DEPARTMENT OF INFORMATION RESOURCES

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June 22, 2004

Ms. Ann McGeehan
Deputy Assistant
Office of the Secretary of State
1019 Brazos Street
Austin, TX 78701

RE: Examination of the Unity Election System Version Release 2.4.3 and Vote
Tabulation Devices from Election Systems and Software (ES&S)

Dear Ms. McGeehan:

I attended a scheduled examination May 26 2004, at 8:30 am, for the purpose of
examining updated modules of the voting systems from ES&S. The report below
summarizes my findings.

Hardware/Software Version

Unity Election System v2.4.3, last certified January 2004
The updated modules that were examined include the following:
Hardware Programming Manager v5.0.3.0c
Data Acquisition Manager v5.0.3.1b
Election Reporting Manager v6.4.3.0a

Hardware
Model 150/550 Central Countv2.1.1.0a

DRE voting systems
Ivotronic Direct Recording Electronic (DRE) voting system v8.0.1.0r

System description

The changes to the modules above are a service release that fixes small program bugs and
improves system performance. There are no major changes to functionality. The vendor
provided a change log to document all changes to code.

The main feature to be examined was the ability to transmit results by modem from
regional sites to the central counting site. After the polls close, results from precincts are
collected by computers at regional sites and transmitted to the central site. This feature
reduces the number of phone lines needed at the central site, simplifying administration
of the election.

Each data transmission from the regional site is small, so it occurs quickly, even over
standard phone lines. These can be wireless phones, although no jurisdiction in Texas is
using that approach yet. Numerous security features of the connections and data
transmissions appear to be well planned. For instance, each data transmission included a
Cyclic Redundancy Check (CRC) so that even if a transmission is intercepted, the data

cannot be changed without being detected.

System performance

The system appeared to function as specified in the documentation. It was noted that results from any voting location could be transmitted more than once to the central count site. However, the Election Reporting Manager will not add a precinct's totals more than once. It will only replace a precinct's original count with a new count, and it requires operator intervention and authorization to do this. All major tabulating operations are recorded on the real-time log printer.

The vendor was asked whether they had considered automatically setting all accumulators to zero as part of the poll opening procedures. This had been a problem in a previous election in which some vote totals from Logic and Accuracy (L&A) tests had inadvertently been left in some units prior to opening the polls. ES&S personnel indicated that their approach was to let the counties handle the problem through poll-opening procedures rather than automating it as other vendors had done.

The examiners followed up on an issue from the previous examination and noted another problem with the marking instruments for paper ballots. The examiners were supplied with vendor-approved pens with which to mark the test ballots. However, it was demonstrated that the pens could easily be used in a way that produced votes the optical scanning equipment could not count even though the ballot was marked correctly.

Recommendations

The Department of Information Resources (DIR) finds no technical objection to certifying the Unity Election System and firmware demonstrated at this examination. However, the following are *strongly* suggested.

1. The DRE systems should automatically zero out all accumulators upon opening the polls rather than relying on poll workers to ensure this through poll opening procedures. This is common practice among other vendors and this examiner finds no convincing reason why it should not be followed in this case.

2. The vendor should examine the vendor-recommended pens that were provided with this examination to determine the reason they failed to produce marks that were read by the optical scanning devices. This should be done as quickly as possible since it has the potential to result in valid votes being lost.

Respectfully,

Nick Osborn
Systems Analyst

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