

OFFICE OF THE SECRETARY OF STATE

STATE OF COLORADO

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**IN THE MATTER OF SOS-HAVA-07-12-0001**

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FINDINGS OF FACT AND CONCLUSIONS OF LAW

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Pursuant to the above-captioned petition I, Suzanne Staiert, Deputy Secretary of State, having reviewed the complaint, the supporting materials, the responses of interested parties, and applicable law in this matter, do hereby find and decide as follows:

**Procedural History**

On October 1, 2012, Al Kolwicz (“Complainant”) filed a properly certified complaint under the Help America Vote Act (“HAVA”) with the Colorado Department of State. The complaint alleged that the Secretary of State (“SOS”) violated Title III of HAVA. Generally, the complaint relate alleges that Boulder County’s Mail Verification System falls within HAVA’s “voting system” definition and must therefore be certified by the SOS.

Because of the technical nature of the complaint and because the SOS is named as the defendant, the SOS assigned a third-party investigator to make factual findings related to the allegations.

Section 1-1.5-105, C.R.S., requires final determination of any complaint within 90 days unless the complainant consents to an extension. To accommodate the complainant, the SOS attempted numerous times to set a hearing in Boulder County in December, 2012. Boulder County would not agree to any of the dates offered by the SOS. A hearing was therefore set on December 26, 2012, in the office of the SOS in Denver. The hearing was properly noticed and published on the SOS website.

Boulder County representatives did not appear at the hearing, instead submitting their position in writing the morning of the hearing. Complainant and a number of witnesses offered testimony.

At the conclusion of the hearing, Complainant consented to an extension of the final determination through January 21, 2013.

The hearing did not resolve all factual disputes. Witnesses at the hearing offered testimony that the “sorter system” was used for mail in ballot automatic signature verification. Clerk Hall disputed this in her affidavit submitted on December 26, 2012.

To conclude its factual findings, the SOS attempted to arrange a date before January 18, 2013, to view and test the ballot sorting Bell and Howell system. Such attempts were again resisted by Boulder County for purported reasons including vacation schedules, office retreats, employee award ceremonies, and preparation for and attendance of a county clerk and recorder conference.

### **Findings of Fact**

1. Complainant is a registered elector in Boulder County.
2. Complainant alleges that “Boulder County plans to integrate or has integrated the Bell and Howell mail verification system into Boulder County’s voting system.” Complainant alleges that the SOS’s failure to prohibit Boulder County from using this uncertified system violates HAVA.
3. Testimony offered by witnesses at the hearing related primarily to the use of the Bell and Howell System. Problems noted by the witnesses included lack of clarity of displayed signatures, the display of four signatures at a time, and the possibility that the mail sorting system performed Automatic Signature Recognition (ASR). The ASR allows the system to automatically compare and verify signatures on mail in ballots.
4. Testimony related to the ASR function was offered by James August, a watcher during the 2012 election. Mr. August testified that his observations along with his review of other watcher reports indicate the ASR was active.
5. Mr. August admits he was not able to personally verify the use of the ASR during his service as a watcher because he did not have direct access to the Bell and Howell system. The configuration of Boulder County’s election processing center prohibits access to the system and only allowed for viewing from a distance. Mr. August’s attempts to obtain information through open records requests were likewise unsuccessful.
6. In written comments, Clerk Hall attested that the Bell and Howell was not used for ASR.
7. As noted in the procedural history, the SOS was not able to gain Boulder County’s agreement to allow for testing or viewing the equipment. Admittedly, the absence of documentation related to the use of ASR is due to Boulder’s lack of cooperation. However, without any direct evidence of the ASR function the SOS must find the Bell and Howell was not used for ASR.
8. The SOS adopts by incorporation the findings of Mike Lyons, the SOS third party investigator. *Attached as exhibit 1.*

### Conclusions of Law

9. Complainant brings this complaint under Title III of HAVA. Complainant has standing to bring a HAVA complaint as a registered elector in Boulder County.
10. Having been unable to find the Bell and Howell was used for ASR, the SOS makes no finding as to whether the use of an uncertified component for ASR would constitute a violation of HAVA.
11. Consistent with the findings in Exhibit 1, the SOS finds the Bell and Howell system as used in the Boulder County 2012 election was not part of the “voting system” as defined by HAVA.
12. For these reasons, I conclude that Petitioner is not entitled to relief under HAVA.
13. Nevertheless, the SOS concurs with the findings of Mr. Lyons related to the need for oversight of mail sorter and signature verification systems.
14. Although direct relief is not ordered under HAVA, the SOS will notice and undertake rule making related to these systems addressing issues including security, testing and audit procedures.

**DONE AND SIGNED**

January 22<sup>nd</sup>, 2013



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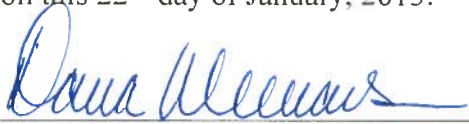
Suzanne Staiert  
Deputy Secretary of State

### Certificate of Mailing

I hereby certify that I have served a true and correct copy of the above FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECISION by placing the same in the U.S. Mail, postage prepaid, at Denver, Colorado to:

Al Kolwicz  
Colorado Voter Group  
2867 Tincup Circle  
Boulder, CO 80305

on this 22<sup>nd</sup> day of January, 2013.



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Executive Assistant

# Mail Ballot Envelope Sorting Systems Are they “Voting Systems?”

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A response to SOS-HAVA-07-12-0001

Created by: Mike Lyons

Submitted: 1/18/2013

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## Purpose

To provide the Secretary of State with enough information to make a determination as to whether or not a mail ballot envelope sorting system can/should be considered a part of the "Voting System" as defined by the Help America Vote Act (HAVA) 301(b) and Colorado Revised Statute (C.R.S.) 1-1-104 (50.8) and as such be subject to certification as required by SoS Rule 37.4.

## Definitions & Requirements

Voting System defined by HAVA

301(b) Voting System Defined--In this section, the term "voting system" means--

(1) the total combination of mechanical, electromechanical, or electronic equipment (including the software, firmware, and documentation required to program, control, and support the equipment) that is used

- (A) to define ballots;
- (B) to cast and count votes;
- (C) to report or display election results; and
- (D) to maintain and produce any audit trail information; and

(2) the practices and associated documentation used

- (A) to identify system components and versions of such components;
- (B) to test the system during its development and maintenance;
- (C) to maintain records of system errors and defects;
- (D) to determine specific system changes to be made to a system after the initial qualification of the system; and
- (E) to make available any materials to the voter (such as notices, instructions, forms, or paper ballots).

Voting System defined by C.R.S.

1-1-104 (50.8) "Voting system" means a process of casting, recording, and tabulating votes using electromechanical or electronic devices or ballot cards and includes, but is not limited to, the procedures for casting and processing votes and the operating manuals, hardware, firmware, printouts, and software necessary to operate the voting system.

Requirements of Secretary of State by Elections Rules

Rule 37.4 The Secretary of State requires all voting systems and all individual parts of voting systems to pass certification criteria as outlined in the State of Colorado Voting Systems Certification Program. The designated election official shall retain records of all certification procedures pertaining to voting systems and parts of voting systems.

## Findings

When used in the context of elections in Colorado, the term “voting system” has commonly been described as anything to do with ballot creation, vote capture, tabulation and reporting, and typically includes the use of Direct Record Electronic (DRE) devices and precinct level and central count optical scanners. The Hart voting system, for example, provided by Hart Intercivic in Austin, Texas and used in the majority of Counties in Colorado, refers to the total system of multiple computers, various pieces of software and hardware, as well as report generation and DREs that are used to define, create and print the ballot, record vote totals and report results. Traditionally, a voting system has not referred to any of the other myriad of products and services surrounding the election processes or methods, like voter registration systems, electronic pollbooks, ballot on demand, printing and mail ballot packet creation, or signature verification software. With the increase of mail ballot requests in Colorado, some counties have added mail ballot envelope sorting systems to that list of products.

So, what exactly does an envelope sorting system, common in mail rooms across the globe, do when installed and used in the elections industry? A standard envelope sorting system consists of components (hardware & software) and processes including feeding envelopes through a transport unit, reading barcoded information, detecting envelope length, height and thickness, and sorting into pre-defined output bins.

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*What exactly does an envelope sorting system do when used in the elections industry?*

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When used in the context of handling incoming mail ballot envelopes in the elections industry, the system should also:

- Allow for configuration of the sorter database for a specific election and voter information, including voter signatures from the voter registration system, usually through a file import process
- Capture an image of each envelope
- Provide an interface for election workers to view images of the scanned envelopes, as well as the official signature of the voter associated with that envelope from the voter registration database, and allow for the election worker to accept or reject voter signatures based on a pre-defined set of criteria
- Provide an Automated Signature Recognition (ASR) solution with the ability to enable/disable as needed
- Create an export file (.txt) that can be imported into a voter registration system
  - In Colorado, this creates batches in the “Receive Absentee” module.
  - It does not directly interface with SCORE



At first glance, it would appear that the use of a mail ballot envelope sorting system does not meet the definition of a voting system as defined by HAVA or C.R.S. in the strictest of interpretations. And indeed, the common understanding and traditional definition in use at the county level would seem to preclude it from being a part of a voting system. After all, no one is creating a ballot or casting a vote on the device. The Voluntary Voting System Guidelines (VVSG) also do not seem to support including it as part of the voting system.

Section 1.4.2 of the VVSG reads –

“Types of Voting Systems - Traditionally, a voting system has been defined by the mechanism the system uses to cast votes and further categorized by the location where the system tabulates ballots. In addition to defining a common set of requirements that apply to all voting systems, the VVSG states requirements specific to a particular type of voting system, where appropriate. However, the Guidelines recognize that as the industry develops new solutions and the technology continues to evolve, the distinctions between voting system types may become blurred. The fact that the VVSG refers to specific system types is not intended to stifle innovations that may be based on a more fluid understanding of system types. However, appropriate procedures must be in place to ensure new developments provide the necessary integrity and can be properly evaluated in the certification process.”

Using solely the HAVA definition, lets break it down piece by piece. Mail ballot envelope sorter systems are a “combination of mechanical, electromechanical, or electronic equipment (including the software, firmware, and documentation required to program, control, and support the equipment).” However they are NOT “used

- (A) to define ballots;
- (B) to cast and count votes;
- (C) to report or display election results; and
- (D) to maintain and produce any audit trail information”

Further, mail ballot envelope sorting systems are NOT “(2) the practices and associated documentation used

- (A) to identify system components and versions of such components;
- (B) to test the system during its development and maintenance;
- (C) to maintain records of system errors and defects;
- (D) to determine specific system changes to be made to a system after the initial qualification of the system; and
- (E) to make available any materials to the voter (such as notices, instructions, forms, or paper ballots).”

The complaint is specifically referred to as a HAVA complaint, citing the HAVA definition of a voting system, so in looking strictly at the HAVA definition, one cannot call this a voting system.

I would like to address the only area that even remotely comes close to suggesting this a voting system. At the December 26, 2013 hearing and highlighted on page 12 of Mr. Kolwicz testimony, the word “cast” was brought up as a link to including mail ballot envelope sorting systems in the voting system, again by HAVA definition. The argument was that the equipment cast ballots and it should be considered a part of the voting system as specifically stated in HAVA 301(b)(1)(B).

*The definition of the word “cast” has been discussed as a reason to consider this a voting system.*

Signature Verification as required by state statute elections rule, is the process whereby an election judge must compare the signature on the return envelope of each mail ballot with a copy of the elector’s signature on file in SCORE. SCORE has a signature verification client as a part of the system which presents between one and five voter signatures at a time on the screen for review by election workers. Typically, the election worker has the envelopes in front of them and compares the envelope signature to the electronic image and accepts or rejects it based on a pre-defined set of criteria.

Because the mail ballot envelope sorting system captures an image of the envelope, typically the signature verification component displays that image next to the image from SCORE. The envelopes are available for the elections workers to review, but the standard practice would be to use the on screen images to make the determination to accept or reject. And once the envelope is accepted, it moves to the next stage where the ballot is removed from the envelope. Unless there is a problem with the ballot (wrong jurisdiction or election, wrong ballot style, etc.) or the envelope is empty or contains more than one ballot, it moves forward in the process and will likely be counted.

Typically, mail ballot envelope sorting systems contain a signature verification client, including the ability to perform the function without human intervention using ASR. So when is a ballot cast? With regards to mail ballots, is it after signature verification? The answer is: as soon as it leaves the voter’s hand, either in a ballot box, mailbox or drop box. It does not matter if the ballot is counted or not. The act of turning in a ballot to a DEO, by mail or other means, is considered casting that ballot. In the end, if the decision rests solely on strict interpretation of HAVA 301(b), then the use of the word “cast” is as close as you are going to get to calling this a voting system, and even that does not fit.

*So when is a ballot cast? As soon as it leaves the voter’s hand.*

## Certification – Pros and Cons

If it is determined that the mail ballot envelope sorting systems in use in Colorado are actually a voting system, then what? There is not currently any Elections Assistance Commission (EAC) Certification of these types of systems that the SoS can build upon. An EAC certification signifies that a voting system has been successfully tested to identified voting system standards adopted by the EAC. Only the EAC can issue a Federal certification. Jessica Meyers, a Certification Program Specialist at the EAC states “Envelope or mail sorting systems are not certified by the EAC as a voting system. We have never received one to look at as part of the voting system, but we know that many jurisdictions across the country use mail sorters and signature recognition software to sort absentee/mail in ballots. We do not consider the mail sorter part of the voting system, as it is not involved in the recording or casting of votes.”

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*Envelope sorting systems are not certified by the EAC as a voting system.*

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Further, the Colorado State Elections Rule 45 was clearly written to address certification under the current understanding of voting systems and has very limited application to a mail ballot envelope sorting system. There are some requirements that could be used, but it doesn't really apply. There are no “Conditions for Use” to look at for guidance either. It seems like there would need to be at least some rulemaking done to accomplish any certification of this as a voting system. With no clear direction on a certification path available to us, we should pause and ask what the pros and cons are of certification.

What were some of the positive outcomes of the Voting System Testing and Certification Program?

- Certification signifies that a voting system has been successfully tested to identified voting system standards
- Certification validates that the system performs according to the manufacturer's specifications for the system
- Certification ensures the reliability, consistency, and accuracy of voting systems
- The process created a secure, central repository of software and firmware known as the “Trusted Build” ensuring all Colorado counties are running the exact same version of vendor supplied software
- The program refined qualified voting system vendors as they began to realize the stringency of the program requirements and caused them to perform at new levels of quality. Their documentation improved, as did their Software Development Lifecycle (SDLC) models as their practices for system modifications became a liability.
- Certification protects vendors to some degree against customer demands for continuous change

## What do we give up with “Certification?”

- It is expensive. Someone is going to pay and it will likely be the taxpayer by way of the counties as bureaucrats make and enforce rules that increase the cost of systems beyond the value of benefits gained. I am not suggesting it isn't worth it, just realize that costs go up as vendors try to comply with certification.
- It limits timely technological advances and/or software updates as the process is inherently cumbersome
- If the vendor is new or a start-up, they may not have the resources to engage in this domain, which could stifle creativity. A potentially exceptional, but immature product would be doomed to eternal certification as new releases come out.
- It offers jurisdictions a shelter under which to hide from criticism when they should be carrying the banner for reforms that make sense for their jurisdiction
- It creates a federal bureaucracy that is unable to hold up under the pressure for making election systems stay up with the latest in technology and not providing the means to achieve that end

Since there is no precedent for certification of mail ballot envelope sorting systems, we should ask ourselves: “Are we happy with the outcomes of the certification process in Colorado in 2007 and 2008? Are we in a better place today because of it?”

## The Broader Picture

A great deal of time and effort has been and will be spent trying to determine if mail ballot envelope sorting systems can or should be considered part of the voting system by the letter of the law. Whether or not it is not found to be a part of the voting system, there is little doubt that a piece of equipment like this needs transparency, oversight and a thorough understanding of the underlying components that drive the system. This oversight, by both the public and the SoS, is also clearly needed in other areas of the elections system where third party vendors have hardware or software embedded in the enterprise. This would include ballot printing, envelope printing and insertion, Ballot-On-Demand hardware and software, ePollbook hardware and software as well as county-developed applications used throughout the elections system. Any technology in use in an elections environment must have oversight if we are truly going to claim transparency in the elections process. Software hash tests, source-code escrow and trusted builds are all a part of the oversight program needed. There must be universality among systems, their testing and auditing and ultimately, around any sort of certification.

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*Additional oversight is clearly needed in multiple areas of the election system.*

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## A better approach – The Product Review

An alternative to certification that would allow for greater flexibility for both the SoS and Colorado counties, could be the Product Review process, currently in use in Georgia and proposed and administered by the Kennesaw State University (KSU) Center for Elections Systems. The purpose of the product review is to permit the Secretary of State's office to gain a thorough overview of the product, its functions, sustainability, maintainability and its intended role in Colorado's elections. The product review could permit the Secretary of State to determine if the product should be considered for inclusion as a part of the voting system.

The KSU Center for Elections Systems uses the following product review cycle. I provide it here with their permission.

Each vendor shall:

1. Ensure that the version being submitted for review is stable and all documentation is current. Once the product review has begun, revisions to the product or documentation will result in a termination and restart of the review process.
2. Consider if they wish to execute a Non-Disclosure Agreement (NDA) prior to submission of the system for review.
3. In preparation for the review, send system and user documentation in advance of receiving the system. Electronic format is acceptable.
4. Once the documentation is received, schedule a day to install the system and provide a detailed orientation session for the staff involved in the testing.

Documentation required:

1. System architecture - This will facilitate understanding of the scope of the system and its interface with the state's VR system and voting system (if any), as well as any access to remote systems.
2. Security architecture - A sufficiently detailed description of the methods used to secure data and access to the system.
3. Testing protocols - This should include methods used to test the system, including any test reports, as well as the overall QA system used to develop and maintain the system.

4. Business model and business continuity plan - The structure of the company, its principals, its support strategy, and assurances for continued support of the system, especially as it relates to key personnel.
5. Supply chain - A list of third-party providers of components used in the system.
6. Revision control strategy - Detailed description of the process by which subsequent versions will be developed, tested, and deployed.
7. Customer list - Does not need to be complete, but should include a sample of customers who currently use the product.
8. End user documentation - Instructions and manuals as provided to county end users.
9. Any other documentation that would assist in evaluating the product as it relates to use in Colorado.

## Conclusion

Perfect decisions require perfect knowledge; unless you have perfect knowledge it is hard to have a perfect decision. It is unlikely that any of us have perfect knowledge of these machines and so whatever decision is made, it probably won't be perfect. But what we do know is that there has been an alleged HAVA violation. This document doesn't speak to whether or not it is a valid HAVA complaint, the hearing procedures or the jurisdiction of the SoS office to hear the

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*No other state has certified mail ballot envelope sorting systems as a part of the voting system.*

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complaint. And, unfortunately, we were not able to go physically see and test the Bell & Howell machine in question in Boulder County. So using the significant, albeit imperfect, knowledge of elections processes and systems, along with public testimony and this report, you will have to determine if mail ballot envelope sorters are a part of the voting system. The EAC has never certified an envelope sorter. To the best of my knowledge and research, no other state or jurisdiction has either. The outcome may or may not be certification but in the end, there is no doubt that greater oversight is needed, not only for this type of equipment, but across the board in the elections system.

## Bio

Mike Lyons is a seasoned professional with over a decade of combined project and IT management experience, and has spent the last 7 years working and consulting in the Elections field. He has performed work for the Secretary of State's offices in both Colorado and Texas and has managed multiple multi-million dollar projects and diverse workforces, including large outsources and geographically dispersed resources. He has a B.S. degree in Information Systems and is ITIL certified. Mike is also a Certified Elections Official in the State of Colorado and has specific expertise in Elections, Voting Systems and Voter Registration.