State of Ohio

County of Franklin

AFFIDAVIT

I, Michael Duniho, do hereby attest and affirm as follows:

1. I have experience and training in computer technology and in computer security from my 37 years with the National Security Agency. At the time of my retirement in 1997, I was certified as a Master of Computer Science at NSA, one of about 50 people so certified. I have also had experience as an election judge in Maryland, as a member of the Pima County Democratic Party Election Integrity Committee in Arizona, and as a member of the Pima County Election Integrity Commission in Arizona. I have participated in the implementation of some 50 improvements to the processing of elections in Pima County, mostly having to do with the processing of early ballots and the counting of votes.
2. All statements of fact contained in this affidavit are true and correct and what they purport to be, to my personal knowledge.
3. All opinions in this affidavit are my opinions, to a reasonable degree of certainty, in my capacity as a professional computer scientist and election integrity specialist.
4. The statements contained herein made by me are true and correct, and I make these statements under penalties of perjury.

I have reviewed the contract between Ohio and ES&S and other documents in this case. Following are some of my thoughts about the case.

1. Given that the contract was signed Sep 18 and 19, and the customer has 30 days to test the new software, I wonder how long it took ES&S to produce the new software. But then the memorandum responding to the lawsuit says that they already sold this same software to Minnesota, North Dakota, and West Virginia,.so apparently it didn't take them any time at all. But the contract statement of work says that "General Product Enhancements are enhancements that ES&S believes benefit the product as a whole and may be considered not billable to the Customer." If ES&S can sell the same software to three other states, it sounds like they are ripping off Ohio by selling them for $20,000 a General Product Enhancement.

2. Although the statement of work says that the new software has two required features, it appears that the second feature (state assigned precinct and candidate code formats) is already contained in the current version (2.0.6.0) of EXP that Ohio's counties already own. So ES&S seems to be selling them, at least in part, something they already own. The only thing the new EXP does that the old EXP didn't do (apparently) is to export a text file instead of an XML file. But I looked on the internet and found several web sites offering XML to TXT converters for free. So maybe ES&S is charging $20,000 for something that could be had for free.

3. If EXP is truly a stand-alone program, it should not be necessary to install it on the same computer that is tabulating votes. The current setup apparently exports XML files. An exported XML file could easily be transferred to another computer via a CD or memory stick, and the XML to TXT conversion could take place there instead of on the tabulator computer. ES&S seems to want to argue (1) the program has to run on the same computer

because it accesses the vote database and (2) that it is a completely stand-alone program that is not part of the vote tabulation system and therefore does not have to be certified. I would say that if it must run on the same computer it is logically part of the vote tabulation system and therefore is required by law to be certified.

4. If the sole purpose of this new software is to fit the data into the state reporting system, the logical place to put the new software is on the state's computer, not on 39 or 44 county computers. If the XML to TXT converter were run on the state computer, it would have no way to alter results on the county computers and if it messed up the data somehow there would be a double-check available via a comparison of state-reported results and county-reported results. If custom software needed to be modified, the obvious place to do that would be the single SERSS application on the state computer. There is no logical reason to change software on all those county systems when the same results could have been accomplished with less effort and more security at the state level. If everyone is telling the truth, then Ohio has really been suckered by ES&S.

5. I looked at the Ohio Secretary of State's web site and found that they already were successfully aggregating votes from all Ohio Counties and reporting them at the state level. I conclude, therefore, that this was not a critical change necessary for processing the current election. It seems to me that an emergency change like this should meet some definition of "emergency", which this change apparently does not.

6. Because of the logical anomalies with this contract making it appear unnecessary and inappropriate, one might question the state's motivation in making an "emergency" change to the software on the county tabulation computers. Whether we accept the stated claim of necessity or not, the fact remains that in terms of computer security, it is foolhardy to make changes to software on an election tabulation computer at the last minute. A virus on an ES&S development computer, whether placed there by ES&S or some outside source, could piggy-back on the new EXP software and alter the processing of vote counting on county computers. Extra precautions should have been taken to ensure that no virus found its way into county vote tabulation computers, and this was apparently not done. Even if virus checking was done by ES&S, most virus checking software only finds known viruses and this supposed virus would be in the unknown category.

7. I have reviewed statistical analyses of the 2012 Republican Presidential Primary and of other past elections across the country, including Ohio, and I have replicated the statistical analysis on Pima County data. These statistics show an unexplained anomaly that correlates with precinct size and that favors Mitt Romney in the Republican primaries of 2012 and 2008. The same anomaly seems to favor the Republican Party in recent general elections. These anomalies do not seem to correlate with known demographic information and therefore raise the question of possible fraud in US elections. Statistics can neither prove nor disprove that thesis. Only publicly observed hand count audits of actual ballots can assure voters that ballots are accurately counted by the computers.

8. It is typically the case that Secretaries of State have the authority to authorize the use of provisional systems without thorough testing, but then there should be additional hand-count auditing of the results, comparing hand-counted ballots with the official reports in some percentage of the precincts to ensure that the uncertified software is not harming the correct counting of votes. Even if we accept the ES&S claim that their new EXP does not alter the database, it is still possible that it would do the conversion to TXT incorrectly,

omitting some results or even garbling them. It is not necessary to argue that they are criminally intending to change votes in order to contend that a more intensive hand count audit be done. In Washington state, they are using a new vote counting system from Dominion (formerly Diebold) and the Secretary of State requires that counties using the new system must perform a hand count of 5% of the ballots to confirm the accuracy of the new system. This is an additional requirement just because the software is uncertified.

9. At this point, the offending software has certainly been installed on all the county computers already, and cannot readily be uninstalled in a way that can be certified to be harmless. The logical remedy, then, is for the Ohio Secretary of State to do what he should have done without prompting: to order an increase in the hand-count auditing in counties with this provisional software to reassure voters that the new, uncertified software has not affected the counting of the vote or the reporting of a correct count to the public and to the state. A statistical, risk-limiting audit would be the best solution.

10. The most transparent solution to this matter would be to substitute a full hand count of the ballots for the machine count, under court supervision. Because that would be a large and time-consuming effort, an acceptable alternative would be to perform a hand count of at least five percent of the precincts, selected randomly under court supervision from among the largest precincts in the state so that approximately ten percent of the ballots in the state would be hand counted. If the difference between the hand counted precincts and the officially reported machine count is more than 1 percent, another ten percent of the ballots should be hand counted, again selecting randomly under court supervision from among the largest precincts. If the total of the two hand counts is still outside a 1% limit, then the hand count should expand to the entire state and should replace the machine count as the official count of the election.

/s Michael A. Duniho

State of Arizona
County of Pima

Subscribed and sworn to (or affirmed) before me this 6th day of November

2012, by Michael A Duniho.

Barbara K Dorr
Notary Public

OFFICIAL SEAL
BARBARA K. DORR
Notary Public - State of Arizona
PIMA COUNTY
My Comm. Expires Sept. 17, 2013