Voting System Examination
AccuPoll, Inc

Prepared for the
Secretary of State of Texas

James Sneeringer, Ph.D.
Designee of the Attorney General

This report conveys the findings of the Attorney General's designee from an examination of the equipment listed, pursuant to Title 9, Chapter 122 of the Texas Election Code, section 122.036(b).

Examination Date	January 5, 2005
Report Date	January 24, 2005

Component	Version	NASED Number
AccuPoll Voting Station (AVS)	02.04.05	Not provided
Voting Administration Workstation (VAW)	02.04.05	Not provided
Central Count Server	02.04.05	Not provided
Central Vote Consolidator	02.04.05	Not provided
Election Management System (EMS)	Not examined	

Notes

- All components are Unix-based and implemented in Java.
- The hardware, except for the clamshell, is off the shelf.

DRE System: AccuPoll Voting Station and Voting Administration Workstation

Election Setup	The election definition is loaded into the VAW laptop from a CD-ROM created with the Election Management System (EMS), which was not submitted for certification or examined. The election definition is stored in each VAW and downloaded from the VAW to the voting stations as needed. Software to operate the VAW and voting stations is also loaded into the VAW via CD-ROM. There is permanently resident software that performs this loading, and it refuses to load any software that has not been digitally signed by AccuPoll.
Zero-total report	On the ink-jet printer in any one of the voting stations.

Authorization to vote / Ballot selection	A poll worker initializes a GoVote card on the VAW laptop to authorize voting and specify the precinct. This card can only be used to vote once, until it is re-activated by a poll worker for another voter.
View / Vote	LCD display / touch screen
Vote Storage	On a system with one VAW laptop in the precinct, four or five copies of each vote record are stored as follows: (1) MySQL database on the hard drive of the voting station, (2) the optional paper proof of vote, (3) a postscript record stored as a BLOB in the same database, (4) a compact flash memory in the voting station, and (5) in a MySQL database on the VAW laptop. Two of these are on the same physical device, but the data is still on a minimum of three different physical devices, not counting the paper. Each additional VAW laptop in the precinct adds one additional copy.
Provisional Ballots	If a provisional ballot is requested, the VAW laptop automatically prints out a ballot retrieval number, which can later be used to include that ballot in the totals
Connectivity	All precinct equipment is connected using Ethernet. There should be no connections to other equipment or to the Internet. Transmissions are check-summed with a private protocol.
Precinct Consolidation	Precinct results are continuously consolidated on the VAW laptop in the precinct. If there is more than one VAW laptop, the consolidated results are stored on all of them.
Transfer Results	Results are written on an encrypted CD for transfer to the Central Vote Consolidator and the Central Count Server. A re-writable CD cannot be used. Modem transfers are also supported, but AccuPoll did not request certification of modem transfers.
Print precinct results	On the ink-jet printer in any one of the voting stations.
Straight party / crossover	Yes. Any straight-party voting must be done before any votes are cast in individual races. This means that straight-party voting cannot override votes in individual races, but it also means that straight-party votes cannot be changed, except by voiding the entire ballot and starting over.
ADA	Yes, but ADA capability is verified separately by the Secretary of State's office, so it was not demonstrated to the examiners.

Setup & Tabulation: Election Management System, Central Vote Consolidator, Central Count Server

Tamper Resistance	Operating system access is prohibited at all times (not just when the system is running) and data is protected by Unix and MySQL passwords. Other data is protected by other passwords. The system boots directly to the AccuVote application, and AccuVote asserts that operating system access is not possible without opening the machine, but admits that access can be achieved by an expert if the machine is opened.
OS access	Not permitted. See previous item for details.
Real-Time Audit Log	Yes.
Data Integrity	Transaction support with rollback is provided by the MySQL database.

Transmission	Although AccuPoll supports modem transmission, they asked that it not be certified at this exam.

Follow-up from Previous Exams

1. AccuPoll now has a real-time audit log printer.
2. Straight-party votes are now displayed on the ballot review screen.
3. Straight-party votes are now tabulated.
4. AccuPoll demonstrated that they can change a straight-party vote. (See more on changing straight-party votes below.)
5. Each candidate's party is now shown on the ballot review screen.
6. Races with more than two candidates can now be shown on the ballot review screen.
7. The ballot review screen now clearly indicates undervotes.
8. Write-in votes are now reported properly.
9. Provisional ballots that have been accepted can now be "un-accepted."
10. They use the transaction support provided by the database (MySQL) to ensure data integrity during counting.

Concerns

11. The passwords for the components of the voting station are stored in a "password vault" that is not secure.
    Recommendation: Certification should be denied until this is fixed.
12. If a voter tries to change a straight-party vote, it will first give a warning and then clear the entire ballot.
    Recommendation: This behavior is unusual and inconvenient for those affected, but acceptable in my opinion, because I believe straight-party votes are rarely changed.
13. The following features were not submitted for certification: election setup, modem transfers, and counting of absentee ballots.
    Recommendation: Certification should carry the condition that these features not be sold or used in Texas. This means that election setup must be provided by AccuPoll as a service, that modem transfers must not be done, and absentee ballots must be handled some other way.
14. The AccuPoll system is somewhat vulnerable to tampering if the internal computer components can be accessed during polling and counting.
    Recommendation: All components should be sealed during polling and counting.
15. If you try to load the same precinct results into the Central Vote Consolidator twice without performing the verification step, the Central Vote Consolidator refuses to count it the second time, but logs the event the same way as it did the first time.
    Recommendation: The screen and the real-time audit log should record that it is duplicate data and was not counted again. This issue is small enough that certification should be granted, with the provision that the problem be corrected

within a reasonable time, say one year.

Note: AccuVote says this was done to avoid problems when people accidentally click twice on the button to load the results. They need to find another way to deal with this double-click problem, such as ignoring another click within a second or two.

16. If you try to load the same precinct results into the Central Vote Consolidator twice and you do perform the verification step, AccuVote prints a message on the real-time audit log printer for every ballot on the CD, because every vote is a duplicate. This could result in very long, slow printouts when it happens for large precincts.

    Recommendation: AccuVote should give a single message to indicate the results are duplicates, but should not print a message about every duplicate ballot. This issue is small enough that certification should be granted, with the provision that the problem be corrected within a reasonable time.

17. The GoVote card is difficult to insert into the voting station. It must be pressed in with some force, and when this is not done the station doesn't work and it isn't clear what is wrong, so the voter may not be able to recover without help. It does not help to press hard on the card after it is inserted; it must be removed and re-inserted. Several examiners had difficulty, and an AccuPoll representative remained nearby and gave advice about how to insert the card.

    Recommendation: This problem it is not serious enough to deny certification, but I strongly recommend that AccuPoll fix it, because it will create confusion and additional workload at the polls.

18. Although the card reader is labeled with a picture, it is not completely clear which way the card should be inserted. In my opinion, the very best solution is to label one side of the card with arrows and words to indicate which end to insert, and then orient the card reader so that the card is inserted with the label facing up, rather than left or right. Experience with retail readers indicates that users are almost never confused if the label faces up, but frequently confused (even with extensive labeling) by any other orientation.

    Recommendation: This problem it is not serious enough to deny certification, but I recommend that AccuPoll fix it.

19. Accepting a provisional ballot is called *converting* it by AccuPoll.

    Recommendation: This does not affect certification, but I recommend that AccuPoll fix it to avoid confusion and the negative connotations of the word *converting* in this context.