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 Advantage VVPRS
Our Client No. 4108-132//G32,960

On Tuesday, July 24, 2007 representatives from Sequoia Voting Systems presented the Sequoia Voting Systems' new "Sequoia Advantage 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. Edward Smith, VP of Compliance/Quality/Certification
Mr. Howard Cramer, VP of Sales
Mr. David Allen, VP Development – Electronic Voting Solutions
Ms. Sandy Green, Director of Certification
Mr. Joseph McIntyre, Senior Project Account Manager
Ms. Christine Valeriano, Sales Executive
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, Communications Consultant

TITLE 19 COMMITTEE REPORT

Appearing from the Attorney General's Office:

Anne Milgram, Attorney General
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
Dennis O'Brien, Information Technology Consulting,
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
Ehsan Haghani, Ph.D. Candidate
Chao Zhang, Ph.D. Candidate
Chunhua Chen, Ph.D. Candidate

The purpose of the hearings was to determine whether the new Sequoia Advantage 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 10:10 a.m. with an introductory statement by Attorney General Ann Milgram. The statement set forth the purpose of the meeting and the origins of the State VVPRS Criteria and, in general, created a good platform for the rest of the hearings.

The meeting was then turned over to Mr. Woodbridge, Chair of the Title 19 Committee, who introduced Mr. Fleming and Mr. Mahoney and then asked the vendor to briefly describe the operation of the new Sequoia Advantage VVPRS.

After the vendor's presentation, Mitchell Darer, Executive Director of NJIT's Center for Information Age Technology, presented a general overview of NJIT's role in the review of voting machines. That presentation was followed by comments by 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 detail twelve (12) "exceptions" that NJIT noted concerning their interpretation of the new State Criteria for VVPRS. The exceptions described by Mr. Shi are set forth in significant detail in the report furnished by NJIT with regard to the Sequoia Advantage VVPRS.

Mr. Darer indicated that it was his belief that the Sequoia Advantage 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 vote, the paper ballot, the bar code and the internal memory). It should be noted for the record that this was the first time that the Title 19 Committee has reached outside of its own resources to tap into expertise from other institutions other than traditional ITAs like Ciber, Inc. and Wylie, Inc. It is fair to say that the Committee was very impressed with the thorough and professional machine testing performed by NJIT and was grateful for their participation and input. NJIT stated that they had put several thousand hours into the testing of the voting machines.

Following the NJIT portion of the program, the Committee literally walked through, line-by-line, the relevant portions of the new state criteria beginning with "B. Operation" on page 1 and ending with item "H" on page 13, skipping only those items that were not relevant to the VVPRS being presented. That process started at approximately 11 a.m. and ended at approximately 3:30 p.m. with a one hour break for lunch between 12:30 and 1:30 p.m. After that the public was invited to speak. Seven people signed up but apparently two individuals left prior to the public input portion so only five speakers ultimately spoke. The five speakers who spoke were in order:

1. Professor Penny Venetis of Rutgers Law School
2. Flavio Komuves, Deputy Public Advocate, who provided a substantial collection of related exhibits which were subsequently duplicated and presented to the Committee.
3. Ann Reo representing Blue Wave New Jersey
4. Mary Ellen Marino, who also left a written statement
5. Ms. Ellen Sleeter representing Essex County Democracy for America

Professor Venetis stated she would to supplement her comments with written comments by Friday, July 27, 2007.

Prior to the hearing the Committee also received written comments from Karen R. Searles. Karen R. Searle presented a three (3) page email pointing out prior New Jersey problems with the Sequoia Advantages machines and suggested a return to paper ballots.

This was the first time that the Title 19 Committee had reviewed a "Paper Trail" also known as a VPAT or VVPRS device. The State Criteria for a VVPRS is substantially longer and more comprehensive than the older criteria for voting machines found in Title 19:48 and 19:53 and, accordingly, it took significantly more time to review.

In summary, the Committee generally agreed with NJIT's observation that the VVPRS machines met the two basic core criteria of a voting machine and, in general, should be suitable for use in the State of New Jersey, however, it was the belief of the Committee that before the VVPRS machines are used for actual voting in New Jersey they should be demonstrated, preferably to NJIT, and then the Attorney General that certain shortcomings are corrected. Those shortcomings are:

1. Inability of the voter to verify his or her third paper ballot.

When the voter casts his or her third and final ballot, the paper ballot portion is presented only momentarily and the voter is not given enough time to verify that the paper ballot is consistent with the electronic vote. The voter needs to be able to review and made to hit the button cast vote again so that the State knows the voter's real intention. This will make sure that there is no question as to the accuracy and intent of the voter's choices. The vendor indicated that this error could be and would be corrected with firmware in the near future.

2. NJIT pointed out with regard to a sight-impaired voter that "the voter is prompted to print next page after first page on the write-in LCD screen rather than through audio message".

The vendor said that this would be corrected also.

3. The printer needs to be sealed by seals and locking mechanisms.

The vendor demonstrated that the clear plastic paper cover could be locked or sealed even though it was not tested in such a state. In addition, the printer paper did not appear to be secured during the election testing. It is recommended that either seals or mechanical locks be used to prevent unauthorized individuals from tampering with the paper during the election process.

4. The paper trail ballots need to identify the particular election by name (e.g. Primary or General).

The Committee examined some of the paper ballots and indeed they did not include the proper election designation. The vendor indicated that this would be corrected in the next round of software enhancements.

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

The vendor indicated that this would be corrected.

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

Presently the machine only presents two different error messages, neither of which are 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 software.

7. There was debate as to whether or not the machine needs to be able to process 750 votes without a paper change.

The State statute requires that there should be one voting machine for every 750 registered voters. The statute and the State Criteria, however, do not appear to require that the

machine be able to print 750 ballots without a paper change. The vendor indicted that the paper supplier provides cartridges of folded paper in units of 500 sheets each but that they could probably provide more. After consideration the Committee decided that it should be acceptable for the machine to go through at least 500 ballots before a paper change.

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

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

9. The Committee noted that there was no box on the side of 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 Advantage DREs.

10. 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 AGs office to expedite the process, complete and execute the NDA and obtain the source code.

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Also speaking on behalf of the State's disabled community was David M. Millstein, Deputy Director, ADA Administration for the New Jersey Office of Disabilities Management, who indicated that the Sequoia Advantage VVPRS generally met the requirements of height, etc. for those who are disabled but was disappointed with the quality of the voice synthesizer but not to the extent that he would recommend that the machine not be approved.

In conclusion, the Committee found, as did NJIT, that the Sequoia Advantage VVPRS satisfactorily met 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 ten (10) issues identified above before it 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 Advantage VVPRS in its present state, but would agree that the machine could be acceptable for use if the ten (10) items above were corrected. The Title 19 Committee recommends that the vendor make the corrections and resubmit the equipment to NJIT so that NJIT can determine if those specific 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.

TITLE 19 COMMITTEE REPORT

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 Committee reviewed but determined were not significant problems.

First, with regard to privacy and the ability of an individual to look over the screen if they were 6' tall or taller, 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 that individual to make such an observation, the machine presented appeared to satisfy the general requirements of privacy in that regard.

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 State Criteria or in previous statutes. Also, it is not clear how a "fleeing voter" would detrimentally hurt the final results of an election.

Lastly, an issue was raised as to whether or not the entire system, including the Advantage DRE itself, should be completely re-examined. The Committee considered this and decided against a complete review 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 machines or optical scanners. A review under the old statute wouldn't be especially productive given the nature of new DREs.

2. Many of the important, relevant sections of 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 is not necessary unless the improvement impairs the operation of the DRE and there does not appear to be any impairment in the case here.

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

Respectfully Submitted,

Richard C. Woodbridge

Daryl Mahoney

John Fleming

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Lastly, an issue was raised as to whether or not the entire system, including the Advantage DRE itself, should be completely re-examined. The Committee considered this and decided against a complete review 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 machines or optical scanners. A review under the old statute wouldn't be especially productive given the nature of new DREs.

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

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Lastly, an issue was raised as to whether or not the entire system, including the Advantage DRE itself, should be completely re-examined. The Committee considered this and decided against a complete review 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 machines or optical scanners. A review under the old statute wouldn't be especially productive given the nature of new DREs.

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

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Richard C. Woodbridge

Daryl Mahoney

John Fleming

ATTACHMENT A

LIST OF DOCUMENTS PERTAINING TO THE SEQUOIA ADVANTAGE AVC

Sequoia Advantage AVC

* documents pertaining to both Advantage and Edge

- Ciber Software Qualifications Test Report Sequoia WinEDS3.1.074, version 1.0, (10/12/06)*
- Ciber Software Qualifications Test Report Sequoia WinEDS3.1.038 (6/16/06)*
- E-mail from Brian Hancock, EAC, re: NASED Qualification of Sequoia WinEDS 3.1.074 (10/24/06)*
- Wyle Letter No. 51884B-022 (11/30/05)
  Qualification Testing of the Sequoia Advantage, Firmware Release 9.0H
- Wyle Letter No. 51884B-030 (1/12/06)
  ITA Hardware Qualification Testing of the Advantage Model D DRE Voting Machine, Firmware Release 10.00F
- Wyle Letter No. 51884B-031 (1/20/06)
  ITA Hardware Qualification Testing of the AVC Advantage Model D DRE Voting Machine, Firmware Release 10.00H
- Wyle Report No. 51884-08 (4/12/06)
  Hardware Qualification Testing of the Sequoia AVC Advantage DRE Voting Machine, Firmware Version 10.1.5
- Wyle Letter No. 51884B-070 (5/23/06)
  Status of ITA Hardware Qualification Testing - AVC Advantage Voting Machine, Firmware Version 10.2.4 (VVPAT)
- Wyle Report No. 51884-09 (5/24/06)
  Hardware Qualification Testing of the Sequoia AVC Advantage DRE Voting Machine, Firmware Version 10.1.9
- Wyle Letter No. 51884B-044 (7/10/06)
  ITA Hardware Qualification Testing of the Advantage Audio Box, Revision D
- Wyle Letter No. 51884B-080 (9/1/06)
  ITA Hardware Qualification Testing of the AVC Advantage Model D DRE Voting Machine, Firmware Release 10.3.5
- Wyle Report No. 51884-11 (9/18/06)
  Change Release Report of the Sequoia AVC Advantage DRE Voting

Machine, Firmware Version 10.3.5

- Wyle Letter No. T51884B-085 (12/5/06)
  ITA Hardware Qualification Testing of the AVC Advantage Model D DRE Voting Machine and VVPAT Printer, DRE Firmware Release 10.3.11

- 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 Advantage Voter-verified Paper Record System Assessment, prepared by New Jersey Institute of Technology, Center for Information Age Technology, July 2007

- Report to the Office of the Attorney General: Addendum to Sequoia AVC Advantage Voter-verified Paper Record System Assessment, Dated July 19, 2007, prepared by New Jersey Institute of Technology, Center for Information Age Technology

- 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*

- Wyle Report No. T51884-12 (7/26/07)
  Hardware Qualification Testing of the Sequoia AVC Advantage D-10 DRE Voting Machine, Firmware Version 10.3.11 **[redacted copy only as of 7/30/07]**

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

- Sequoia Advantage D-10 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 Advantage D-10 Ballot Image Export Data
- Sequoia Voting Systems AVC Advantage 10 VVPAT Operators Manual, Version 1.02, (May 2007)
- AVC Advantage D-10 Recovery Procedures, Version 1.0 (5/25/07)
- Loading Mechanism 24V: Thermal Printer Mechanism CAP 9000 series. Printed on 8/16/06 (http://www.sii.co.jp/sps/eg/product/24v/cap9000.html)
- SII/Seiko Instruments Inc. IF9001-01P-E/IF 9001-01S-E/IF9001-01U-E Interface Board Technical Reference, 2nd Edition (February 2006)