

Sequoia Voting Systems Request for Reconsideration

January 16, 2007

*via electronic mail; hand delivery to follow
13 pages*

The Honorable Mike Coffman
Colorado Secretary of State
1700 Broadway, Suite 250
Denver, CO 80290

Re: Request for Reconsideration of the December 17, 2007 Decision regarding the voting systems of Sequoia Voting Systems, Inc.

Dear Secretary Coffman:

Pursuant to C.R.S. § 1-5-621(6), Sequoia Voting Systems submits this request for reconsideration of the December 17, 2007 decision to decertify the Sequoia Voting Systems **EDGE 2 Voting Machine with Card Activator** and the December 17, 2007 decision to recertify with conditions the Sequoia Voting Systems **WinEDS Election Management System, Central Count Scanner (400-C), HAAT50, and Precinct Count Scanner (Insight/Insight Plus)**. It is the opinion of the Sequoia Voting Systems that the factors/deficiencies relating to the decertification of the EDGE 2 Voting Machines are due to the Test Board's lack of familiarity with Sequoia products. The lack of familiarity was a disadvantage to Sequoia's products and led to erroneous conclusions leading to those decertification decisions. We also assert that the recertification conditions associated with the use of the Central Count Scanner (400-C), Insight/Insight Plus, and WinEDS Election Management System are constructively a decertification of this equipment in that such conditions are impossible, impractical, and unreasonable. Sequoia Voting Systems requests that the Colorado Secretary of State recertify the Sequoia Voting Systems voting equipment and remove or modify all conditions placed on the certified voting systems to allow the Sequoia customer base to perform their statutory duties in relation to the 2008 elections. The following matters should be considered by the Secretary of State as part of the reconsideration process:

PART ONE: RECONSIDERATION OF THE DECISION TO DECERTIFY SEQUOIA VOTING SYSTEMS EDGE 2 VOTING MACHINE WITH CARD ACTIVATOR.

Sequoia wishes to address the first two of the three comments regarding the Edge 2 DREs from your letter of December 17th. In the letter, you describe the primary reasons for decertifying the Edge2 as: "Failure for the device to operate in a secured state requiring passwords, and failure to provide auditable data to detect security violations." In response, Sequoia states:

1. The FEC 2002 Voting Systems Standards, to which these units are certified at the Federal level do not require the DRE to have a password.
2. The audit related restrictions regarding the Edge2 stated in the Test Board report, also dated December 17th, section page 6 references only these two following Rule 45 items:

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- 45.5.2.5.3 The voting system shall track and maintain audit information of the following voting system application events:
- Log on and log off activity.

Regarding the comment for 45.5.2.5.3, the Edge 2 DRE does not provide log on and log off activity monitoring because, as noted, there is no password related log on/log off capability. This restriction is thus an obvious cascade from the lack of a password for the DRE. As the voter has no capability to perform administrative functions, and the pollworker has very limited Election Day related maintenance functions, one could argue that a log on capability is unneeded. In fact, the Test Board could have recommended that the jurisdiction secure the unit via a lock and key. Log on passwords and physical keys have the same security related strengths and weaknesses. Both are given only to authorized persons. Both can be given away by those authorized persons. Both can be lost, requiring the jurisdiction authority to replace the lost physical key or reset the log on password. The Secretary can comfortably and successfully mitigate the concern regarding log on passwords by requiring a lock on the hard shell case of the Edge2. The hard shell case is already amenable to this added physical security.

Regarding 45.5.2.5.5, "If a vote tabulation device employs the use of removable memory storage devices, the devices shall allow for an alternate method of transfer of audit records if the device and/or memory storage device is damaged or destroyed." The situation that this portion of Rule 45 attempts to mitigate (loss of either the DRE unit or its corresponding memory card) has never been an issue across the over 30,000 Edge 2 units deployed for many years, some since 2001. The Test Board agreed that if the memory card is lost, its information can be obtained from the Edge 2 unit from which the information is derived. Of the two possible scenarios, loss of memory cards or loss of an Edge 2 unit, obviously the smaller memory card is easier to lose. As stated above, the Edge 2 unit is at present programmed to, and capable of, rectifying a lost memory card situation.

The restrictions cited in the Test Board report from 17 December relative to the Edge2 Direct Record Electronic (DRE) voting machine can be grouped into documentation and functional classifications:

Functional Related Restrictions

Although difficult to assign to a particular Restriction as listed in the Certification Report, the Edge2 has been cited by the Secretary (letter dated 17 December) as having inability to "ensure all electronic records have corresponding VVPAT records." This is the third of the three items on the Secretary's letter of December 17th. The Test Board was later asked about the reasoning for this, and the Board cited the alleged lack of a VVPAT printer test utility when the Edge2 is in a polls open status. The Test Board continued to state their belief that the lack of a printer test utility could allow for an undetected improper change of VVPAT paper, leading to improperly printed VVPAT records. As demonstrated by Mr. Ed Smith of Sequoia Voting Systems to members of the Test Board on December 21st, there is in fact a specific procedure and existing programmed capability in the Edge2 version under consideration (version 5.0.31 as federally certified) to perform a printer test immediately after

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VVPAT paper is changed. This capability mitigates the Test Board's stated concern and thus should not enter into the Secretary's decision regarding the Certification status of the Edge2 with Card Activator. Sequoia does note that the procedure provided to the Test Board initially did not reference the specific concern raised in your letter to Sequoia and Test Board members would have needed to infer from the documentation provided initially that one could perform a printer test to verify proper VVPAT function after a paper change.

Documentation Related Restrictions

The Test Board cites a number of documentation related issues regarding the Edge2, as well as other equipment that was conditionally certified. The Sequoias reject the majority of these comments as erroneous. Attached to this Request is a sample of three documents that were provided to the Test Board, although cited as not having been provided at all. The documents, the applicable Rule 45 clause, and date submitted are as follows:

- **“Processing Requirements”** - Page 4, section title: AVC Edge 5.0; Rule 45 clause: 45.5.2.2.3. The voting system provider shall publish and specify processing standards for each component of the voting system as part of the documentation required for certification; submitted October 5th 2007. Note that this document is cited as lacking across multiple portions of the voting system. As this document is divided into sections applicable to portions of the voting system (400C, Insight, etc) we find this odd.
- **“3M touchscreen film Edge2”** - All pages, but particularly “minimum contact”, “operating temperature” and “humidity” all on page 2; Rule 45 clause: 45.5.2.3.13: All DRE voting devices shall use touch screen technology or other technology providing visual ballot display and selection. The voting system provider shall include documentation concerning the use of touch screen or other display and selection technology, including but not limited to:
 - (b) Technical documentation describing the nature and sensitivity of any other technology used to display and select offices, candidates, or issues; submitted 5 October 2007.
- **“Accessibility – AVC Edge 5.0”** - Page 3; Rule 45 clause: 45.5.2.8.2 requires Sequoia to provide documentation regarding the “Technology used by the voting system that prevents headset/headphone interference with hearing aids”. Sequoia did place a statement in the referenced accessibility document. Note that federal standards require testing for this to ANSI standard C63.19: “American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.” This National Standard encompasses both methods of measurement and definitions of limits for establishing hearing aid compatibility and the accessibility of wireless communications devices to wearers of hearing aids. The Test Board should have accepted the statement in the document provided, as Sequoia does not supply wireless headphones or other audio devices.

Similarly, Sequoia Voting Systems believes that through other documentation provided by Sequoia and by the federal testing labs, the Secretary's requirement for documentation

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regarding the Edge2 with Card Activator (as well as all other portions of the voting system submitted for certification under this Application) is substantially met and met far more adequately so than the Test Board's Report would indicate.

If the determination is made that the conditions on the certified voting systems are to remain in place, we ask that the Colorado Department of State reconsider the following conditions placed on the EDGE 2 Voting Machines:

1) EXTERNAL BATTERY BACKUP (UPS) DEVICES REQUIRED. INSUFFICIENT INTERNAL POWER RESERVES TO SUSTAIN MINIMUM 3 HOUR CONTINUOUS OPERATION. COUNTIES SHALL PURCHASE AND USE AN EXTERNAL POWER SUPPLY THAT MEETS OR EXCEEDS THE VENDOR'S RECOMMENDATION FOR THE COMPONENT.

SEQUOIA'S RESPONSE:

The batteries for the EDGE 2 last two hours, which is the federal testing standards mandate and it is Sequoia customers' position that the federal standards are sufficient.

6) ACCESSIBLE DISTANCES.

OPERATORS OF THE SYSTEM SHALL BE REQUIRED TO PROVIDE AN ACCESSIBLE SOLUTION BY OPERATING THE DEVICE ON A SEPARATE TABLE. THE MANUFACTURER'S STAND DOES NOT MEET ACCESSIBLE REACHES AS OUTLINED IN 1-5-704. COUNTIES SHALL BE EDUCATED ON THESE MEASUREMENTS AND ENSURING THAT THE TABLE TOP SOLUTION COMPLIES WITH THE REQUIREMENTS.

SEQUOIA RESPONSE:

A practical workaround for this condition is to provide a pointer to any voter who is unable to get close enough to the voting machine to vote. Denver County deployed pointers with the EDGE 2 during the 2006 Primary and General Elections. The Chicago Board of Election Commissioners also deployed pointers in their elections. Voter feedback regarding the pointers was very positive in both jurisdictions.

9) DEVICE SECURITY ACCESSIBILITY.

A) THE "OVERRIDE.INI" FILE MUST NOT BE USED WITH THE VOTING SYSTEM. THE FILE IS NOT A VSTL-APPROVED FILE, AND POSES POTENTIAL FOR SECURITY THREAT (DENIAL OF SERVICE IN PARTICULAR).

SEQUOIA RESPONSE:

The override.ini file is used to allow for non-default language audio and images, typically to meet second (non-English) language and State specific verbiage requirements on the screen display or the VVPAT tape. The County recommends the Secretary allow use of a statewide standard override.ini file. Since the file is a text file, its contents are easily inspected and audited at any place in the election cycle. A standard file allows for the Colorado specific verbiage on the VVPAT tape for the election judge signatures, as well as the fulfillment of Condition 8 for VVPAT review instructions. A standard file issued by the Secretary, and

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audited during the election cycle mitigates concerns over its misuse. Sequoia disagrees with the contention that override.ini could be used for a denial of service attack. Its function is too limited for this; and the file is under control of the jurisdiction. Furthermore, WinEDS and the EDGE 2 were federally certified with this file included. If the override.ini file is not allowed to be used, then condition eight regarding instruction text must be changed to allow for polling place signage, since changes to default text derive through the override file. A copy of the specification document provided to the Test Board on July 26th is attached to this Request.

B) DEVICES DEPLOYED IN COLORADO SHALL REQUIRE A “LOCKABLE” ACTIVATE BUTTON. THE BUTTON SHALL BE PROTECTED WITH A TAMPER EVIDENT SEAL. THIS FORM OF ACTIVATION SHALL NOT BE USED IN THE VOTING ENVIRONMENT. ONLY ACTIVATION BY VOTER ACCESS CARD USING THE CARD ACTIVATOR AS TESTED.

SEQUOIA’S RESPONSE:

Sequoia customers would like to have the option to activate the EDGE voting machine manually or otherwise secure the ACTIVATE button against malicious voters who would attempt to damage or exploit the button. The activate button can be secured by stationing an election judge behind the voting machines at all time to ensure that no one has access to the activate button. Alternatively, the ACTIVATE button can be sealed with the robust yellow hinged cap supplied by Sequoia. This one piece hinged hard plastic cap possesses an integral loop for use with a wire tamper evident seal (like the seals placed on a natural gas meter). Combined with two-person logging, this solution provides suitable security over the button. If the perceived threat is a voter self-activating the Edge unit and thus voting multiple times, a sealed cap over the button precludes this unlawful behavior. The Test Board deny the applicability of this solution by pointing to the ability to penetrate the hard plastic cap with an X-Acto knife (which Sequoia finds difficult to believe, at best). At any rate, the Test Board’s recommendation is not supported by a stated or valid security threat to the Edge. The question becomes, are we collectively attempting to guard against a voter utilizing the ACTIVATE button to vote multiple times, or are we attempting to guard against a voter wielding a knife to attack the voting machine? If the latter, then where did this threat model derive? Is it accepted across the industry (as evidenced by polling place reports or EAC publications?) How did the other voting systems tested fare when an X-Acto knife was utilized to attack them, as there is no reference to this type of unique testing in other vendors’ Test Reports? To summarize: what is the real purpose of securing the ACTIVATE button? Sequoia submits that the hard plastic hinged cap meets any reasonable requirement for security and that the Secretary should consider this in a certification decision.

C) DEVICE LEVEL ADMINISTRATIVE FUNCTIONS REQUIRING ACCESS INVOLVING THE USE OF KEYS, MEMORY CARDS, AND PASSWORDS MUST BE RESTRICTED TO SINGLE PERSON ENTRY WITH DETAILED LOGS.

SEQUOIA’S RESPONSE:

Sequoia Voting Systems requests this condition be modified to allow two people access to device level administrative functions. Best business and information security practices always suggest having two people have access to secure areas. The International Standard for

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Information Security Management (ISO 27001) devotes an entire clause to segregation of duties, further evidence that single person access is not appropriate for secure election practices. There is no redundancy with single person access. If something should happen to the sole person with access, voting operations could be crippled.

ADDITIONAL REQUESTS FOR THE EDGE 2

The EDGE 2 was submitted to the Colorado Department of State for certification with the Card Activator. IF the EDGE 2 is certified upon reconsideration, Sequoia Voting Systems requests the ability to use the HAAT 50 with the EDGE 2 as well. All four Colorado Counties using Sequoia equipment already have an inventory of HAAT 50s. Each county has used the HAAT 50 with the EDGE 2 in previous elections and have not experienced any issues with the HAAT incorrectly activating the EDGE 2.

PART 2: REMOVE OR MODIFY CONDITIONS PLACED ON CERTIFIED VOTING SYSTEMS.

As noted above, it is our opinion that the Colorado Secretary of State has exceeded his statutory authority by including conditions in the certification of voting systems. Also as noted above, this objection should in no way be understood to mean that Sequoia and the counties submitting this appeal are not totally committed to ensuring the security and integrity of the voting process.

Regarding Restrictions to WinEDS:

45.5.2.2.3 The voting system provider shall publish and specify processing standards for each component of the voting system as part of the documentation required for certification.

45.5.2.4.1 In addition to other documentation requirements in this rule, the voting system provider shall provide the following documents:

(e) A list of minimum services needed for successful, secure and hardened operation of all components of voting system.

45.5.2.5.2 The voting systems shall include detailed documentation as to the level, location, and programming of audit trail information throughout the system. The audit information shall apply to:

- (a) Operating Systems (workstation, server, and/or DRE);
- (b) Election Programming Software;
- (d) Election Result Consolidation and Reporting.

45.5.2.6.1 All voting systems submitted for certification shall meet the following minimum system security requirements:

(d) The voting system shall meet the following requirements for operating system security:

(iv) The voting system provider shall provide documentation containing a list of minimum services and executables that are required to run the voting system application;

Processing Requirements (standards), Event Log (aka audit log), and a list of services to be disabled for a secured system were provided to the Test Board on or before October 5th, 2007 (“Processing Requirements”, “Event Log Information”, and Environmental Hardening

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Requirements- WinEDS”, page 16). We thus find the conclusion by the Test Board that “Documentation was not provided by the voting system vendor...” to be most concerning.

If the determination is made that the conditions on the certified voting systems are to remain in place, Sequoia Voting Systems requests the Secretary of State to reconsider the following conditions placed on the voting machines that were conditionally certified for use on December 17, 2007:

1. SOFTWARE CONDITIONS

1B) IN ADDITIONAL TO PHYSICAL ENVIRONMENTAL CHANGES, COUNTIES SHALL CREATE A SECOND (OR BACKUP) COPY OF THE WINEDS DATABASE THAT IS CREATED IMMEDIATELY AFTER THE POINT OF MEMORY CARD DOWNLOADS. THE BACKUP COPY SHALL BE STORED ON CLOSE CD MEDIA AND DOCUMENTED AS MATCHING THE MASTER DATABASE. THIS PROCESS SHALL BE OBSERVED BY TWO ELECTION STAFF MEMBERS. CHAIN OF CUSTODY DOCUMENTS SHALL BE GENERATED FOR THE MEDIA, AND THE MEDIA SHALL BE SEALED WITH AT LEAST TWO TAMPER EVIDENT SEALS STORED IN A SEALED OR LOCKABLE TRANSFER CASE THAT IS STORED IN A LIMITED ACCESS AREA. AFTER THE CLOSE OF POLLS, THE DESIGNATED ELECTION OFFICIAL SHALL LOAD THE SEALED COPY OF THE DATABASE ONTO THE SERVER AND PROCEED WITH UPLOADING MEMORY CARDS AFTER DOCUMENTING THE LOADING TO THE BACKUP MASTER DATABASE WITH SEALS (UPDATING NECESSARY LOGS) IN THE LIMITED ACCESS LOCATION.

SEQUOIA’S RESPONSE:

There should not be any modification to the server once the election has been setup and memory cartridges have been created. Reinstalling the copy of the database at any time after this point only invites opportunities for error, especially considering the all of circumstances, operations and conditions on election night. The physical environment around the server is in strict compliance with SOS Rule 43, which should mitigate any concerns over a potential “attack” on the system.

However, if the determination is made that more quality control is needed, Sequoia Voting Systems suggests moving this process from election night to the time period during the post-election audit, to be completed before the canvass. The escrowed copy of the election database could be loaded on the server and the memory cartridges uploaded at that time. Allowing more time for this process would ensure that it is done correctly. It also adds transparency to the process as the canvass board would be able to monitor this process on-site.

1C) ADDITIONALLY, TO OVERCOME DEFICIENCIES IN SECURITY AND AUDITING OF THE SYSTEM, THE COUNTY WILL BE REQUIRED TO PERFORM INCREASED ELECTION NIGHT AND POST ELECTION AUDITS FOR THIS SYSTEM. ALL POST ELECTION AUDIT DATA SHALL PROCESS A HAND COUNT OF PAPER BALLOTS WHICH SHALL MATCH THE TOTALS REPORT FROM THE SPECIFIC DEVICE, AS WELL AS THE TOTALS FOR THE WINEDS DATABASE. COUNTIES SHALL PREPARE FOR THIS EVENT WITH ONE OF TWO METHODS:

OPTION #1 – PREPARE FOR THE UPLOAD OF MEMORY CARTRIDGES AS NORMAL. PRINT NECESSARY ZERO REPORT. UPON UPLOADING EACH INDIVIDUAL MEMORY CARD, PRINT A

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SUMMARY REPORT SHOWING THE CHANGE IN TOTALS FROM THE UPLOAD OF THE MEMORY CARD. LABEL THE REPORT TO MATCH THE NAME/NUMBER OF THE MEMORY CARD UPLOADED. CONTINUE TO UPLOAD MEMORY CARDS AND PRINT TOTALS REPORTS TO MATCH. WHEN AUDITING A SPECIFIC DEVICE, USE THE DIFFERENCE BETWEEN THE REPORT TOTALS FOR THE MEMORY CARD SELECTED FOR THE AUDIT AND THE TOTALS FROM THE IMMEDIATELY PRECEDING MEMORY CARD REPORT TO CALCULATE VOTE TOTALS GENERATED BY THE WINEDS SOFTWARE. WHEN MEMORY CARDS ARE DELIVERED TO THE COUNTY FOR UPLOAD, THE MACHINE GENERATED REPORT SHALL BE DELIVERED FOR INSPECTION AS WELL. ON ELECTION NIGHT, WHEN THE SUMMARY REPORT INDICATED ABOVE IS CREATED, THE DIFFERENCE TOTALS (DELTA REPORT) ARE IMMEDIATELY COMPARED TO THE TOTALS FROM THE REPORT GENERATED BY THE DEVICE AT THE POLLING PLACE. IF THE REPORTS MATCH, THE PUBLIC IS ENSURED THAT THE TOTALS FROM THE POLLING PLACE MATCH THE TOTALS FROM THE COUNTY SERVER. IF THE TOTALS ARE DIFFERENT, THE COUNTY IS TO REPORT THE SITUATION (ON ELECTION NIGHT) TO THE SECRETARY OF STATE FOR AUDIT, SECURITY AND REMEDY PROCEDURES. DURING THE POST ELECTION AUDIT PROCESS, THE TOTALS OF THE PAPER RECORD FOR THE SPECIFIC DEVICE ARE TO BE HAND COUNTED AND VERIFIED AGAINST THE ELECTRONIC RECORD FOR THE DEVICE. THE CANVASS BOARD SHALL REPORT THE VERIFICATION OF THREE TOTALS TO MATCH – THE PAPER RECORD OF THE DEVICE, THE TOTALS OF THE ELECTRONIC VOTE ON THE DEVICE, AND THE TOTALS IN THE CENTRAL COUNT SERVER; OR

OPTION #2 – PREPARE FOR THE UPLOAD OF MEMORY CARTRIDGES BY CREATING ONE MASTER DEFAULT DATABASE (CONTAINING ALL MEMORY CARDS/CARTRIDGES). CREATE INDIVIDUAL DATABASES TO CONTAIN VALUES (UPLOAD DATA) FOR EACH SEPARATE MEMORY CARD (OR IN SOME INSTANCES BY BATCH OF BALLOTS – SEE CONDITION #4B UNDER CENTRAL COUNT DEVICES. UPLOAD MEMORY CARD/CARTRIDGES INTO MASTER DATABASE, AND INTO THE SPECIFIC DATABASE CREATED FOR THAT MEMORY CARD (TWO SEPARATE UPLOADS). THIS PROCESS MUST HAPPEN ON ELECTION NIGHT AND WITH OBSERVATION BY AT LEAST TWO PEOPLE. ELECTION SUMMARY REPORTS SHALL BE PRINTED FROM EACH INDIVIDUAL DATABASE AND MANUALLY ADDED TOGETHER. THE TOTALS FROM THE INDIVIDUAL DATABASES MUST MATCH THE MASTER DATABASE BEFORE PROCEEDING. UPON VERIFICATION THAT THE MASTER AND INDIVIDUAL DATABASES MATCH, THE COUNTY CAN THEN USE THE INDIVIDUAL REPORTS TO CONDUCT A HAND COUNT OF THE PAPER BALLOT (OR PAPER RECORD) GENERATED BY THE DEVICE TO SHOW THAT THE WINEDS TOTALS MATCH. THE VERIFICATION OF THE SEPARATE UPLOAD DATABASES VERIFY THAT THE DATABASE TOTALS MATCH THE FIELD TOTALS ON EACH MEMORY CARD DEVICE, AS WAS DESIGNED AFTER THE POINT OF LOGIC AND ACCURACY TESTING TOOK PLACE.

SEQUOIA'S RESPONSE:

To complete this process on election night would be too cumbersome. Any concerns regarding attacks on the system are mitigated by the physical environment around the server, which is in strict compliance with SOS Rule 43.

However, if the determination is made that more quality control is needed, Sequoia Voting Systems suggests moving this process from election night to the time period during the post-election audit, to be completed before the canvass. The escrowed copy of the election

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database could be loaded on the server and the memory cartridges uploaded at that time. After each memory card is uploaded to the database, a report could then be run to show the difference in the vote tally. Allowing more time for this process would ensure that it is done correctly. It also adds transparency to the process as the canvass board would be able to monitor this process on-site.

7) ELECTION DATABASE CREATION AND TESTING. THE SYSTEM RELIES HEAVILY ON AN EXTERNAL PROGRAM CALLED BPS WHICH TYPICALLY IS USED FOR IMPORTING THE BALLOT SETUP PROCESS INTO WINEDS. SINCE THIS PROGRAM IS TO BE CONSIDERED NON-TRUSTED AND IS NOT THIRD PARTY AS IT IS MADE BY THE VOTING SYSTEM MANUFACTURER, THE PROGRAM SHALL ONLY BE ABLE TO RECEIVE DATA FROM WINEDS. WINEDS SHALL NOT BE USED TO IMPORT DATA FROM BPS. ADDITIONAL TESTING WILL THEREFORE BE REQUIRED BY COUNTIES FOR BOTH ELECTRONIC AND PAPER BALLOTS TO ENSURE ALL VOTING POSITIONS ARE WORKING AS DESIGNED PRIOR TO EACH ELECTION. THIS SHALL INCLUDE ORDERING A COMPLETE SET OF AT LEAST 5 BALLOTS OF EACH STYLE THAT CONTAIN THE PRESCRIBED DESIGN FOR THAT ELECTION. COUNTY OFFICIALS SHALL MARK EACH POSSIBLE POSITION FOR EACH RACE ON THE BALLOTS. ALL BALLOTS SHALL BE TESTED INTERNALLY PRIOR TO THE PUBLIC LOGIC AND ACCURACY TEST. THE GOAL OF THE PRETEST IS TO ENSURE THAT ALL AVAILABLE POSITIONS ARE COUNTING WHEN MARKED CORRECTLY.

SEQUOIA'S RESPONSE:

1. BPS is ballot print layout software. Its output is self-evidencing (the ballots) which are heavily checked for quality by both the printer and the jurisdiction. BPS is used to lay out OpTech ballots, including those for jurisdictions utilizing competitor optical scanners based on the OpTech ballot format.
2. BPS exports only candidate, contest, and geographic information to WinEDS. The machine assignment, all DRE related information, and other election definition must be input to WinEDS by hand.
3. Larger jurisdictions use the export to avoid manual data entry (typing by hand) of the election definition information. Typing in the information is time consuming and prone to error. If the Secretary wishes to disallow use of exports from BPS, then will he attempt to certify the humans typing in the data to WinEDS, as this would be a logical extension of this mode of thought? Because an export tool derives from the voting systems vendor, why is it not trusted over the myriad of third party print layout software products used across the United States to lay out ballots? The voting systems vendors have the most to lose, by far, if their software is found to contain malicious logic.
4. Sequoia Voting Systems has offered to have the code of the export reviewed by a VSTL prior to its use in the August election cycle and to have the report and a copy of the software sent directly to the Test Board for its files to demonstrate that it has no malicious content or would in any manner negatively effect an election.

Logic and Accuracy testing is done after the files are imported back from BPS. The Logic and Accuracy testing conducted by each county would catch any issues that may have occurred during the file transfer process.

2. PRECINCT COUNT SCANNER (INSIGHTS/INSIGHT PLUS):

With regard to the restrictions to the Insight/Insight Plus:

45.5.1.2 All voting system software, hardware, and firmware shall meet all requirements of federal law that address accessibility for the voter interface of the voting system. These laws include, but are not necessarily limited to,

(a) the Help America Vote Act

Sequoia asserts that the Insight/Insight Plus meets the Help America Vote Act as interpreted through the FEC 2002 Standards to which it is certified.

45.5.2.2.3 The voting system provider shall publish and specify processing standards for each component of the voting system as part of the documentation required for certification.

45.5.2.3.2 The voting system shall meet the following environmental controls allowing for storage and operation in the following physical ranges:

(b) Non-Operating – Max. 140 Degrees Fahrenheit; Min. 4 Degrees Fahrenheit. Non-operating humidity ranges from 5% to 90% for various intervals throughout the day.

The material supplied by the voting system provider shall include a statement of all requirements and restrictions regarding environmental protection, electrical service, telecommunications service, and any other facility or resource required for the installation, operation, and storage of the voting system.

45.5.2.3.19 All electronic voting devices provided by the voting system provider shall have the capability to continue operations and provide continuous device availability during a period of electrical outage without any loss of election data.

(e) The voting system provider shall deliver to the Secretary of State documentation specifying the steps and times required for charging batteries for each type of optical scanner, ballot imager,

DRE and V-VPAT they provide.

The documentation (“Processing Requirements”, various “Operations and Maintenance” manuals, and “Estimated Battery Power Time”) were provided on or before 31 October 2007.

2) EXTERNAL BATTERY BACKUP (UPS) DEVICES REQUIRED.

INSUFFICIENT INTERNAL POWER RESERVES TO SUSTAIN MINIMUM 3 HOUR CONTINUOUS OPERATION. COUNTIES SHALL PURCHASE AND USE AN EXTERNAL POWER SUPPLY THAT MEETS OR EXCEEDS THE VENDOR’S RECOMMENDATION FOR THE COMPONENT.

SEQUOIA’S RESPONSE:

The batteries for the Insight and Insight Plus last two hours with a reasonable (reflective of actual Election Day) number of voter errors, which is what the federal testing standards mandate. We submit that the federal standards are sufficient. The Test Board ran a stress test by placing large percentages of error filled ballots, which are programmed to be returned to the voter. While the Test Board is appropriate in running stress tests to assure the reliability

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of the voting system, it is inappropriate to check battery times under conditions that are not reflective of election day conditions or jurisdiction practices.

45.5.2.7.10 Voting systems providers shall document how they plan to monitor and respond to known threats to which their voting systems are vulnerable. This documentation shall provide a

detailed description, including scheduling information, of the procedures the voting system provider will use to:

(a) Monitor threats, such as through the review of assessments, advisories, and alerts for COTS components;

(b) Evaluate the threats and, if any, proposed responses.

(c) Develop responsive updates to the system and/or corrective procedures; and

(d) As part of certification requirements of the proposed system, provide assistance to customers, either directly or through detailed written procedures, how to update their systems and/or to

implement the corrective procedures within the timeframe established by the Secretary of State.

This requirement is not applicable to the Insight/Insight Plus. It operated under a Z80 microprocessor and a proprietary operating system. As such there would be no security related advisories on the Insight/Insight Plus. This restriction should be stricken from the test report.

3) DEVICE SECURITY ACCESSIBILITY.

A) DEVICE LEVEL ADMINISTRATIVE FUNCTIONS REQUIRING ACCESS INVOLVING THE USE OF KEYS, MEMORY CARDS, AND PASSWORDS MUST BE RESTRICTED TO SINGLE PERSON ENTRY WITH DETAILED LOGS.

SEQUOIA'S RESPONSE:

Sequoia Voting Systems requests this condition to be expanded to allow two people access to device level administrative functions. Best business practices always suggest having two people have access to secure areas. There is no redundancy with single person access. If something should happen to the sole person with access, voting operations could be crippled.

3. CENTRAL COUNT SCANNER (400C):

The Test Board notes a restriction regarding the 400C, a central count device, clause 45.5.1.2 All voting system software, hardware, and firmware shall meet all requirements of federal law that address accessibility for the voter interface of the voting system. These laws include, but are not necessarily limited to,

(a) the Help America Vote Act

The 400C is not purported nor intended to be a polling place vote capture device. This restriction should not enter into the Secretary's decisions relative to the 400C.

3) EXTERNAL BATTERY BACKUP (UPS) DEVICES REQUIRED.

INSUFFICIENT INTERNAL POWER RESERVES TO SUSTAIN MINIMUM 3 HOUR CONTINUOUS OPERATION. COUNTIES SHALL PURCHASE AND USE AN EXTERNAL POWER SUPPLY THAT MEETS OR EXCEEDS THE VENDOR'S RECOMMENDATION FOR THE COMPONENT.

SEQUOIA'S RESPONSE:

The 400C has never been supplied with back-up power as it is a central count device. Several rounds of ITA testing have passed the 400C in this configuration, lacking a back-up power source. While absentee counting may be delayed if there is a significant power outage during the counting period, the Secretary must weigh whether or not this merits jurisdiction purchase of a large (3000 VA) uninterruptible power supply or a generator.

4) AUDIT TRAIL INFORMATION:

B) COUNTIES WILL BE REQUIRED TO PERFORM ADDITIONAL POST ELECTION AUDIT FUNCTIONS FOR THE DEVICE TO ACCOMMODATE FOR SECURITY DEFICIENCIES. IN AN EFFORT TO INCREASE CONFIDENCE IN THE RECORDING OF VOTES BY THE DEVICE, THE POST-ELECTION AUDIT SHALL INCLUDE A HAND COUNT OF AT LEAST THE FOLLOWING AMOUNTS OF BALLOTS:

CONSIDERING THE CLOSEST RACE IN THE ELECTION, IF THE DIFFERENCE BETWEEN THE TOP TWO CANDIDATES FOR THE RACE IS:

10% OR GREATER, THEN HAND COUNT 60 BALLOTS FOR EVERY 10,000 CAST;

9.00% - 9.99%, THEN HAND COUNT 65 BALLOTS FOR EVERY 10,000 CAST;

8.00% - 8.99%, THEN HAND COUNT 70 BALLOTS FOR EVERY 10,000 CAST;

7.00% - 7.99%, THEN HAND COUNT 80 BALLOTS FOR EVERY 10,000 CAST;

6.00% - 6.99%, THEN HAND COUNT 95 BALLOTS FOR EVERY 10,000 CAST;

5.00% - 5.99%, THEN HAND COUNT 115 BALLOTS FOR EVERY 10,000 CAST;

4.00% - 4.99%, THEN HAND COUNT 140 BALLOTS FOR EVERY 10,000 CAST;

3.00% - 3.99%, THEN HAND COUNT 185 BALLOTS FOR EVERY 10,000 CAST;

2.00% - 2.99%, THEN HAND COUNT 275 BALLOTS FOR EVERY 10,000 CAST;

1.00% - 1.99%, THEN HAND COUNT 550 BALLOTS FOR EVERY 10,000 CAST;

0.01% - 0.99%, THEN HAND COUNT 1200 BALLOTS FOR EVERY 10,000 CAST.

THE VERIFICATION OF THE HAND COUNT OF PAPER BALLOTS SHALL MATCH THE TOTALS GENERATED FROM THE WINEDS SOFTWARE AS INDICATED IN SOFTWARE CONDITION #1C. COUNTIES SHALL LOAD ONLY THE MASTER DATABASE FROM THE SECURED STORAGE LOCATION FOR PROCESSING THE POST ELECTION AUDIT BALLOTS AS INDICATED IN SOFTWARE CONDITION #1B. COUNTIES SHALL PREPARE DATABASE AND BATCHES OF BALLOTS PRIOR TO SCANNING INTO SYSTEM (FOR ELECTION RESULTS) TO ACCURATELY GENERATE REPORTS IN BATCH SIZES AS NECESSARY FOR THE AUDIT. IF THE COUNTY OR SYSTEM IS NOT CAPABLE OF ACCOMMODATING THE REQUIREMENT OF BATCH SIZE AFTER THE OUTCOME OF THE ELECTION IS REVEALED, THE HIGHEST PERCENTAGE OF BALLOTS SHALL BE USED FOR THE AUDIT PROCESS.

SEQUOIA'S RESPONSE:

The current post election audit levels of 5% already exceed the requirements that most other states include in their post election audit. The levels listed above are much too cumbersome. If the closest race in the November 2008 General Election is a statewide race, and the difference is 0.5%, with a turnout of 270,000 voters, the number of ballots to be hand counted

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in this audit would be 32,400. It is unlikely that hand recount of this size could be completed accurately, let alone in the timeframe provided for the post election audit before the canvass is to be complete. The current post election audit procedures are sufficient.

If the Secretary does intend to implement a statistically based sampling plan; however, then the recommended sample sizes should derive from American National Standard Z1.4 "SAMPLING PROCEDURES AND TABLES FOR INSPECTION BY ATTRIBUTES". By using this National Standard, utilized by the military and other large commercial enterprises for goods acceptance decisions, the Secretary is on firm ground prescribing sample sizes. The sample sizes required by the Master Tables in the Standard (pages 10 and 11) would, for the scenario above, require only 1,250 ballots to be recounted under the tightest normal sampling plan for a 0.40% margin of victory and the 270,000 ballots cited. This is far less onerous than the 32,400 ballots to be recounted under the current prescription, which does not cite a source of its sampling tables, nor the level of sampling (relaxed, general, or tightened) and confidence levels used.

6) DEVICE SECURITY ACCESSIBILITY.

DEVICE LEVEL ADMINISTRATIVE FUNCTIONS REQUIRING ACCESS INVOLVING THE USE OF KEYS, MEMORY CARDS, AND PASSWORDS MUST BE RESTRICTED TO SINGLE PERSON ENTRY WITH DETAILED LOGS.

SEQUOIA'S RESPONSE:

Sequoia believes that this condition should be modified to allow two people access to device level administrative functions. As described above, best business and information security practices always suggest having two people have access to secure areas. There is no redundancy with single person access. If something should happen to the sole person with access, voting operations could be crippled.

Additional supporting information is attached and/or will be provided by the County or Sequoia Voting Systems by supplementary documentation at or before the public hearing on this request.

Sequoia Voting Systems appreciates the efforts of the Secretary of State and his staff in dealing with these complex issues. Thank you for your consideration of the matters set forth in this request for reconsideration.

Respectfully submitted,



Edwin B. Smith, III
Vice President, Compliance/Quality/Certification