation. Does it exist? I received, at the May 1st board meeting, after I asked to see it, a document called Transmission of Election Results Procedures, which I think may have been called "Security Plan", but it was very limited in its scope.

Security Seals

There were too few seals in the precinct's notebooks to allow for mistakes in sealing some component and then having to break the seal. This resulted because the training manual mistakenly instructed the poll workers to seal the printer canister too early. We knew we were going to be short on seals, and were worried about having to have unsealed bags at the end of the day, so we started calling to get some replacements.

We called the Zone station numerous times before getting through. We were told that they did not have any seals, and that we should call the warehouse. We tried and tried to get the warehouse, and were never successful. Finally, the Diebold rover stopped by our

polling place, and we told him we needed seals and were trying to get through to the warehouse. He then told us that the warehouse didn't have any. So we improvised—folding three clear memory bags and squashing them into other clear memory bags and sealing the outside memory bag. Later, when I was at the uploading station, I was told by a man that had been working at the warehouse that they did, in fact, have seals.

Chaos in the Pink Room

The end-of-night processing in the pink room did not start in earnest until 11pm, three hours later than that seen with the punch-card transfer cases. One observer who expected much simpler procedures given the slick new technology was shocked at the chaos in the pink room, as supply bags came in, contents removed, security seals documented, forms collected, data entered in spreadsheets, etc. She said it was much more complicated than she expected and more complicated than it had been in previous elections.

Reconciliation

I am concerned that there may not have been a plan to reconcile election results in the various different media in which they were recorded: e-voting-unit hard drive, memory cards, printed Totals or Accumulation reports. Judging from the poor and confusing design of the security event log, I would be surprised if there is a robust way to track the security seals, and the corresponding components with which they were associated. Poor forms are usually associated with poor design of the database to contain the form's data.

Because of the fact that voters could vote on any e-voting unit in the polling place, it was difficult for any one precinct to reconcile the total voters to signed in to the number of votes case. The Certificate #1 numbers weren't supposed to give with the totals of sign-in voters, within an acceptable tolerance of 35 (vs. 10 in years before). In the future, there should be some sort of reconciliation of signed-in voters at the polling place, based on the total number of ballots cast on all working e-voting units in the polling place.

NOT Posting Election Results

The choice NOT to post precinct-level vote totals at the polling place, even though it could have been accomplished by adding two simple instructions in the training manual: "1) Print a second copy of the Accumulation report. 2) Post that second copy on the outside door of the main entrance to the polling place", was unwise, given the concern that many citizens have about the use of electronic-voting machines. Now that the counties have the technology to do so, and the less transparent voting methodology, they MUST post precinct-level election results at the precinct. This is an essential requirement to gain the public's confidence.

Location of e-voting units

Positioning the e-voting units within the polling place was done at the whim of the most-assertive poll judges, and may not be the best layout for large-turnout elections. E-

voting-unit location should be a decision which should be carefully made, based on the polling-place facility, the arrangement of electrical outlets, availability of surge protectors and extension cord, doors, placement of the precinct tables, privacy requirements, safety requirements, workflow considerations, etc.

Memory Cards

We did not know that we were supposed to put certain memory cards in certain e-voting units until Tuesday afternoon, when some poll worker's husband told us that. After reaching the Zone station, we were told that we should document on the "pink problem sheet" which memory cards were actually used in which e-voting unit, which we did. I heard that other polling places did not know that they had to do that, and thus did not document the memory card/e-voting unit association.

I was concerned that one of the e-voting units was to be used, also, as the Accumulation unit, and that its memory card would have two types of results on it: 1) the totals for the e-voting unit and 2) the polling-place totals, accumulated from all of the e-voting units in the polling place. I was also concerned that we were told, after NOT inserting the orange-labeled memory card in the orange-labeled e-voting unit, that we were told two different procedures to correct our mistake. The second suggestion was to write "Zero Unit Memory Card" on the memory card that was in the Zero-unit, and write "NOT Zero Unit Memory Card" on the orange-labeled memory card. We were not sure whether to put the "makeshift" memory card into the clear memory bag of the precinct in which the Zero unit was associated, or into the Precinct-1's memory card bag. I think we decided to do the latter, but felt that we needed to tell the worker at the accumulating center what we had done, so he would not mistakenly upload the empty orange-labeled memory card.

We had one e-voting unit whose legs were broken, and we did not use that unit. One out of 18 was malfunctioning. Therefore, we had one memory card that was not used. That memory card could have been easily taken from the precinct notebook during the day.

During the training, I was told that the memory cards that we were using in our training were filled with lots of numbers and it is difficult to clear off the results from the memory cards, and therefore would not give us meaningful numbers to use in the end-of-night totaling. We were thus not given the opportunity to do the totaling process on our own machines. We were also not given the opportunity to test to see what would happen if we accidentally closed down the e-voting unit before finishing the accumulation process. I was told that the memory cards were empty and thus would not have any good data to test.

Isolated, standalone e-voting units?

We were told, in the months leading up the election, that the e-voting units were "standalone", not connected to anything, yet all of the e-voting units that I saw had modems and network interface cards behind a locked door (unsealed), next to the locked door where the sealed memory card was inserted). I was concerned to hear that the

Polling Place results (as documented on the Accumulator report) were to be transmitted (uploaded) to central tabulators, through 45 regional uploading centers. I heard that the uploading centers were not secured—another EDT was permitted to witness the uploading process, when I had asked about observing the transmission process and was told “No.”

I was shocked that the CCBOE would even think of electronically transmitting vote counts, while NOT posting precinct-level vote totals, after hearing the grave concerns of virtually every citizen who spoke at the Oct 17th Public Hearing.

Passwords

Passwords were printed, in large letters, on papers within the precinct notebook, and could easily be seen by anyone. Uploading units’ logon/passwords were simple to guess and the logon id was equal to the password (heard from Ron Olson).

Access cards

Access cards were difficult to track, given the fact that voting units were located in disparate parts of the room and the voter could vote on any available voting unit. It was relatively easy to do this in the relatively low-turnout election, but high-turnout elections could present a major tracking problem.

We had six dead access cards (i.e. when the card was inserted into the encoder it said “dead” on the encoder), and it took several hours to get replacements. In the meantime, some precincts were loaning access cards to the two precincts which had 3 out of 4 dead access cards.

Getting Help

It was difficult to get through to the Help-Desk personnel. Sometimes, we had to wait for 30 minutes to finally talk to someone. Also, the level of training was inconsistent. Several times, we got two different answers, depending on whom we spoke to. So we became cautious and sought to get a second opinion to questions that affected our polling place. Examples: 1) one person said we could not share access cards, and another person said we could. 2) one person said we should use the regular memory card in the zero unit and then switch to the orange-labeled memory card when we did the download of accumulated results. Another person said that we should NOT use the orange-labeled memory card at all and write “Not Zero-Unit Memory Card”.

Too few poll workers

Several poll workers did not show up Monday night or Tuesday. The ones who did not show up on Monday night were not replaced on Monday, and so three four precincts operated with 3 instead of 4 poll workers. I got through to the line that we were told to

call to report missing poll workers. I finally reported their absence on the “everything is OK” line.

In a high-turnout election, there will need to be more poll workers to shuttle voters across the room and back to the precinct table, to make sure the access cards get returned, and that the voter knows how to use the e-voting unit.

Because of the shortage of poll workers, many voters got the “cliffs notes” introduction, and were not adequately made aware of the printed receipt behind the grey door. Most voters did not know about or take the time to look at the voter-verified paper audit trail.

Training Manuals

The training manuals had many problems. Sometimes, the information was to have been updated—crossed out, replaced by an updated page [e.g., p 55] , a word replaced by another word, etc.-- but not everyone knew about the updates. Sometimes the manual didn't include essential information, *e.g.*, memory cards should have been associated with certain e-voting units. (This omission is a MAJOR security problem!) There was very little troubleshooting information, other than what to do if the printer malfunctions, and no procedural troubleshooting instructions, like “What to do if we accidentally press the red button while uploading memory cards?” or “What to do if the printer runs out of paper in the middle of an Accumulation Report?” There were a number of warnings, but no instructions about what to do if we did the action we were warned about. There were inconsistencies, *e.g.*, one place said to put the time card in the supply bag, and another place said give it to the uploading center separately from the supply bag.

The sequence of the material, in some places, was awkward, and the training session didn't follow the sequence in the manual very closely. The EDT's needed both manuals, and had to go back and forth among the two. There were places where there could have been names or terms introduced that could be referred to later. For example, the e-voting units reports were never called “Totals Reports”, but later, there was a reference to the Totals Reports. There were instructions to do things a certain way, but we were told something different in the training sessions. For example, we were told in the training session to wrap the totals reports around the memory cards (we didn't have rubber bands in our supplies to secure them, by the way), whereas the training manual said to put the totals reports into the Totals Report Envelope. Also, there were not examples of the Totals or Accumulator Reports. The screen shot showing the upload transactions was not realistic because it was the same memory card used over and over again, and the column headings were not explained.

There could have been a much clear explanation about who got provisional ballots and who did not. The logic was strewn over several pages and was poorly described. A flowchart or decision tree showing the decision logic would have been helpful and will absolutely essential after House Bill 3's Voter ID requirements kick in.

Training Sessions

The training sessions were not complete and emphasized the wrong things. They spent too much time on the assembly of the machines and not enough on using the encoder, access cards, memory cards, accumulation, etc. The testing scenarios were not realistic. For example, the encoders were not putting the precinct or ballot type on the access card which would affect the type of ballot we saw on the screen. We were only shown the dummy ballot, regardless of what we encoded on the access card.. There was not enough time to practice certain accumulation-related activities. One trainer seemed overzealous in trying to sell us on the “wonderful machines that are saving us from hanging chads!!!!” It seemed odd that he made several such statements during the training.

Training Certification

There was no test to determine if our acquired skills were adequate--no certification. Is there a requirement that poll workers be certified? Some people came back to the training a second time because they were not confident with their knowledge acquisition. Others decided NOT to serve as poll workers because they were worried that they couldn't handle the responsibilities.

Because there were two EDT's in our polling place, and because we were both diligent and somewhat computer savvy, we were able to manage the challenges and issues relatively smoothly. But we were often on the phone, often redialing and waiting, to get clarification about training-manual inconsistencies and questions that arose because of the lack of training, and “made the rounds” to the six precinct tables to inform them of another change in procedures or resolution to an issue/question. The Diebold rover told us that we had our act together; that other polling places were having much more trouble than we were, and that some had no EDT at all. He said that he was going to have to go back and help them with the end-of-night accumulation.

Worker Responsibilities - Too Much to Know

The expectations about what the poll-worker must know and do were too high. The job responsibilities should be limited, and there should be three or more roles instead of two. Each role should get his/her own training manual, not have to use a combination of several manuals (except for supervisory roles.) Poll workers should be paid more and not have to work so many hours in one day.