URGENT INFORMATION FOR ELECTION OFFICIALS

VotersUnite! is a non-partisan organization dedicated to accurate elections. We focus on informing election officials, government, the media, and the public about facts surrounding voting systems. Daily, we research voting systems by reviewing national news stories, talking to election officials and other public servants, and interacting with others concerned about election systems.

Four crucial items of information have come to our attention. They are important for local election officials to know, and we have reason to believe they may not have been notified of them. As a public service, we are sending you the information. If any of these items apply to the jurisdictions in your state, we request that you notify the appropriate officials.

----- Serious Bugs in ES&S Software -----

Serious bugs have been found in the software of the ES&S iVotronic voting machines and the Unity accumulation software used in both optical scan and paperless systems. If any counties in your state use these systems, the officials must to be informed of the bugs, so that they know to use the workarounds that apply to them.

1) Two bugs -- first noticed by a county official in Miami-Dade Florida -- affect the audit log. They show up when the batteries in the iVotronic are running low -- a common occurrence.

   To understand the bugs and how they affect the audit information, we recommend reading our summary, which was reviewed and approved by Doug Jones, a University of Iowa computer sciences professor who serves on the Iowa Board of Examiners for voting machines. Read, also the "workaround" Dr. Jones has developed. He has been working with ES&S and the officials in Miami-Dade County to find the cause of the bugs and develop methods of dealing with them that will minimize the impact on the November election.

   Our summary, with relevant links, is here: (http://www.votersunite.org/info/auditbug.asp)

2) The second set of bugs, also found in Miami-Dade, affect the accuracy of the votes tabulated by the Unity software. They seem to impact large counties, but ES&S has denied that they are related to the size of the county. Since the cause of the bugs is not yet known, they may impact all counties using the Unity election management software.

   These bugs may affect the tabulation of votes merged from optical scan equipment as well as from paperless electronic voting machines.

   In an article describing these newly discovered bugs, ES&S has indicated that "the problems could be resolved if the county alters its procedures, reconfigures its software or, if it wants to transmit data from the polling places, redo the programming code in the machines or retrain its staff." (http://www.miami.com/mld/miamiherald/9111841.htm).

----- Ballot Programming and Pre-Election Testing -----

Ballot programming, which is done before each election, determines how the voting machine software interprets and counts the touches on the screen or marks on the optical scan ballots. Known errors in past programming have caused miscounts and have falsely indicated losing candidates to be the winners. Errors have only been caught by comparing the machine tally to a manual audit.

While many ballot programming errors have been detected in optical scan and punch card systems, we have evidence of only one that occurred in a DRE system, and it was detected only because optical scan ballots were also involved. It is only reasonable to assume that many such errors have occurred in DRE systems without having been detected.

Ballot programming is very complicated and must be done uniquely for each of the hundreds of ballot styles in each election. It is so complicated that many counties hire the voting machine vendors to do it. However, since the ballot programming is not independently reviewed, hiring vendors to provide that service is a security risk.

The way ballot programming affects the recording and counting of votes is technical information, not well publicized, and not understood by many election officials. However, it is important for them to understand the significance of errors in ballot programming, the risk involved in having voting machine vendors program the ballots, and the way they can minimize errors. Read an overview of the ballot programming issue here:
(http://www.votersunite.org/info/ballotprogrammingintro.asp)

To provide oversight for the ballot programming and avoid centralized control of the elections, we urge all local election officials to follow these guidelines:

1) **If possible, do not hire voting machine vendors to do the ballot programming.** Hire a local programmer or use elections staff to program the ballots.

2) **Improve pre-election testing.** Testing is crucial, and it is severely inadequate in many counties, especially those that use DREs.

   ♦ **For optical scan machines, create your own test deck, particularly if the vendor does the ballot programming.** Test ballots rarely include every possible combination of votes on every ballot style, so errors can easily go undetected. Make sure the test deck includes as many different ballots of each ballot style as possible.

   ♦ **For DREs, manually enter many, varied ballots of each ballot style and check that the results are as expected.** Self tests on touch-screen voting machines *do not* test the ballot programming, so errors *cannot* be detected. Since meaningful audits are not possible on paperless electronic voting machines, pre-election testing is the only way ballot programming errors can be detected.

3) **Audit optical scanners after the election.** Pre-election testing cannot ensure that the programming is error free. Robust audits of the machines are necessary to ensure that the electronic results are correct. For optical scan machines, we recommend:

   a) Manual recounts:
      --- in 5% of the precincts, randomly chosen after the election is closed.
      --- all races on the ballots in the selected precincts.

   b) If there is a discrepancy between an electronic and manual tally:
      --- use the manual count as the official count.
      --- take appropriate action to ensure that tallies on other ballot styles are correct.
      --- investigate the reason why the pre-election testing did not catch the error.
      --- develop procedures for more robust pre-election testing in the future.

----- Ballot Printing Delays from Vendors -----
Protect the votes of the military and other Americans overseas

Since vendors may be busier than usual printing ballots in the fall, we recommend that local officials who have ballots printed by major vendors consider arranging for an alternate printer in case their vendor is overwhelmed with printing orders.

Ballots printed by both ES&S and Diebold were delivered late in recent primaries and thus caused delays in early voting and absentee voting.

> St. Francis County, Arkansas. May 2004. ES&S did not send the printed ballots in time and delayed early voting by at least a week, according to Judy Armstrong, the county's election coordinator.

> Clayton County, Georgia. July, 2004.Diebold delayed absentee voting by failing to deliver ballots to the county until less than 15 days before the election. According to Cara Hodgson, spokesperson for the Georgia Secretary of State, the delay primarily affected overseas voters.

In addition, there is recent evidence of labor disputes at the Diebold printing plant in Everett, Washington. VotersUnite! has confirmed that this is true, and we urge election officials who have printing contracts with Diebold to develop a fall-back plan in case the problems impact the fall printing schedule.

----- Importance of Backing up Election Data -----

Two computer crashes in Miami-Dade County, Florida erased all the election data from the gubernatorial primary in 2002 as well as other elections including the November 2003 election. The county has now instituted backup procedures for the election data, since the law requires federal election data to be preserved for 22 months and local election data to be preserved for 12 months. (http://www.nytimes.com/2004/07/28/politics/campaign/28vote.final.html)

It is standard practice in the corporate world to back up essential data on removable media, such as floppy disks or CDs. While this practice is important in counties using paper ballots, it is crucial in counties (such as Miami-Dade) that use paperless electronic voting machines. If the local election officials in your state do not have adequate backup procedures in place, we recommend that they establish them immediately and back up data after every election. Ideally, they would create two backups of the data, and one would be preserved off-site for physical safety.