

TITLE 19 COMMITTEE REPORT

To: Anne Milgram, NJ Attorney General
Donna Kelly, Assistant Attorney General
Division of Elections
State of New Jersey
Department of Law and Public Justice
P.O. Box 304
Trenton, NJ 08625-0304

From: Richard C. Woodbridge
Darryl Mahoney
John Fleming

Date: August 8, 2007

Re: Sequoia Edge VVPRS
Our Client No. 4108-133//G32,961

On Wednesday, July 25, 2007 representatives from Sequoia Voting Systems presented the Sequoia Voting Systems' new "Sequoia Edge Voter Verified Paper Records System" at the Armory on Eggerts Crossing Road in Lawrenceville, New Jersey. Present for the State Title 19 Committee were:

John Fleming, Management Information Specialist, Dept. of Law and Public Safety
Daryl P. Mahoney, Assistant Director, Bergen County Voting Machine Division
Richard C. Woodbridge, Patent Attorney, Synnestvedt & Lechner LLP
Princeton, New Jersey – Chair

Appearing for the Applicant, Sequoia Voting Systems:

Mr. Ed Smith, VP of Compliance/Quality/Certification
Mr. Howard Cramer, VP of Sales
Ms. Sandy Green, Director of Certification
Mr. Joseph McIntyre, Senior Project Account Manager
Mr. Mark Heintzman, Senior Technical Support Specialist
Mr. Andrew Wynham, Sr., Sales Technical Support Manager
Mr. Arthur Chagaris, Esq., Sequoia Counsel
Mr. Adolph Romei, Esq., Sequoia Counsel
Mr. Christopher J. Lackner

TITLE 19 COMMITTEE REPORT

Appearing from the Attorney General's Office:

Donna Kelly, Assistant Attorney General
Jason Orlando, Deputy Attorney General, Special Asst. to the Attorney General
Karen Du Mars, Deputy Attorney General
Maria DelValle-Koch, Acting Director, Division of Elections
Donna Barber, Senior Management Assistant, Division of Elections

Appearing for NJIT:

Mitchell Darer, Executive Director, NJIT Center for Information Age Technology
Yun-Quing Shi, Professor of Electrical and Computer Engineering
Ari Jain, Special Lecturer in Division of Mathematical Sciences
Pitipatana Sakarindr, Ph.D. Candidate
Chunhua Chem, Ph.D. Candidate

The purpose of the hearings was to determine whether the new Sequoia Edge VVPRS met the State of New Jersey standards entitled "Criteria for Voter-Verified Paper Record for Direct Electronic Voting Machines".

The meeting opened at approximately 10:15 a.m.

Mr. Woodbridge, Chair of the Title 19 Committee, introduced Mr. Fleming and Mr. Mahoney and then asked the vendor to describe the operation of the new Sequoia Edge VVPRS.

After the vendor's presentation, Mitchell Darer, Executive Director of NJIT's Center for Information Age Technology, provided a general overview of NJIT's role in the examination of the voting machine. That presentation was followed by comments from Professor Avidaman ("Ari") K. Jain who described the specific testing techniques which, in turn, was followed by comments by Dr. Yun Quing Shi who set forth in details eleven (11) "exceptions" that NJI noted concerning their interpretation of the new State Criteria for VVPRS. The exceptions described by Dr. Shi are set forth in significant detail in the report furnished by NJIT.

Mr. Darer indicated that it was his belief that the Sequoia Edge VVPRS was generally suitable for use in New Jersey because it met two (2) core criteria, namely: 1) the electronic records always matched the paper records, and 2) the four (4) independent systems always managed to keep in synchronization (i.e. the electronic votes, the paper ballots, the end bar codes and the internal memories).

After NJIT made its presentation, David M. Millstein, Deputy Director, ADA Administrator for the New Jersey Office of Disabilities Management, representing disabled New Jersey citizens, indicated that he found the Sequoia Edge VVPRS machine generally meets the standards of accessibility for disabled citizens. The vendor then made its presentation from approximately 10:45 a.m. to 11:30 a.m. with two (2) digressions to demonstrate to the Committee specific areas of operation including the connection of cables in the back of the machine, the ability to remove cartridges, and the operability of the voice enabled part of the

TITLE 19 COMMITTEE REPORT

equipment. The vendor was asked to spoil two votes, both on a manual write-in and with the audio write-in capability. Specimens of the ballots were retained by the Committee for inspection.

Following the vendor's initial presentation, the Committee literally walked through line-by-line the relevant portions of the new state criteria beginning with "B. Operation" on page 2 and ending with item "H" on pages 13, skipping only those items that were not relevant to the VVPRS machine. That process started at approximately 11:30 a.m. and ended at approximately 3:30 p.m. with a one hour break for lunch between 12:30 p.m. and 1:30 pm.

The public was invited to speak and was provided with a sign up list. The speakers were:

1. Professor Penny Venetis of Rutgers Law School; and,
2. Flavio Komuves, Deputy Public Advocate

In summary, the Title 19 Committee agreed with NJIT's observation that the VVPRS machines met the two basic core Criteria for a reliable voting machine and, in general, should be suitable for use in the State of New Jersey, however, it was the consensus of the Committee that before the Sequoia Edge VVPRS is used in New Jersey elections they should be demonstrated preferably to NJIT and then to the Attorney General that certain shortcomings have been corrected. Those shortcomings are outlined below:

1. The Committee recommends that if the State Attorney General's Office approves the Sequoia Edge machine, the County or Municipality using such a machine be required to purchase at least three (3) printer cartridges per machine so that paper rolls can be changed during voting without a poll worker touching the actual paper ballot roll.

The three (3) Sequoia Edge machines tested at NJIT each included one cartridge per machines. The only way to reload the paper during voting was to manually open the cassette and physically touch the paper roll and the Title 19 Committee respectfully submits that the manual opening of the feeder cartridge during voting is not an acceptable practice because it involves the manipulation of actual votes cast during the election process. The State of new Jersey requires that there be one voting machine for 750 residents. NJTI determined that there appeared to be only sufficient paper in each cartridge to handle approximately 120 voters, The vendor indicated that the roll had a range of up to 170 voters. Even taking the highest number, in a heavily balloted election, at least two and possible three cartridges may be required in order to satisfactorily avoid the appearance of paper ballot tampering.

2. The Title 19 Committee recommends that the power and data cables from the printing unit to the DRE be appropriately covered and shielded so that they can not be (a) seen or (b) tampered with.

The NJIT report pointed out that the data and power cables were fully exposed and the Committee noted that it was an accurate observation.

TITLE 19 COMMITTEE REPORT

3. The Title 19 Committee recommends that each printer cartridge have a seal on it that can only be broken after the election.

Each cartridge demonstrated included a location where such a seal could be easily placed.

4. The Committee agrees that there should be a "digital signature" on each digital record.

The vendor indicated that this could be corrected.

5. If a mechanical error occurs, the machine needs to better differentiate between problems, e.g. specify "paper jam", and the like.

Presently the machine only presents one type of error message, which is not sufficient to differentiate between the types of mechanical errors that typically occur, e.g. how do you tell when the paper jams? The vendor indicated that this could and would be corrected in the next version of its software.

6. If the printer is broken, the voting machine does not record the event in the DREs internal audit log.

The vendor indicate that that would be fixed with the appropriate software within 2-3 months.

7. The Committee noted that there was no box on the side of the DRE including the required 30 emergency ballots as has been standard practice in the State of New Jersey for many many years.

The vendor indicated that this would be corrected as it has been on other Sequoia Edge DREs.

8. Time to verify third paper record.

The NJIT report stated that:

"For the third paper records, once the voter presses the "cast ballot" button to cast the ballot, the paper record is printed but is only reviewable by the voter for a few seconds, and then advances to the storage reel. There is not enough time for the voter to verify the selections on the third paper record."

The Title 19 Committee examined the dwell time of the third paper record and was of the general opinion that it was sufficient for the average voter to read. The vendor's representative suggested that he had mentally counted 18 seconds for the voter to read the record. It is not clear if all New Jersey citizens would find 18 seconds sufficient to read the third and final vote, especially if the ballot included a larger number of questions and/or contests. The Attorney General's Office may consider requiring a longer dwell time for the third and final ballot.

TITLE 19 COMMITTEE REPORT

This is important - The voter needs to be able to review and made to hit the "Cast Vote" button again so the State knows the voter's real intention. This will guarantee that there is no question as to the accuracy and intent of the voter's choices.

9. The vendor is presently negotiating a Non-Disclosure Agreement (NDA) with the Attorney General's Office in order to provide source code.

The vendor indicated that it had entered into similar agreements with other states. The Committee encourages the vendor and the New Jersey Attorney General's Office to expedite the process, complete and execute the NDA and obtain the source code.

.....

In conclusion, the Committee found, as did NJIT, that the Sequoia Edge VVPRS satisfactorily meets the two (2) core requirements for a voting machine, namely, that the paper trail and the electronic votes matched 100% and that the four (4) independent systems were synchronized and matched also. It was clear, however, that the vendor needed to address and correct the issues identified above before the machine should be accepted for use by the State of New Jersey.

In view of the foregoing the Committee does not recommend the use of the Sequoia Edge VVPRS in its present state, but would agree that the machine could be acceptable for use if the items noted above were corrected. The preference would be for the vendor to make the corrections and resubmit the equipment to NJIT so that NJIT can determine if those specific nine (9) items had been corrected. A full review by NJIT would probably not be necessary. If that is not feasible, then the Attorney General's Office, in its discretion, might choose to make those determinations for itself.

The Title 19 Committee is always available to assist to the extent that the Attorney General's Office deems it appropriate or necessary.

There were a few items in the NJIT report that the Title 19 Committee reviewed but determined were not significant problems.

First, with regard to privacy and the ability of a third party to view the screen, the Committee noted that such an individual would never be allowed in proximity to the voting machine and, because it would be rather difficult for the individual to make such an observation, the machine presented appeared to satisfy the general requirements of privacy in that regards.

Second, comments were made with regard to "fleeing voters" by NJIT. Fleeing voters is a universal problem but not one that appears to be addressed in the criteria or in previous statutes. Also, it is not clear how a "fleeing voter" would detrimentally hurt the results of an election.

TITLE 19 COMMITTEE REPORT

Lastly, an issue was raised as to whether or not the entire system, including the Edge DRE itself should be re-examined. The Title 19 Committee considered this matter and decided against a complete review of the DRE for the following reasons:

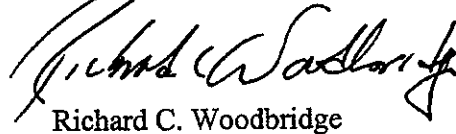
1. First of all, the standards under old Title 19:48 and 19:53 are outdated given that they are approximately 40 years old and directed towards mechanical lever machines or optical scanners. A review under old Title 19 criteria wouldn't be especially productive given the more advanced nature of modern DREs.

2. Many of the important, relevant sections of old Title 19:48 and 19:53 have been incorporated into the new State Criteria and, accordingly, those conditions were dealt with.

3. Title 19 indicates that a new review isn't necessary unless the change impairs the operation of the voting machine and there does not appear to be any impairment in the case before us.

A list of documents presented to the Title 19 Committee either during the hearings or in writing before the 5:00 PM Friday July 27, 2007 deadline is attached hereto as Attachment "A".

Respectfully Submitted,



Richard C. Woodbridge

Daryl Mahoney

John Fleming

RCW/lr

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TITLE 19 COMMITTEE REPORT

ATTACHMENT A

**LIST OF DOCUMENTS PERTAINING TO THE
SEQUOIA AVC EDGE DRE**

Sequoia AVC Edge DRE

* documents pertaining to both Advantage and Edge

- Ciber Software Qualifications Test Report Sequoia WinEDS 3.1.074, version 1.0, (10/12/06)*
- Wyle Letter No. 44733B-003 (2/20/01)
ITA Qualification Testing of the AVC Edge DRE Voting Machine, Release 3.0
- Wyle Report No. 44733-01 (5/30/01)
Qualification Testing of the AVC Edge DRE Voting Machine (Hardware level 3.0; Firmware release 3.0)
- AVC Edge Compliance with FEC Standards Release 3.0 (5/21/01)
- Ciber Software Qualifications Test Report Sequoia WinEDS3.1.038 (6/16/06)*
- Email from Brian Hancock, EAC, re: NASED Qualification of Sequoia WinEDS 3.1.074 (10/24/06)*
- Wyle Report No. 51884-03 (3/16/06)
Hardware Qualification Testing of the Edge Models I & II DRE Voting Machines, Verivote Printer, Card Activator, and ADA Adapter Peripherals, Firmware version 5.0.14
- Wyle Report No. 51884-04 (3/16/06)
Change Release Report of the Edge Models I & II DRE Voting Machines, Verivote Printer, Card Activator, and ADA Audio Adapter Peripherals, Firmware version 5.0.21
- Wyle Report No. 51884-05 (3/16/06)
Change Release Report of the Edge Models I & II DRE Voting Machines, with Verivote Printer, Firmware version 5.0.22
- Wyle Report No. 51884-06 (3/16/06)
Change Release Report of the Edge Models I & II DRE Voting Machines, with Verivote Printer, Firmware version 5.0.23
- Wyle Report No. 51884-07 (3/16/06)
Change Release Report of the Edge Models I & II DRE Voting Machines, with Verivote Printer, Firmware version 5.0.24
- Wyle Report No. 51884-10 (9/12/06)
Change Release Report of the Edge Models I & II DRE Voting

Machines, with Verivote Printer, Firmware version 5.0.31

- California Secretary of State Office of Voting Systems Technology Assessment Staff Review and Analysis of WinEDS/AVC Edge/Insight/400C/Eagle/HAAT (2/22/006)
- California Secretary of State Consultant's Report on Sequoia Voting Systems WinEDS/AVC Edge/Insight/400C/Eagle/HAAT (2/24/06)
- California Secretary of State Approval of Use of Sequoia Voting Systems, Inc DRE & Optical Scan Voting Systems (3/20/06)
- Letter from Louisiana Secretary of State confirming certification of Edge and Advantage (10/23/06)*
- Letter from Louisiana Secretary of State confirming that Advantage D10 10.3.5 and Card Activator 5.0.28K for the AVC Edge Early Voting Machines meet standards for certification (6/4/07)*
- Letter from Louisiana Secretary of State recommending certification of Advantage D10 10.3.5 and Card Activator 5.0.28K for the AVC Edge Early Voting Machines (6/4/07)*
- Certified Voting Machine/Devices in New Jersey [Advantage certified 8/5/87; Edge certified 7/3/01] (7/16/04)*
- Report to the Office of the Attorney General, Sequoia AVC Edge Voter-verified Paper Record System Assessment, prepared by the New Jersey Institute of Technology, Center for Information Age Technology, July 2007
- Response from Sequoia Voting Systems dated July 20, 2007, from Adolph Romei, Esq., Re: New Jersey Institute of Technology Reports concerning Sequoia Advantage and Edge Voter Verified Paper Record Systems*
- Responses to Voting Certification Committee dated July 27, 2007, from Adolph Romei, Esq., with attached Certification of Edwin B. Smith, III, and 2 pages of e-mails re: use of Mr. Smith's digital signature on the Certification*

The following documents were provided by Sequoia in response to its compliance with NJ VVPRS Criteria:

- Sequoia EDGE1 Compliance with NJ VVPAT Regulations, Draft

Version (April 2, 2007)

- Certification of Edwin B. Smith, III, dated July 20, 2007 indicating that the AVC Advantage and AVC Edge materially comply with the VVPRS Criteria*
- AVC Edge Operator's Manual, Release 5.0, Revision 1.06 (5/12/06)
- Sequoia Voting Systems Verivote Printer Maintenance Manual, Version 1.05 (May 2005)
- Sequoia Voting Systems Verivote Printer Operator's Manual, Version 1.08 (May 2005)
- AVC Edge Systems Hardware Description "Edge 1," Revision 1.0 (5/10/05)
- AVC Edge Functional Specification, Release 5.0 Revision 1.01
- AVC Edge Audio Accessory, Poll Worker's/Operator's Manual, Release 5.0 (May 2005)
- AVC Edge Systems Overview, Release 5.0, Revision 1.0 (5/10/05)