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

In March of 1998 Global Elections Systems Inc.(Global) of McKinney, Texas requested the review and examination of enhancements to a Washington State certified optical scan/mark sense central count ballot card reader system under RCW 29.33.041 and 29.33.300. The hardware and software for this system is marketed under the name Global Accu-vote 2000 and GEMS. The ballot reader hardware and software for this system were previously certified for use in Washington State under the Accu-vote 2000 name and Vote Tallying System (VTS) software. The VTS Software that runs the system has been rewritten as the Global Election Management System or GEMS.

The Accu-vote central count system is a collection of Accu-vote 2000 optical scan/mark sense 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, after all of the ballots in the batch are read an "ender" card is put through the reader, this marks the end of the batch. The reader interprets marked ballots and records vote totals in the batch which is then uploaded to the central server for storage. Each batch is maintained on the server and can be examined and replaced if necessary. Each Accu-vote unit produces a log of each batch processed. Any Accu-vote machine can be used to read any batch of ballots and produce reports.

Printers may be attached to the central server for result printing and continuous log printing. Results and logs may be printed using any standard PC compatible printer.

The GEMS software 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 to produce and download the precinct specific programming.

The server running GEMS can also serve as the central accumulator for county wide results precinct results. GEMS can accumulate results via reading SRAM memory cards or through telephonic communication. Each Accu-vote being used as a precinct counter 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 PC and report precinct ballot totals.

To properly mark an Accu-vote ballot the voter must fill in an oval that is adjacent to their choice. Like all optical scan balloting systems the Accu-vote system cannot detect improperly marked ballots. If a voter has voted their ballot in a manner other than filling in the oval response area, such as circling the candidate name, the machine will likely not detect the voter's preference.

An electronic vote tallying system must meet the following requirements (as set forth in RCW 29.33.300) 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.

On August 10, 1998 a public hearing was held to demonstrate the Global Accu-vote central count system. Representing the vendor were Sophia Lee, Slavica Milanovic, and Icten Yalin. Representing the Office of the Secretary of State was David Elliott, Assistant Director of Elections. The meeting was also attended by Ann Moses and Paul Miller staff members of King County Records and Elections The vendor made a presentation of the Global system and a test election was conducted using a group of test decks prepared by the vendor. The vendor answered questions from the Secretary of State staff and the public. Subsequently, a stress test was held on August 31, 1998 in which 16 accu-vote machines were operated simultaneously. Enough ballots were processed through the system to reach a total number of votes interpreted of 1,120,000. There were no errors.

FINDINGS OF THE SECRETARY OF STATE

Upon review of the staff evaluation of the Global elections Accu-vote 2000 central count vote tallying system, the presentation by the vendor, the evaluation of the system conducted by WYLE laboratories prior to 1997 and the results of the tests performed during and following the public hearings on this system, the Secretary of State accepts the enhancement to the Accu-vote system and provisionally accepts the rewritten GEMS software under RCW 29.33.300 when used in the manner described below.

This system does not have the capability to automatically detect write-in votes on a ballot in a manner consistent with Washington State law. In order to record a write-in vote using the Accu-vote system, a voter must fill-in an oval next to the write-in blank in addition to writing in the name of the candidate of their choice. WAC 434-62-160 states that the Canvassing Board shall exercise all reasonable efforts to determine the voter's intent, therefore the voter need only specify the name of the candidate, and the candidate's party in the appropriate location on the ballot in order to be counted.

A voter, using this system, that writes-in a candidate name but fails to fill-in the oval next to the write-in blank, will not have a write-in vote recorded by the machine. An additional potential problem exists; if a voter votes for a candidate by filling in the oval next to the candidate's name, and also writes in a name in the write-in blank, but fails to fill in the oval next to the write-in line. This may be considered an overvote by some county canvass boards, but the Accu-vote system will incorrectly record a vote for the regular candidate. A manual inspection for write-in votes must be made of every ballot.

A second potential problem is the voter that uses an incorrect marking tool to mark the ballot. The machine will not read all types and colors of ink. Inspection should be performed on each ballot to insure that black ink, or an ink or pencil that provides high contrast with the ballot color, was used by the voter in marking the ballot.

Additionally, the machine only scans the ovals next to the candidate name looking for votes. If a voter marks the ballot in a manner inconsistent with the function of the machine (for example, they mark the ballot by circling candidate names), the machine will fail to record an otherwise valid vote. A visual inspection of each ballot looking for odd marks will solve this problem.

The design of the Accu-vote reader, and the requirements of Washington State law, necessitate the use of special procedures on the part of the user county to assure proper tallying and results.

The procedures are as follows:

1)The system may be used as a central counting system if each ballot is manually inspected before tabulation. The inspection should look for write-in votes that do not have filled-in ovals next to them, improperly marked ballots, and ballots marked with non standard marking colors. Additionally, each batch of ballots processed must be of a enumerated before counting. After processing by the Accu-vote reader the batch enumeration should be confirmed on both the Accu-vote reader log and on the Central Server console before the batch is accepted for certification. It is recommended that the canvassing board of any county using this system adopt written procedures governing this process; or

2)The system may be used as a poll site tabulation device if all ballots are inspected during the period subsequent to the election and prior to certification. The inspection of each ballot will be made to find any write-in votes that do not have the accompanying filled in oval, improperly marked ballots, and ballots marked with non standard marking colors. Election results must be updated to include any additional write-ins and adjust totals for any ballot that is found to be an overvote and not a valid vote for a candidate. It is recommended that the canvassing board of any county using this system adopt written procedures governing this process; or

3)The system may be used as a poll site tabulation device if all ballots are inspected by election board workers prior to tabulation. The voter would not feed his/her ballot to the Accu-vote. The voter would place his/her ballot in either a sealed ballot box, the emergency bin on the front of the ballot box, or other container. Ballots would accumulate this way while the polls are open. After closing the polls for the day the ballots would be inspected as a group, thus preserving voter anonymity. The inspection would search for write-ins that lacked the accompanying filled-in oval, improperly marked ballots, and ballots marked with non standard marking colors. The reader would then be activated and all ballots counted. It is recommended that the canvassing board of any county using this system adopt written procedures governing this process.

A county intending to use the telephonic functions of the Accu-vote system must perform a reconciliation of the results prior to certification. This may be accomplished by either performing a direct reading of the SRAM card into the GEMS PC, or by proof read verifying the precinct results recorded in GEMS against the printout created by the Accu-vote at the close of voting before telephonic transmission.

Under the provisions of RCW 29.33.041, the enhanced Accu-vote central count vote tallying system, and the rewrite into GEMS of its associated software are provisionally approved for use in Washington State, as an optical scan/mark sense electronic central count vote tabulation system, when used in compliance with the procedures contained in this certification and Washington State law. The maximum number of readers that may be used in the central count network is 16 as per the test of the system. This certification of the GEMS software will become permanent provided that Global elections systems applies for and pursues certification of the GEMS software with the appropriate FEC approved ITA prior to June 1, 1999.

It is recommended that the canvassing board of any county using this system adopt written procedures governing these processes. This equipment should be used with a device or devices capable of suppressing current surges, voltage fluctuations, and any other line disturbances.

Certified on this September 14, 1998

RALPH MUNRO
Secretary of State