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COMPLETED CERTIFICATION OF AN OPTICAL SCAN VOTE TALLYING SYSTEM

In July 2004 Diebold Election Systems of McKinney, TX requested the review and examination of an optical scan electronic vote tallying system under RCW 29A.12.020, 29A.12.080 and WAC 434-333-107. The hardware and software for this system is marketed under the name GEMS Accuvote-OS (optical scan only).

On August 18, 2004, the Secretary of State provisionally certified the system, pending documentation that the pick-a-party feature had been reviewed and tested by a federal independent testing authority. Diebold has provided all documentation required to instate a full certification of the system tested by this office.

This version of the system consists of:

- *Hardware*. comprised of:
  - Accu-Vote, equipped with an infrared read head,
  - Accu-Vote, equipped with a visible light read head,
  - Accu-Vote, equipped with a visible light read head and Accu-feed unit;

- *Software*. comprised of:
  - GEMS-OS; software version 1.18.23,
  - Accu-Vote firmware, version 1.96.5.

Under the provisions of RCW 29A.12.020, the Diebold GEMS Accuvote-OS System is approved for use in Washington State, as an optical scan system, when used in compliance with the procedures contained in this certification, the accompanying Report and Findings, and Washington State law.

Certified on this July 13, 2005

SAM REED
Secretary of State

REPORT OF THE SECRETARY OF STATE ON THE EXAMINATION AND EVALUATION OF AN OPTICAL SCAN ELECTRONIC VOTE TALLYING SYSTEM

The Secretary of State was informed by Chelan County, King County, Klickitat County and Diebold that their voting system must be modified prior to use in the upcoming partisan primary in order to use their voting systems to meet the requirements of the partisan primary passed in the 2004 Legislative session. In July 2004 Diebold Election Systems of McKinney, TX requested the review and examination of an optical scan electronic vote tallying system under RCW 29A.12.020, 29A.12.080 and WAC 434-333-107. The hardware and software for this system is marketed under the name GEMS-OS Accu-Vote. In addition to the Accu-Vote Hardware component, Firmware Release 1.96.5, the Software that administrates the election definition and election results components of the system is called GEMS (version 1.18.23).

Hardware

The Accu-Vote (Firmware Release 1.96.5) is a poll-site based, hand fed, optical scan ballot card reader. The reader interprets marked ballots and records vote totals onto a credit card sized memory card. The Accu-Vote unit can produce individual precinct reports on-site. The memory card contains a rechargeable battery that allows storage of vote totals without being plugged into the Accu-Vote. Any Accu-Vote machine can be used to read any memory card and produce reports. An Accu-Vote machine, attached via serial cable to the central server running GEMS is used to download and program the memory cards.

The Accu-Vote is equipped with a reader head which uses either infrared light or visible light to scan the ballot. Accu-Votes equipped with the infrared reader head are capable of reading only marks containing graphite such as those made by a #2 pencil. Visible light Accu-Votes can read marks made by a wide spectrum of marking devices with the exception of a range of red ink.

Each Accu-Vote being used as precinct counter at the polling place can be outfitted with an internal PCMCIA modem or connected via serial port to an external modem. The machine can be programmed to automatically call the GEMS server and report precinct ballots. However, the Accu-Vote must first be closed for voting and then removed from the ballot box, used to house the device while voting is occurring, in order to connect it to a telephone line.

The Accu-Vote central count system is a collection of Accu-Vote optical scan ballot card readers equipped with Accu-feed devices and connected by network to a central server. Ballots are processed in batches. Each batch is identified by a batch header card which precedes the ballots through the reader. Each reader sends an "image" of the ballot to the server which interprets the marked ballots, and records vote totals in the batch. After all of the ballots in a batch are read,

an "ender" card is put through the reader which marks the end of the batch, and queues the batch for posting to the database. Each Accu-Vote unit produces a log of each batch it processed. Any Accu-Vote machine can be used to read any batch of ballots.

The central server runs the Global Elections Management System (GEMS) and receives the ballot images sent from the Accu-Vote central count readers, interprets them and creates the queue for posting batch totals to the database. The server also functions as the central accumulator for polling place results. Results from the polling places can be uploaded to the server from an Accu-Vote reader directly connected with a serial cable connection or through a telephonic connection.

Software

The GEMS software (version 1.18.23) is menu driven and allows the user to describe all aspects of an election. In preparation for ballot counting, the user enters office descriptions, positions, precinct combinations, ballot types, and any statistical information such as registered voter totals. GEMS is used produce and download the precinct specific programming. GEMS also posts the central count batch totals to the database, posts the precinct totals from the polling places to the database, and reports the election results in a variety of formats including; cumulative results, precinct detail, and abstract reports.

RCW Requirements

An electronic vote tallying system must meet the following requirements (as set forth in RCW 29A.12.100) in order to be approved for use in Washington State:

1. It must correctly count votes marked on the ballot for any office or ballot proposition;

2. It must recognize and not count overvoted ballots;

3. It must accumulate a count of a specific number of ballots tallied for a precinct;

4. It must accommodate the rotation of candidates' names;

5. It must automatically produce precinct totals in either printed, marked, or punched forms; and

6. It must add precinct totals and produce a cumulative total.

Provisional Certification Requirements

Under provisions of WAC 434-333-107, the vendor must receive federal

certification from the independent testing authorities for a version of their software that incorporates the modifications covered under this certification as early as possible in 2005 but no later than July 15th, 2005. The vendor must successfully complete an application for a new certification with the Secretary of State before this system may be used in federal elections in Washington State after the 2004 elections.

The county using this system under the provisions of WAC 434-333-107 must also conduct a post election logic and accuracy test of this system under this provisional certification.

Public Hearing

On August 11th and 12th, 2004 a public hearing was held at King County to test the Diebold's optical scan electronic vote tallying system. Representing the Office of the Secretary of State was Nick Handy, State Elections Director, Pam Floyd, Voter Services Manager and Paul Miller, Elections Information Manager. The meeting was also attended by Dean Logan, King County Director of Records and Elections, staff members of the King County Elections office, members of the media and public, and representatives from Diebold. A series of functional and volume/stress tests were performed using mock elections simulating the Washington partisan primary and general election. The mock elections were conducted using a large volume of defined ballots simulating the conditions of this fall's elections prepared at the direction of the Office of the Secretary of State.

FINDINGS OF THE SECRETARY OF STATE

Upon review of the staff evaluation of the Diebold GEMS-OS System using the Accu-Vote, the presentation by the vendor, the evaluation of the system conducted by Ciber laboratories in 2004 and the results of the tests performed on this system, the Secretary of State finds that the system satisfies the requirements of RCW 29A.12.080 and WAC 434-333-107 when used in the manner described in the Report and the special procedures below.

Special Early Voting Procedure:
The design of the Accu-Vote, and the requirements of Washington State law, necessitate the use of the following procedures on the part of the user county to use the Accu-Vote as an 'early voting' system. 'Early voting' refers to voters who cast a ballot on the Accu-Vote prior to the election date. Conceptually this is the same as a voter picking up and casting an absentee paper ballot at the county elections office prior to an election.

The procedures are:

The system may be used as an 'early voting' system if the security safeguards applied to the Accu-Vote are consistent with those used to protect returned absentee ballots. The memory card must capable of storing all the precincts and ballot styles that will be used in the upcoming election. Access to the Accu-Vote must be controlled and only deployed in the County's Elections office. The device must remain in plain view of the office at all times during working hours and under lock and seal after business hours. The Accu-Vote voter must sign the same oath an absentee voter does and the user county must maintain a log of all 'early' voters with the voters' signatures. The poll books must be marked with an indicator that warns the poll worker not to issue a ballot to a voter who has voted early. It is also recommended that the user county keep a record of the number of votes cast each evening when they close the Accu-Vote and confirm the number of votes on the device when opening the device the next morning. It is further recommended that the memory card be kept separate from the Accu-Vote after hours.

Post-Election Logic And Accuracy Test
Due to the provisional nature of this certification, the county using this system will be required to conduct a special logic and accuracy test or audit of their system after election day but before certification of the election. (ref. WAC 434-333-107).

Number Of Central Count Readers
The 1998 certification of the Diebold central count system specified a maximum of sixteen Accu-Vote counters be connected to the central count server at any one time. The Secretary of State has determined that the restriction should be

removed from the conditions of certification. It is the responsibility of the county to adequately test to determine that any system as configured or upgraded in their county will perform to their needs before accepting that system or upgrade. It should be noted that the testing conducted at King County successfully ran tens of thousands of ballots through forty readers connected to the central server without incident.

Use Of Infrared Readers

As the Accu-Vote readers equipped with infrared read-heads are only capable of reading graphite marks, the use of infrared readers will be only at the polling place where the county can provide special marking devices best suited for the devices. Visible light readers may be used for absentee ballots and polling place ballots.

Absentee Ballot Procedures

Due to the inability to control the marking devices used by absentee voters, counties may only count absentee ballots using Accu-Vote readers equipped with the visible light read-heads which read a wide range of markings. In addition, due to the reading characteristics of optical scan readers, the county must manually inspect each absentee ballot for any markings that the reader won't "see". This includes the ballots where the voter used marking devices in the designated marking area that don't conform to the manufacturer's specifications. The county will also inspect for consistent indications of voter intent where the markings do not conform to the marking areas defined by the ballot.