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Report on General Election, November 6, 2007

This election demonstrated quite clearly the need for new additional poll workers, especially judges of elections, and the importance of all poll workers attending classes and understanding each others' jobs and taking fully to heart the purpose of serving the public and each voter to the fullest possible extent. Illustrative of that, but essentially separate while illuminating this report, attached hereto is Audrey N. Glickman's report (Exhibit A) on poll watching and regional tabulation watching.

LOGIC AND ACCURACY TESTING

iVotronics

Please see separate report by Michael P. Ashley-Rollman

M650s

To come separately at a later date.

ELECTION NIGHT - REPORTS OF POLL WORKERS AND POLL WATCHERS

Precinct 4-14, report by Stu Strickland, Judge of Elections

I encountered a lost-vote situation in my district, and documented a similar incident for 4-14, which was in the same location. Fortunately, 4-14's happened first, and on a machine that was actually closer to me than it was to 4-14's staff, so I was able to document what they did. When it occurred on 4-8's machine, I was actually able to question the voter before she stepped away from the machine. Here are the details from my diary:

5:15 p.m.: District 4-14 has a machine that sounded like a fleeing voter. The machine was right behind me, and we weren't busy at that moment, so I looked at it and called their attention to it. (4-14 had at that moment only one machine with a customer, an elderly couple

at the machine to its left. I do not know what happened prior to the machine going into "fleeing voter" mode, since it was occurring behind me, and wasn't my district.)

When I looked at the machine, the ballot did not appear to have ever been started. One of 4-14's clerks came over and filled out a minimal ballot and entered it (red light then green square). I got the Judge in 4-14 to try to cancel this blank vote, but he was not quite sure how to deal with it, so they have a vote discrepancy of one, a problem that could have been avoided if their Minority Clerk had known what to do.

6:15 p.m. All four of 4-8's voting machines are in use at once for the first time all day. Four young women came in as a group; none had ever voted before. At that moment, I was the runner manning the PEBs. The fourth machine in line (S/N: V5184887), after use, went to the opening screen. I had started all four of these voters, one at a time, with the same how-to-use-it speech. All knew to push the red button at the top when done, then the green square to confirm. I stepped off to the side, casually observing them from some distance. When the fourth one was done, I noticed that the machine had changed to display the beginning-of-poll screen. I personally verified with this voter (Tess Sanders, #118 on 4-8's log of voters), before she even stepped away from the machine, that she did follow all instructions properly. She said she did.

She left, and Gabe Strickland and I watched the terminal for several minutes, expecting it to go into "fleeing voter" mode. It did. Gabe then inserted the red PEB and canceled the vote, selecting "Problem with terminal". When this was done, the message "Public count 66" appeared; the time was 18:25:30. Gabe and I then counted the paper stubs in the envelope; total was 67. Sorry, Tess.

We tape the machine closed. It was not used again that night. (We closed it officially along with the other three at 8 p.m.)

6:50 p.m. With the permission and supervision of 4-14's Judge, I count slips on their machine that had malfunctioned in the same way (S/N: V5181467). I find 14 slips, but "Public count 15". This was because of the Minority Clerk's filling out of an empty ballot to clear the problem on that machine.

7-ish. Gabe canceled a voter's vote at the voter's request. At the close of polling, we find that our vote count is under by 2. One of these undervotes was this requested cancel; the other would have been Tess Sanders.

Precincts 14-35, 14-38, 14-39, and 14-40, report by Audrey N. Glickman, watcher

The attached report at Exhibit A contains descriptions of poll workers failing to so serve, and also of poll workers plowing valiantly beyond. It contains descriptions of the efficiency and helpfulness and even openness of County Elections employees, and also descriptions of failures of iVotronic voting machines. For our purposes here, we shall focus mainly on the iVotronic machines.

In precincts 14-35, 14-38, 14-39 and 14-40 (at the JCC in Squirrel Hill), all four precincts were set up with three machines daisy-chained together and the third, the "last," being plugged to

an orange extension cord and into the wall outlet. Precinct 14-38 had boxes taped out on the floor, giving privacy areas to voters, who seemed to appreciate the delineation. This was the idea and handiwork of Judge of Elections Ann Truxell.

Precincts copied each other in setting up so that there was at least four feet between machines (except in 14-39), and so that there was space to walk or drive an assistance vehicle between the back of the board's table and the front of the machines. The machines were placed along walls, such that voters would have their backs to the wall when voting.

The board at 14-35 needed a great deal of assistance, as it had no Judge of Elections and the group as a whole was totally clueless as to procedures and also operation of the machines. At around 8:00 a.m., there was one fleeing voter on V5176735 machine, which despite a light turnout at that point no poll workers noticed. Soon, problems with the machines were occurring, necessitating cancellation of vote and restarting, before voters even touched the machines. Assistance from Marty Rubinstein, Minority Clerk at 14-39, showed that problems with the machines were possibly due to operator error by the Majority Inspector, Ms. Maretsky, who was operating the machines. Mr. Rubinstein felt that perhaps she was pulling the PEB out too soon. Early in the afternoon it was discovered by Mr. Rubinstein that the male edison connector of the orange extension cord kept falling out of the wall outlet, and Ms. Maretsky had been repeatedly righting it. The "last" machine apparently showed that battery power was being drained, although the other machines seemed fine. So Mr. Rubinstein inserted the plug into the other outlet of the duplex plug. (Mr. Rubinstein provided a great deal of assistance to 14-35 throughout the day, even though his precinct was busy. The Judge of Elections at 14-39 generally does not escort voters to the machines, the others do, most often Mr. Rubinstein.)

At 12:54 p.m., Danny Sleator (a resident of 14-35 and also incidentally a member of VoteAllegheny) voted on V5176735, the second machine in the daisy at 14-35. He had voted an intentional undervote, and the machine duly asked him whether he wanted to keep it or go back and vote the race. He chose to keep it, and pressed the appropriate area of the screen. The screen went blank, rather than displaying the blue "thank you for voting" screen. The red light had gone out, and Ms. Maretsky declared that this indicated that the vote had been registered.

At around 1:10 p.m., when Ms. Maretsky (or other poll workers in 14-35) inserted the PEB into V5172976 (again, the "last" machine, the one which had been low on power and had other issues earlier), it would give her a "different welcome screen." She did not show it to me, and could not remember what it had said. I asked that if it happened again, she at least remember what it said, and please call me over to see it. She never did either. I do not know whether it happened again.

According to Minority Clerk Mr. Rubinstein (from 14-39), precinct 14-35 had had several errors by 1:00 p.m., the vast majority he opined were the poll worker calling up the audio ballot by mistake and cancelling out the vote, about 30 times. Cancellations which would show on final records were due, he felt, to operator error, also. He figured there were only maybe two of those, although one which happened at 2:35 may have been someone starting to vote and then giving up, although Ms. Maretsky did not recall that happening. Again, this was on the "last" machine.

At 4:50, the “last” machine at 14-35, V5172976, kept beeping. The Judge of Elections of 14-38, Ann Truxell, looked at it, and touched the screen. The machine asked whether the voter would like to cancel the vote. No one had voted at that machine. She left the machine on, of course, and told the board to call downtown and report it. She advised them not to use it.

At 6:25 p.m., in precinct 14-40, the “last” machine (V5172215) began beeping continually, just as the one at 14-35 had done. The Judge of Elections noticed the beeping, and the blank screen, and inserted the supervisor PEB and pressed “vote,” but nothing happened. I asked whether he’d touched the screen (which had worked on the other machine), but he never answered. He was on the phone calling downtown, and while he was on hold a rover arrived to fix the machine in 14-35. So I told the Judge that the machine seemed to be having the same problem, and pointed out the rover arriving, but the Judge waved me away and stayed on hold. I went to watch the rover.

The rover, Jim Shaffer, plugged the machine into another wall outlet, and entered his password. Soon he pressed “vote” to shut it down, and powered it up with another red PEB. It indicated “please remove Supervisor PEB.” He noticed that the machine was not receiving power. He asked the building to send an engineer with a voltage tester. The fellow soon came, and tested. There was no power to the outlet. He went to look for tripped breakers, but initially found none. About 15 minutes later, he found that one had been tripped, and he reset it. I note that I went at that point to check on the machine in 14-40 and the Judge said that the machine had power, but still made the same error. (Later, Mr. Yuan Tsur, trainer of rovers and a most knowledgeable fellow, showed me how to look inside the cavity in the back of the machine for the power light on the switch near the power cable.) The printer was duplexed into the same wall outlet, and the printer’s red light was on, so the 14-40 Judge felt that that indicated that there was power to both. At any rate, it turns out that the power was at that point on in both outlets for that machine.

Mr. Shaffer left the machine in 14-35 unplugged, just daisied to the other three machines, and a voter was then told to vote on it. I asked the Majority Inspector why she was using it again, and she said the rover had cleared it. However, it began beeping again, and the voter was asked to re-vote at another machine. I first pointed out to Mr. Shaffer that the beeping issue had happened previously - that was the major issue with the machine. (The poll worker had not told him that.) He “cancelled” and then rebooted the machine. I then pointed out to Mr. Shaffer that the machines had previously during the day been running just on battery, and so was concerned about using just battery at this point, and asked whether he could check on their power situation. He thought they were plugged into the wall, but then realized that he’d left them without A/C. He reset the machine again, used a yellow PEB to try to check items, and then rebooted and checked the battery voltage. He quit trying to fix it at 7:20 p.m., advising that they not use it, just leave it on because it was the power feed for the rest of the machines.

Soon Yuan Tsur came back, and “fixed” the machine, and a voter voted on it. Mr. Tsur does have a thorough knowledge of the iVotronics, and should be commended. He is, as it turns out, not a direct employee of the County, but an Adecco temp. His wife, too, Mia Reed, was working in a similar capacity. A fairly new Pittsburgh resident, Mr. Tsur, and then later Dr. Reed, too, proved to be quite dedicated to the election, to the County, and ultimately to the voters, far beyond the call of duty. They took their work seriously.

Precinct 14-35 closed out with 204 voters written in the log and 205 voters on the iVotronic. The equipment was transported to the regional tabulation center after 10:00 p.m., by only Mr. Tsur and Dr. Reed, because none of the poll workers would accompany them.

Additional Machine Problem

A woman voted in 14-39, on V5184056. She pressed the straight party Democratic ticket, and then asked for help in undoing it. The poll worker showed her how to press it again to undo it, but they discovered that this action had not unchecked all the items - there were still two checked under judges. This was at 3:27 p.m., witnessed by Minority Inspector Martin H, Rubenstein.

Other Notes

Precinct 14-40 did not use the “last” machine for voting again after its vote cancellation error.

Precinct personnel worked harder this time to ensure privacy of the vote, spreading the machines and taping the cables neatly. Mr. Tsur showed them all how to place the privacy screens at 90-degree angles to the machines for optimal privacy and safety, he said.

There were no sticks for disabled voters in the packages of any of these four precincts, and the rovers indicated that none was anywhere else, either. Wheelchair voters could not reach the “vote” button. These four precincts have plenty of disabilities among their voters.

The poll workers did not find the sample ballots - although they were asked for them numerous times - until 3:08 p.m. They were in Envelope K, apparently.

Why isn't precinct 14-40's polling place located closer to the precinct? There are very many apartments in that precinct, in which very many older citizens reside. There is also a senior center. Some voters indicated that the senior center would be an ideal place for a polling place.

Voter Samuel Chodosh of 2018 Wightman Street feels that it should be possible to enlarge the print on the machines, or to provide audio ballots with the visual still engaged.

Notes from Others on Watching

Laura Staniland, a concerned citizen, reports annoyance with candidates parading through polling places, and asked that we place a note in our report. Her report is attached as Exhibit B hereto. Laura is not a member of VoteAllegheny, but we noted her concern, particularly with the machines. We have not researched her report independently, but offer it as information.

NOTES FROM REGIONAL TABULATION

Reizenstein School - report by Arlene Levy and Audrey N. Glickman

Workers are most pleased with the DAM Chart Sender software. This software records to the laptop first, then sends the information over a private phone line downtown. If we could only trust the entire system, this would be wonderful.

Generally things ran smoothly. The only problem that I observed was that two flash cards were separate from the notebook which held the PEBs. The supervisor wasn't sure in which notebook they belonged so he put them in loose in one of the mail cartoons to store the notebooks.

Of the precincts expected to this regional center, two came in without master PEBs, and so were sent directly downtown (7-10 and 7-12). One the judge of elections always takes directly downtown, 4-1. The staff at Reizenstein are aware that this woman prefers to go to town rather than Reizenstein to turn in her election materials, so henceforth the staff in town will call Reizenstein when this woman reports in.

The judge from precinct 14-33, the last precinct to bring in equipment, reported that the audio ballot was malfunctioning. She said that two blind voters who had done the training already and knew how it was supposed to operate ultimately had to vote with assistance because it was not working properly.

Everyone at the Center was pleased that all the data was in and had been processed by 10:30 p.m. The regional center was closed at that time.

Other Regions - report to come separately.

NOTES FROM CENTRAL TABULATION - report separate.



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VoteAllegheny Report on ES&S iVotronic Logic & Accuracy Testing, October 17th, 2007

Revision 1.1 of November 25, 2007

**Report author:
Michael P. Ashley-Rollman**

Background

On Wednesday, October 17th, 2007 and Sunday, October 21st, 2007, election integrity advocates representing VoteAllegheny attended “Logic and Accuracy” testing of the ES&S iVotronic electronic voting machines at 901 Pennsylvania Avenue.

Events As Reported By Michael P. Ashley-Rollman

1. I arrived at the warehouse. Not having previously been to this location, I was unsure which door to enter. I found an unlocked door, entered, and found myself in a room full of voting machines. After 10 or 15 minutes of venturing a little ways into the room and out again as I was uncomfortable and quite certain that I was not supposed to be in a room full of voting machines alone, I eventually ventured far enough to find the part of the building I was supposed to be in. I was disturbed by how easily someone could have entered the building and tampered with the machines. The security guard also appeared to be a little bit surprised that I had come through this particular door, but immediately located John O’Brien, voting machine custodian, at my request.

2. The focus of the testing was on the PEBs, rather than the voting machines themselves. The first test consisted of running an automated test provided by ES&S on every PEB, making use of 600 of the iVotronic machines. As the tests completed, the PEBs were read and the votes were stored in a database. The database was then checked to see that it contained the expected set of votes for each PEB. I was unable to ascertain exactly what it is that the automated tests do or how much of the system they manage to test as it was not clear from watching and John O’Brien was unable to tell me. All I know is that they record about 6 ballots on the PEB, but it is not clear how exactly this is done.

3. After the automated tests complete, a manual test was done on one test for each of the approximately 275 different ballot styles. I did not witness this test, so my information comes from John O’Brien. I was told that one ballot is randomly filled out and voted on each ballot style and that this does not include any write-ins. The PEBs are then read and the results are compared to the ballot to ensure that they are the same.

4. The third test, to ensure that the audio ballots have been recorded correctly, consisted of a person listening to all the names on one copy of each ballot type. The names were checked for correctness and that they ordering of the names was correct. There was no verification that the instructions were correctly recorded on all the ballot styles or that any of the ballot styles accurately recorded votes. As part of the process, I had the opportunity to listen to and vote a single audio ballot. In doing, I voted for 3 different positions and did one write-in. This process took me about 30 minutes to complete and was extremely painful. I cannot imagine voting an entire ballot. I was assured by John O’Brien that visually-impaired voters are accustomed to doing this and find the process to be a lot easier than I did. I find that difficult to believe, particularly as the machines take so long to pronounce each position, name, and party affiliation that it will always be a long process with these machines. Furthermore, the interface was highly non-intuitive making it challenging for a first time visually-impaired voter to understand and navigate. I also find it likely that remains confusing for people who have filled out visually-impaired ballots before, given the frequency with which elections occur.

5. As I witnessed no testing of the actual machines, I asked John O'Brien about the process used for testing them. Apart from the 600 used to test the PEBs, the remaining 4100 machines are only calibrated and tested with an automated clear and test functionality built into the machine. Additionally the software version number, as printed by the software, is compared with the expect number. No votes are cast or recorded on these machines are part of the preparation process.

Open Issues/Concerns

1. The voting machines store votes in 3 different places in order to ensure that they can be recovered after the election. This includes writing them to the PEB, writing them to a compact flash card, and writing them to 3 different locations inside the machine. At present only the votes on the PEB are checked for accuracy as part of the testing process. None of the compact flash cards are checked to see if they properly record the votes made on the machines. These really ought to be checked as the election results are verified by comparing the results on the compact flash card to the results on the PEBs. If there is a discrepancy, then the 3 places inside the machine are nominally checked. When I asked about checking these locations, I was told that they were only for emergency use, so, of course, there is no need to test them. I was taken aback by this response as if they are ever needed, then it will be extremely important that they accurately recorded the results as they are the last place we can look for the total number of votes in an election.

2. The current testing done on the PEBs is inadequate. It will likely catch major obvious mistakes, such as recording all votes backwards, but is very unlikely to catch any subtle bugs or intentional tampering. In particular, the testing done is not representative of a real election and does not even test all of the voting options once. As an example, as each ballot style is voted only once, it is not possible that both party lines are checked to ensure that the proper candidates are selected. In addition, one vote or six votes is very different from the thousands of votes that occur in a real election and leaves a huge potential for subtle errors in these complex machines to go undetected.

3. The voting system equipment we have was bought in the face of substantial, reasoned, articulate opposition from poll workers, election integrity advocates, computer professionals, and members of the general public – and bought in contravention of our right, as guaranteed by the Pennsylvania Constitution, to have the final say. A key feature of this system, and a key feature consistently objected to by members of the public, is the utter dependence of this system on the integrity of its software. Thus it is particularly disturbing to be on the verge of another election in which software verification is clearly inadequate and not apparently a core priority.

4. It is once again disheartening that on the one hand each face-to-face encounter between integrity activists and deployed election systems uncovers further serious issues (not just here, but nationwide), but that meanwhile these encounters are limited by government officials to being after the fact, in response to plans set in progress before any opportunity for public comment.

Moving Forward

1. Because we have a voting system so vulnerable to software issues there is an ongoing urgent need for further attention in this area, including verification and also accessibility via potentially unsecured networks. In this regard VoteAllegheny is in the unfortunate position of reiterating the recommendation we made in our June 5th report on irregularities we observed in the May 16th primary: it is critically and

urgently important that the County develop a strong and convincing process for verifying all program code in use throughout our election system. We note in passing our discouragement that the other three recommendations contained in that report are still, to our knowledge, also unimplemented.

2. The County should prepare a document explaining election procedures, threats, and defenses. This document should include treatment of software verification, parallel testing, and post-election audits. Public comment should be sought and incorporated into the plan.

Conclusion

Citizen participation in a healthy democracy depends on the consent of the governed. This consent depends not only on the pomp and circumstance of an election process but also on the widespread and strong confidence that the process is accessible and accurate. When the lack of a voter-verifiable paper ballot means that voting-system integrity hangs by the thread of software correctness, voter confidence demands the most comprehensive possible software examination process coupled with utter certainty that the software deployed on voting systems exactly matches the software which was examined and certified.

Vote Allegheny once again urges Allegheny County officials, the Secretary of the Commonwealth, and voting system vendors to make rapid progress toward voter verifiability and election system integrity.

EXHIBIT A REPORT OF AUDREY N. GLICKMAN

Report of Audrey N. Glickman

On Poll Watching at 14-38, 14-39, 14-40, and 14-35
and Tabulation Watching at Reizenstein School, November 6, 2007

This election demonstrated quite clearly the need for new additional poll workers, especially judges of elections, and the importance of all poll workers attending classes and understanding each others' jobs and taking fully to heart the purpose of serving the public and each voter to the fullest possible extent.

My report will contain descriptions of poll workers failing to so serve, and also of poll workers plowing valiantly beyond. It will contain descriptions of the efficiency and helpfulness and even openness of County Elections employees, and also descriptions of failures of iVotronic voting machines. It may also contain my opinions, which I shall try to first consider thoroughly and temper with restraint unless they serve positive purposes.

The Nonexistent Judge of Elections

At 6:15 a.m., Pittsburgh City precinct 14-35 required help in setting up machines. Yuan Tsur, who had served as machine trainer (training even the rovers), was on hand helping with that task. He did it essentially by himself. He then helped to brief the 14-35 board on machine operation, because none of those present knew how to operate the machines, although all were at least recently experienced poll workers. Mr. Tsur promised to return at the end of the day to help close the machines out.

All four precincts were set up with three machines daisy-chained together and the third, the "last," being plugged to an orange extension cord and into the wall outlet. Precinct 14-38 had boxes taped out on the floor, giving privacy areas to voters, who seemed to appreciate the delineation. This was the idea and handiwork of Judge of Elections Ann Truxell.

Precincts copied each other in setting up so that there was at least four feet between machines (except in 14-39), and so that there was space to walk or drive an assistance vehicle between the back of the board's table and the front of the machines. The machines were placed along walls, such that voters would have their backs to the wall when voting.

Polls opened at 7:00, at which time precinct 14-35 announced that they had no Judge of Elections. Apparently Sandy Brodsky had been suggested for that position by Cecilia Robinson, who is Judge of Elections in 14-39, a few weeks earlier, and she had attended training, and in fact either had picked up the precinct's box or Mrs. Robinson had picked it up. However, Ms. Brodsky had received in the mail her Constable papers (and I note at this juncture that the Constable in 14-38 had not received his in the mail ahead of time). Poll workers tell me that she had decided the day before the election not to be the judge at 14-35, but simply to serve on the board of 14-39. This is all hearsay, as I did not speak directly with Ms. Brodsky about it, but heard about it from several other poll workers without having asked.

Mr. Tsur had phoned downtown to ask for help for 14-35, before leaving to check on the precinct at Shaare Torah Synagogue, which had needed assistance also. He had gotten Mrs. Robinson from 14-39 to swear in the board at 14-35 and to sign their paperwork "in lieu of a 14-35 Judge," as she wrote.

Soon it became apparent that the board needed assistance. At around 8:00 a.m., there was one fleeing voter on V5176735 machine, which despite a light turnout at that point no poll workers noticed. Soon, assistance from Marty Rubinstein, Minority Clerk at 14-39, showed that problems with the machines were possibly due to operator error by the Majority Inspector, Ms. Maretsky, who was operating the machines. Mr. Rubinstein felt that perhaps she was pulling the PEB out too soon. Early in the afternoon it was discovered by Mr. Rubinstein that the male Edison connector of the orange extension cord kept falling out of the wall outlet, and Ms. Maretsky had been repeatedly righting it. The “last” machine apparently showed that battery power was being drained. So Mr. Rubinstein inserted the plug into the other outlet of the duplex plug. (Mr. Rubinstein provided a great deal of assistance to 14-35 throughout the day, even though his precinct was busy. The Judge of Elections at 14-39 generally does not escort voters to the machines, the others do.)

At 12:54 p.m., Danny Sleator (a resident of 14-35 and also incidentally a member of Vote Allegheny) voted on V5176735, the second machine in the daisy at 14-35. He had voted an intentional undervote, and the machine duly asked him whether he wanted to keep it or go back and vote the race. He chose to keep it, and pressed the appropriate area of the screen. The screen went blank, rather than displaying the blue “thank you for voting” screen. The red light had gone out, and Ms. Maretsky declared that this indicated that the vote had been registered.

At around 1:10 p.m., when Ms. Maretsky (or other poll workers in 14-35) inserted the PEB into V5172976 (again, the “last” machine, the one which had been low on power and had other issues earlier), it would give her a “different welcome screen.” She did not show it to me, and could not remember what it had said. I asked that if it happened again, she at least remember what it said, but please call me over to see it. She never did either.

According to the Minority Clerk, Mr. Rubinstein (from 14-39), precinct 14-35 had had several errors by 1:00 p.m., the vast majority he opined were the poll worker calling up the audio ballot by mistake and cancelling out the vote, about 30 times. Cancellations which would show on final records were due, he felt, to operator error, also. He figured there were only maybe two of those, although one which happened at 2:35 may have been someone starting to vote and then giving up, although Ms. Maretsky did not recall that happening. Again, this was on the “last” machine.

At around 1:30 p.m., as voters started arriving in greater numbers to precinct 14-35 (which precinct includes Weinberg Terrace, a senior home), it became apparent that the board could not proceed without a Judge of Elections. For one thing, they had not ever opened any of their paperwork – there was no absentee list displayed, much less checked off, for instance. It seemed that they expected a judge of elections to fall from the sky and do all their paperwork. Meanwhile, somewhat disabled voters and their one assistant were having more difficulty with the poll workers than with actually voting. Ms. Maretsky lacked the ability to explain the machine fully, and also did not know about certain options, such as when one voter failed to bring his reading glasses and complained to me after the fact that he had had a difficult time voting.

I called the “questions” number, and they took a message to Mrs. Trebilcock. Sue Trebilcock phoned me at 3:12 p.m. She explained the issue as she understood it about Sandy Brodsky and Cecilia Robinson of 14-39. She had been working under the presumption that Mrs. Robinson was also acting as Judge of 14-35. In fact, Mrs. Robinson was not at that time in the polling place at all, and had not been there for a couple hours. I explained to Sue that the average age of the board of 14-35 is 80 years old, and none of them had computer experience to speak of. None knew anything about any job except the one they had done in prior elections. None knew any of the Judge tasks. None even knew about any of the

paperwork, even though they all had signed the proper paperwork in prior elections. They were also belligerent about the matter with Mrs. Robinson, who had already yelled at one of them (the Minority Inspector, Esther Drucker, I believe – **in this report I may have the majority inspector and the minority inspector confused, because what I wrote as their names with titles is not what is signed on the final sheets**) when she had asked her a procedural question and Mrs. Robinson had told her that she was incompetent, and she shouldn't even try to do any of the work. Ms. Drucker was attempting to at least look at the work which needed to be done, but the others on the board were at that point angry with her, first for being upset at what Mrs. Robinson had said, and then for having tried to do work which they felt was not their responsibility. If Mrs. Robinson is getting paid to judge two boards, then she has to do the work, they felt. "Cecilia Robinson should NOT get paid for being two judges," said the 14-35 Majority Inspector.

Sue indicated that Mrs. Robinson had told her that she would send one of her board over to 14-35 for the remainder of the day. She did not do that, and Sue was surprised to hear that.

At any rate, Sue told me that they would be sending someone to help. However, later in the afternoon, she called me back and indicated that they had not been able to find someone to help. Sue was most helpful and very friendly, and it was most ingenuous of her to keep me, the poll watcher, informed. I presume she did her best, but no one was available to help in 14-35.

At around 3:45, a gentleman wanted to vote in 14-35, but found he was not in the records, even though his roommate was. As I had already done on several other occasions, I went to the Judge of Elections in 14-38, Ann Truxell, and asked her to help the gentleman. Ms. Truxell was most helpful on all occasions with 14-35, although she did not volunteer to send one of her poll workers to work at that precinct. I note that precinct 14-40 remained aloof, and even pretended in early evening not to know that 14-35 had been operating all day without a Judge. At any rate, Ms. Truxell ended up spending 45 minutes with the voter, who had recently re-upped his car registration, which he had apparently good reasons for maintaining in Montgomery County, but which had thus changed his voter registration automatically. The judge issued a White-Coat Court Order. This likely will not appear on the records of 14-35, because they were clueless as to what had happened.

Again, the 14-35 Minority Inspector tried to do paperwork, with help from the Minority Inspector of 14-39, Margaret Myers, but was yelled at by the Majority Inspector of 14-35, because she had told her not to touch the paperwork because it was not their responsibility.

At 4:50, the "last" machine at 14-35, V5172976, kept beeping. The Judge of Elections of 14-38 looked at it, and touched the screen. The machine asked whether the voter would like to cancel the vote. No one had voted. She left the machine on, and told the board to call downtown and report it. She advised them not to use it.

Meanwhile, a voter, Sara Mayo, came with her husband who had voted in the May primary, but had had to use a provisional ballot because although her husband's address had been changed, hers had not. Since then, she had communicated with the County Elections Division, but again she was not on the list. She votes in 14-35, so the board was ready to simply turn her away, but she remembered the poll watcher had garnered help last time. She asked, and I took her to the Judge of 14-38, who also had helped last time. They phoned the County. Ultimately, they learned that although they had duly changed their address from the one in Highland Park, because they had the wrong year of birth in the record and it thus did not match the motor vehicles records' year of birth, it was kicked out. Since she had written to them to change it, they still had her written record. Therefore, she could vote in this election. She will get a

voter card in four to six weeks, and if she does not receive it, she must call a secret phone number which they gave her. Ms. Truxell indicated that it is a good thing she is a “motivated voter,” because at that point most other voters would have left without voting.

At 6:25 p.m., in precinct 14-40, a machine began beeping continually, just as the one at 14-35 had done. The Judge of Elections noticed the beeping, and the blank screen, and inserted the supervisor PEB and pressed “vote,” but nothing happened. I asked whether he’d touched the screen (which had worked on the other machine), but he never answered. He was on the phone calling downtown, and while he was on hold a rover arrived to fix the machine in 14-35. So I told him the machine seemed to be having the same problem, and pointed out the rover arriving, but the Judge waved me away and stayed on hold. I went to watch the rover.

The rover, Jim Shaffer, plugged the machine into another wall outlet, and entered his password. Soon he pressed “vote” to shut it down, and powered it up with another red PEB. It indicated “please remove Supervisor PEB.” He noticed that the machine was not receiving power. He asked the building to send an engineer with a voltage tester. The fellow soon came, and tested. There was no power to the outlet. He went to look for tripped breakers, but initially found none. About 15 minutes later, he found that one had been tripped, and he reset it. I note that I went at that point to check on the machine in 14-40 and the Judge said that the machine had power, but still made the same error. (Later, Mr. Tsur showed me how to look inside the cavity in the back of the machine for the power light on the switch near the power cable.) The printer was duplexed into the same wall outlet, and the red light was on, so the 14-40 Judge felt that that indicated that there was power to both.

Mr. Shaffer left the machine unplugged, just daisy-chained to the other three machines, and a voter was then told to vote on it. I asked the Majority Inspector why she was using it again, and she said the rover had cleared it. However, it began beeping again, and the voter was asked to re-vote at another machine. I first pointed out to Mr. Shaffer that the beeping issue had happened previously – that was the major issue with the machine. Since the poll workers did not realize that this was what had happened previously, they had not told him about this. He “cancelled” and then rebooted the machine. I then pointed out to Mr. Shaffer that the machines had previously during the day been running just on battery, and asked whether he could check on their power situation. He thought they were plugged into the wall, but then realized that he’d left them without A/C. He reset the machine again, used a yellow PEB to try to check items, and then rebooted and checked the battery voltage. He quit trying to fix it at 7:20 p.m., advising that they not use it, just leave it on because it was the power feed for the rest of the machines.

Soon Yuan Tsur came back, and “fixed” the machine, and a voter voted on it. Mr. Tsur does have a thorough knowledge of the iVotronics, and should be commended. He is, as it turns out, not a direct employee of the County, but an Adecco temp. His wife, too, Mia Reed, was working in a similar capacity. A fairly new Pittsburgh resident, Mr. Tsur, and then later Dr. Reed, too, proved to be quite dedicated to the election, to the County, and ultimately to the voters, far beyond the call of duty. They took their work seriously.

Fortunately, they also have much intestinal fortitude. As Mr. Tsur was there to help close out 14-35, he ended up in the middle of the dispute with 14-39. At 8:00, Cecilia Robinson refused to help close out 14-35. She would not help with the paperwork. She would not give advice. She would not ask one of her workers to assist.

Dr. Reed arrived, having been phoned by Mr. Tsur because he knew her to be better with paperwork than he, he said. She phoned downtown for advice. She was told that if there is no judge of elections, the

minority inspector is responsible. As it was her husband who had arrived, planning to take the board home (they all reside in the same building), she complained heartily. As the other precincts were at that point done and gone, and none had volunteered to stay and help with 14-35, not even to transport their equipment to Reizenstein, the precinct poll workers were left with Dr. Reed (on the phone with an advisor) and Mr. Tsur to figure out what to do with the day's paperwork.

Precinct 14-35 closed out with 204 voters written in the log and 205 voters on the iVotronic. The equipment was transported to the regional tabulation center after 10:00 p.m., by only Mr. Tsur and Dr. Reed, because none of the poll workers would accompany them.

Machine Problem

A woman voted in 14-39, on V5184056. She pressed the straight party Democratic ticket, and then asked for help in undoing it. The poll worker showed her how to press it again to undo it, but they discovered that this action had not unchecked all the items – there were still two checked under judges. This was at 3:27 p.m., witnessed by Minority Inspector Martin H. Rubenstein.

Other Notes

Precinct 14-40 did not use the “last” machine for voting again after its vote cancellation error.

Precinct personnel worked harder this time to ensure privacy of the vote, spreading the machines and taping the cables neatly. Mr. Tsur showed them all how to place the privacy screens at 90-degree angles to the machines for optimal privacy and safety, he said.

There were no sticks for disabled voters in the packages of any of these four precincts, and the rovers indicated that none was anywhere else, either. Wheelchair voters could not reach the “vote” button. These four precincts have plenty of disabilities among their voters.

The poll workers did not find the sample ballots – although they were asked for them numerous times – until 3:08 p.m. They were in Envelope K, apparently.

Why isn't precinct 14-40's polling place located closer to the precinct? There are very many apartments in that precinct, in which very many older citizens reside. There is also a senior center. Some voters indicated that the senior center would be an ideal place for a polling place.

Voter Samuel Chodosh of 2018 Wightman Street feels that it should be possible to enlarge the print on the machines, or to provide audio ballots with the visual still engaged.

As mentioned above, the issues with the voters who were not in the precinct who should have been – one was permitted to vote and one was issued a white-coat court order.

NOTES FROM REGIONAL TABULATION

Workers are most pleased with the DAM Chart Sender software. This software records to the laptop first, then sends the information over a private phone line downtown.

Of the precincts expected to this regional center, two came in without master PEBs, and so were sent directly downtown (7-10 and 7-12). One the judge of elections always takes directly downtown, 4-1.

The judge from precinct 14-33, the last precinct to bring in equipment, reported that the audio ballot was malfunctioning. She said that two blind voters who had done the training already and knew how it was supposed to operate ultimately had to vote with assistance because it was not working properly.

Everyone was pleased that all the data was in and had been processed by 10:30 p.m. The regional center was closed at that time.

EXHIBIT B
Report of Laura Staniland, Concerned Citizen
(Not a Member of VoteAllegheny, but we promised to report this on her behalf.
The opinions expressed herein are not necessarily those of VoteAllegheny.)

First of all, Luke Ravenstahl, Yarone Zober, and Luke Ravenstahl's wife, along with some other people with him, walked into a polling place in the Hill District campaigning. They may have broken the following statutes:

§ 3060. Regulations in force at polling places.

(a) **Until the polls are closed, no person shall be allowed in the polling place outside of the enclosed space at any primary or election, except the watchers, voters not exceeding ten at any one time who are awaiting their turn to vote, and peace officers, when necessary for the preservation of the peace.** No elector shall be allowed to occupy a voting compartment or voting machine booth already occupied by another, except when giving assistance as permitted by this act.

§ 3528. Persons interfering in other districts.

Any person who shall on the day of any primary or election visit any polling place at which he is not entitled to vote and at which he is not entitled to be present under any provision of this act, and shall use any intimidation or violence for the purpose of preventing any election officer from performing the duties required of him by this act, or for the purpose of preventing any qualified elector from exercising his right to vote or from exercising his right to challenge any person offering to vote, **or for the purpose of influencing the vote of any elector**, he shall be guilty of a felony of the third degree, and, upon conviction thereof, shall be sentenced to pay a fine not exceeding fifteen thousand (\$15,000) dollars, or to undergo an imprisonment of not more than seven (7) years, or both, in the discretion of the court.

§ 3551. Candidate violating act disqualified from holding office.

Any person who shall, while a candidate for office, be guilty of bribery, fraud or **willful violation of any provision of this act**, shall be forever disqualified from holding said office or any other office of trust or profit in this Commonwealth.

There are pictures of Mr. Ravenstahl in the voting area at Ward 5, District 8, at <http://agentska.blogspot.com/2007/11/pictures-from-today.html>.

Then, voter machines were not working at Ward 5, District 8. There is video documentation of the machines not working at <http://www.youtube.com/watch?v=3jBbQSBF144> and at <http://www.youtube.com/watch?v=jLOG7KcbnCQ>.



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Report on General Election, November 6, 2007 Central Tabulation, Report by Collin Lynch.

Central tabulation took place on the night of November 6, 2007, at the county's Voting System Warehouse on Pittsburgh's North Side. This included central counting of the absentee and emergency paper ballots as well as electronic tabulation of the precinct results as wired in from each of the regional tabulation centers. The scope of this report is limited to the events that I observed on that evening and does not purport to be an entire assessment of the elections process.

PEB Tabulation:

On election day the local machine results are, according to procedure, accumulated onto a single PEB which is then delivered to the county for processing. In the event of a PEB being lost it was the stated policy on election night for the results to be accumulated from the individual iVotronic systems or from the final result tapes.

As part of this election the county expanded the role of the regional tabulation centers. During prior elections all results had been brought directly to the central operations location (then located in the County Office Building downtown) for uploading from the PEBs for central processing. In the most recent election (May 2007 Primary) the PEB results were read into laptops located at the regional tabulation centers. Interim results were ferried downtown via USB keychains.

In this election the county made use of the Data Acquisition Manager (DAM) for the automatic uploading of results. DAM is a plugin for the Unity software suite that is employed solely for the modem tabulation of results. According to county staffers each of the regional tabulation centers was equipped with a separate phone line that had been installed solely for election purposes and is to remain unused for the remainder of the year. It is unclear what, if any, verification is made of this disuse. Each of the roving laptops was equipped with an onboard modem that was used to connect via this phone line to a central server for result tabulation.

The server itself was located at the warehouse and connected to a bank of 16 modems each of which was connected to a separate phone line again installed for the purposes of this

election. When asked why the county needed more than twice the required number of modems it was stated that spares were present in case the others failed.

As PEBs were loaded into the individual laptops the results were transmitted via the modem connection to the central tabulator and there added to the running totals. Unreported districts were indicated by a running display from the DAM system.

When asked about the security of transmission, County staffers asserted that the lines themselves were unused apart from for this task and that the system employed "Username and Password" security. The local ES&S representative asserted that all transmissions were encrypted even transmissions from the PEB to the iVotronic. However when asked how they were encrypted or those encryption methods were verified he declaimed knowledge of the process and suggested that I forward questions to the ES&S Marketing representatives.

We are aware that county staffers have submitted these same questions to ES&S and we look forward to their answers being shared with the general public who rely on the security of these systems for our democracy.

During the course of the night no obvious errors occurred with the DAM system. Obvious errors would include the apparent failure of one or more modem connections or the failure of the server itself. The integrity of the data being transmitted was not verifiable given the access available to me.

District Issues:

During the course of the night several distinct district errors were reported. PEB Envelopes that failed to read or had one or more errors were, by procedure, to be sent down to the warehouse for reading. Of them seven notable errors involving one or more unclosed machines or missing PEBs were reported during the course of the night. Of these two of them were resolved in the short term by manually entering the results from the printed election tallies that had been sent down along with the absentee ballots. These had been signed by the poll workers.

An additional error was resolved by replacing the IrDA board on the iVotronic itself and rereading the results on site. The IrDA board is a small component used to communicate between the PEB and the iVotronic. No signed result tape was produced from this system during the course of the evening nor were any poll workers present when this procedure was performed.

At the close of the night at least eight individual systems were not closed at the end of the night. These systems were either reported unclosed from a specific district where the remainder had been closed or were taken off line for other as yet unspecified reasons. It is not yet clear what happened with these systems, whether or how results were obtained and whether or how those results were supervised by the local elections officials. In one of these cases the flash cards containing election results were unaccounted for.

In these same districts at least four PEBs remained unaccounted for at the end of the night. These include Scott Township #1082 where all PEBs were unaccounted for at the end of the night.

Chain of Custody:

As noted in the previous section in two of the cases where the PEBs went missing or were untrustworthy, county staffers opted to read from the result tapes on the assertion that the "Chain of Custody" had been broken. According to county policy where a PEB has been out of the custody of sworn elections workers it is deemed insecure.

When asked what would be done with such a PEB county staffers asserted that they would load it onto a clean laptop after the election and verify the security of the system by checking it for viruses.

Absentee Ballots:

As in past years absentee ballots were scanned as part of the preliminary tabulation process. As before, the county employed a set of ES&S M650 scanners with ballots divided by region onto the scanners. The individual scanners were operated by county employees and ES&S staffers. Over the course of the night ballots were sent largely to four of the scanners. There was little to no apparent change in the use of the scanners from previous elections.

However this was a comparatively light election with roughly five thousand absentee ballots being cast. As such the scanner activity was relatively low.

Conclusions:

Over the course of each successive election the county has modified its election night procedures. With each iteration the county has both added or augmented their tabulation procedures and become more familiar with the existing tabulation procedures. Many of these procedural changes have been justified with the goal of increasing the security of the elections process and of compensating for insecurities of the systems themselves.

None of these procedures has altered the technological reliance of the county on ES&S equipment and staffers. Indeed the addition of DAM has increased the extent to which the county relies on ES&S to deliver secure products free from any security hole or deliberate error. Indeed the fact that neither myself nor county staffers are able to obtain a clear guarantee that the transmission of results is secure and that the security has been verified independently is extremely troublesome. Given that the existing iVotronic systems contain at least one deliberate security hole, placed by the company and concealed by their staffers from both county officials and the general public, I see no reason to trust implicitly the vendor's guarantee that the system is secure.

The issue is that despite the presence of chains of custody the county is not yet in a position to guarantee the security of the systems from viruses or deliberate attacks. The county's

existing iVotronic and PEB verification procedures are not able to detect internal software changes unless those changes alter the printed firmware version displayed by the items or other observable behavior. While I am pleased to hear the uncontrolled PEBs will be checked for viruses before being reused, absent a clear and solid check on that performance it isn't a complete guarantee.

With the introduction of the DAM system the county has potentially opened the central server up to new classes of attacks including man in the middle attacks (altering data transmitted from the regional tabulators to the central server, or corruption of data at the transmission point either by insertion of corrupt PEBs or other portable code. While it is the county's stated policy to audit the interim results via comparison with the audit logs stored on the flash memory this would only catch an attack that corrupts the data on one but not the other. And any attack that seeks to corrupt the central server but not the interim count - say, the insertion of a virus that would affect future elections - would go undetected.

Absent a clear and independent check of the systems to rule out these classes of attacks and faced with the twin facts that competing systems have been shown to be vulnerable to these classes of attack and deliberate security holes have been found within ES&S systems, I see no reason to trust in the security of these transmissions implicitly.

Press:

During election-night tabulation Members of the press were kept in the loading dock area of the warehouse by a chain-link fence. This fence prevented them from viewing the bulk of the tabulation efforts apart from a somewhat blurred view of the tabulation computers themselves. No view of the scanning process or machine disassembly process was possible. They were however given access to the areas used to store iVotronics. Throughout the course of the night they were given reports county staffers through the fence and passed printouts.

This is a marked change from previous years in which the press were granted much fuller access to the process and much more regular reporting. It is unclear to me why the press were kept isolated and whether this will be the ongoing method by which they are treated.

Recommendations:

With that in mind I make the following recommendations for future elections:

1. Implement a clear, public, and independent review of the UNITY suite including the DAM system to ensure that it is employing a viable end-to-end encryption algorithm and that the individual security is maintained.
2. Absent a true software verification process tabulate the audit data and PEB data on distinct systems so as to ensure that a potentially corrupted DAM-equipped server does not affect the reading of the audit data.
3. Require that the Judges of Elections present ID when dropping off PEBs at the central tabulation to ensure that the chain of custody is clear from the JOEs to the central tabulation site.
4. Develop and publish a clear and detailed elections plan prior to each election stating how the county will prepare for, conduct, and tabulate the election as well as perform post-election auditing. A listing of county policies regarding problems such as breaks in the chain of custody would be useful too.