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Subject:	RULE 45 input for public hearing H Branscomb

32 Comments on Rule 45 for Jan 7 public hearing and for inclusion in the public record. 1/7/10

For delivery prior to 9AM 1/7/10

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Proposed Rule link is here for those unaware of it:
http://www.elections.colorado.gov/Content/Documents/Voting%20System
s/Proposed%20Changes%20to%20Rule%2045%20for%20Public%20Comm
ent.pdf

This is a set of only the most important points taken from my 2AM review of the final proposed rule. Note that my previous comments provided still apply in full to the extent they have not been incorporated here. There are very few if any places where they have been incorporated. Note that a separate document co-authored with Al Kolwicz describes our dissatisfaction with the unannounced end of the Rule 43 45 Commission which was appointed by the Secretary, to which Kolwicz and I (and Flanagan, Gross and Hultin) were appointed representing no-one but the public. It would be understatement to say that I am disappointed that this Commission held only one meeting and was abandoned, in favor of using a distant and inaccessible consulting company to produce the proposed changes to this Rule.

Note that in this document , references to comments by [PWCx] are from authors of the Proposed Rule. I have attempted to recreate the strikeout feature used in the pdf, but have not been able to get all strikeout font properties re-included. This is representative of the inconvenient format used by the SOS for providing the basis for public comment. Some confusion will result.

Some of the general omissions or weaknesses of this proposed Rule are as follows:

1. **There is no practical test of the election system in a true election context with meaningful recordkeeping of all glitches, inconveniences and necessary workarounds encountered. Such a final test should be performed in a county election office, preferably during a real election. The SOS or VSTL tests provided for here are partial and incomplete tests done out of proper context. Election officials of average knowledge and experience should be conducting the tests,**

and not expert election officials who have a vested interest in the passage of the test, observed by the election vendor. The shift to extra participation by vendors is of concern, as their recommendations during the test may produce test conditions which are unlike the typical county election context.

2. There is no allowance for components of an election system to be separately certified for use with components from another vendor. This is anti competitive and inefficient. Electronic pollbooks are mission critical and failure prone devices but are not considered subject to certification rules.

3. There is no mechanism for review of performance of similar or same equipment in other election jurisdictions, nor is there a mechanism set up to share failures or successes encountered within Colorado with election certification efforts in other states.

4. There is no arrangement within the Rule for encouraging improvement in election technology such as for efficient auditing. While Colorado has within it excellent expertise on new election technology and methods, the state is designing its certification tests to allow only known existing equipment to pass. This represents a huge loss for Colorado voters who would like to be at the state of the art of verifiability and accountability and accuracy of elections. Alternative optional specifications could be included which encouragement to the vendors to provide equipment to meet these additional tests (such as a distant future mandate that the equipment includes the functionality)

5. New voting methodologies such as IRV are not treated in this rule. New techniques such as making available ballot photographic images as was done successfully in Humboldt County CA or ballot interpretations (as now required for IRV elections) are not envisioned here. Elements of these were used in Aspen Colorado in the May 5 election, yet this Rule is unaware of the requirements of these and other methods.

6. Public oversight in the proposed certification process is minimal. It is provided in the form of the "public demonstration" which is meaningless, and in the statutory requirement that VSTL test data be made public. Note that there is no method for public input into the test process. The public is also specifically excluded from providing input into a decertification decision.

7. Pages 25 to most of 33 are deleted from the original rule, presumably now relying upon the test specifications of the 2002 federal standards. It is too difficult for the public to verify if the 2002 rules suffice to replace this extensive set of Colorado rules. Some form of means to demonstrate the satisfactory substitution of the federal standards should be provided.

8. [As previously noted in testimony, the following definition is misleading and inadequate... ballot image record and ballot interpretation record should both be defined, and should not be limited to DRE equipment. Failure to improve this definition may hinder progress related to single ballot auditing or public verification of election records because these require a clear understanding of the difference between an interpretation and an image.]

45.1.3 "Ballot image" ~~or "Ballot image log"~~ means a corresponding representation in electronic
form of the marks or vote positions of a cast ballot that are captured by a direct recording
electronic voting device.

9.[As elsewhere noted, the following definition separates the SOS from accountability for actions taken in his stead, by giving him an ability in rule to transfer responsibility to anyone without a public record of that transfer. This is an inappropriate obstacle to transparency in government.]

45.1.14 "Secretary of State" within the context of this rule, means the Colorado Secretary of State
and his or her designated agents including employees, contractors and volunteers.

10.[the definition of Test Log has removed the reference to independent reproducibility- which substantively weakens the usefulness of the report to be produced by the election certification process. No reference has been made to the need for user friendliness of the reports to be produced which should be both human and machine readable and machine searchable and communicable.]

45.1.1~~7~~6 "Test Log" or "Test Records" means the documentation of certification testing and
processes which is independently reproducible to recreate all test scenarios conducted by the testing board. Th~~is~~e log may include documentation such as:may include, but is not limited to, certification testing reports, test plans, requirements matrices, photographs,
written notes, video and/or audio record~~ings.~~ed notes.
45.1.1~~8~~7 "Trusted Build" means the write-once installation

11. [This may be a response to Al Kolwicz' many times repeated comments, and thank you for its incorporation:]
45.5.2.4.2
(b) The voting system provider, the VSTL and/or the EAC ~~will~~
shall identify to the Secretary of State any specific sections
of documents for which they assert a legal requirement for
redaction.

12.[Database security standards removed. Test specifications are being written for the existing equipment and its current weakness. Rules ought to be made to require vendors, perhaps over a reasonable amount of time, to improve the quality of their offerings. It has been elsewhere suggested that this Rule 45 should contain optional specifications which are

of the nature that they are intended to become mandatory at a point in time. Such rules would allow for the state to recommend to vendors additional functionality for auditing such as batch sub-tally reporting, exporting of single ballot interpretations and ballot photographic images for public verifiability. The current Rule makes little or no effort to improve the status quo of what the vendors provide.]

Comment [PWC7]: The specific requirements
for data base hardening were deleted because they
are simply not workable. While they are good
standards only a system built to those standards will
pass. Arbitrarily applying a published standard to a
system that someone has already built is probably
not going to work. What is important is that the
vendor provides hardening in their database where
possible and that the hardening be in place. In the
immediate future all of the systems tested can be
expected to have some weaknesses in the security
design of their databases. During certification it is
important to understand those weaknesses so
adequate conditions of use can be prescribed and
the Secretary can make informed decisions on
substantial compliance.

13.[I recommend that for public verifiability that the SOS make written reference to the "appropriate engineering standards"]

45.5.1.3.2 The Secretary of State makes written findings and certifies that
he or she has reviewed the information specified in Rule
45.5.1.3.1, and determines that the tests were conducted in
accordance with appropriate engineering standards in use when
the tests were conducted and the extent to which the tests
satisfy the requirements of Sections 1-5-615 and 1-5-616,
C.R.S., and all rules promulgated under those sections.

14.[Here is the text which ties Colorado to the VSS 2002 federal standards. Is this written carefully enough? It seems to leave out critical functions such as voter intent captured, voter marks interpreted, and refers instead to results reported. I am uncomfortable with this crucial statement, as I am uncomfortable with reliance upon VSTL labs to execute the tests to federal standards]

45.5.2.1.11 The voting system shall ensure that all ==tabulated results== will be
accurately captured, interpreted, and reported to the level of
accuracy required in the 2002 Voting System Standards.

15.[E-pollbooks are not considered part of the voting system? This is a huge loophole and substantively limits the accuracy of the voting system. Electronic pollbooks are, when used, mission critical components which have huge risk potential for partial or total failure and also

selective failure affecting individual electors. Clearly electronic pollbooks should be included in equipment which requires certification.]

Comment [PWC12]: This was deleted because,
our understanding is that Colorado does not
consider e-Pollbooks as voting systems.
(following paragraph deleted)

~~45.5.2.7.6 Systems designed for transmission of voter information (i.e.~~
~~electronic pollbooks) over public networks shall meet security~~
~~standards that address the security risks attendant with the~~
~~casting of ballots at remote sites controlled by election officials~~
~~using the voting system configured and installed by election~~
~~officials and/or their voting system provider or contractor, and~~
~~using in-person authentication of individual voters~~.

16.[45.5.2.7 allows systems that cast ballots over telecommunications systems. This opens voting systems up to substantial risks and requires exacting security measures in response.]

45.5.2.7.~~7~~6 Any voting system provider of systems that cast individual ballots
over a public telecommunications network shall provide detailed
descriptions of:
(a) All activities mandatory to ensur~~ing~~ effective system
security to be performed in setting up the system for
operation, including testing ~~of~~ security before an election.
(b) All activities that should be prohibited during system setup
and during the time frame for voting operations~~.~~,

17.[weakened touch screen testing:]

~~All t~~Touchscreen technology shall be tested for use of
~~fingers as well as non-human touch that is both wet and~~
~~dry;~~

18.[VVPATs require barcodes although they are intended for human verification. There is no healthy explanation for this. It would only be used to perform what ought to be a hand count with a bar code reader instead. Note the definition of hand counting in Colorado surprisingly includes the use of a bar code.]

45.5.2.9.~~2~~3 The V-VPAT component should print a barcode with each record
that contains the human readable contents of the paper record
and digital signature information. The voting system provider
shall include documentation of the barcode type, protocol, and/or
description of barcode and the method of reading the barcode as
applicable to the voting system.

19.[A meaningless specification:]

45.6.2.1.7 All equipment shall be hardened using the voting system provider's procedures and specifications.

20.[Note that the below paragraph has the effect of causing the SOS to create a test plan for each specific system submitted for test, unlike the previous standard test plan for all systems…this makes independence from the specific characteristics of the vendors' system less likely- since vendor specific decisions will be made throughout the creation of the test plan. This ought to require additional oversight, for which none is provided. Note the lack of provisions for public participation in the certification process.]

Comment [PWC15]: These changes are
suggestions for making the testing process more
efficient.

45.6.2.1.1 Based upon the review of VSTL or other state reports and test records, the Secretary of State will prepare a test plan. The test plan shall be designed to test for any requirements specific to Colorado law which were not addressed in prior testing and for any federal or Colorado requirements which were not addressed to the satisfaction of the Secretary of State in the reports and records from prior testing.

21.[note that this rule may be used to limit the range of test materials to avoid testing of difficult conditions. Note similar limitations placed elsewhere.]

45.6.2.1.2 The test plan shall include the election definitions to be used in testing and specifications for test ballots. ==Test ballots== and election definitions shall generally ==follow all requirements== for election definitions, ballot layout and printing to verify the system's ability to meet those requirements. Some election definitions and ballots may depart from the requirements in order to test specific functions.

22.[Test description no longer needed? This may harm the public verifiability of the process]

45.6.2.2.3 Records A test log of the testing procedures shall be maintained and recorded kept on file with the Secretary of State. The recordsThis test log shall identify the system and all components by voting system provider name, make, model, serial number, As Amended 5/21/09Drafted 9 29 09 Page 47 software version, firmware version, date tested, test number, test

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plan, requirements matrix test description, testing team notes and other supplemental information of test, applicable test scripts, and results of test. TheAll test environment conditions shall be describednoted.

23.[following paragraph deleted- clearly to limit the scope of the report of the certification]

~~45.6.2.2.4 All operating steps, the identity and quantity of simulated ballots, annotations of output reports, any applicable error messages and observations of performance shall be recorded.~~

24.[effect of deviation on determining compliance? This doesn't sound clear. Could have been written: effect of the deviation on the compliance of the system to the requirements]

45.6.2.2.45 In the event that a deviation from the test plan is required, it shall be documented in a test team note. The note shall provide a description of the deviation, the reason for the deviation and effect of the deviation on testing and determining compliance with requirements. ~~to requirements pertaining to the test environment, voting system arrangement and method of operation, the specified test procedure, or the provision of test instrumentation and facilities is required, this deviation shall be recorded in the test log together with a discussion of the reason for the deviation and a statement of the effect of the deviation on the validity of the test procedure.~~

25.[this below seems good, except it doesn't require the specification of the "range of values" which constitutes a successful passage of the test- i.e. it doesn't contain test specifications which Conroy v. Dennis required!]

45.6.2.3 General Testing Procedures and Instructions

45.6.2.3.1 Certification tests shall be used to determine compliance with applicable performance standards for the system and its components. The general procedure for these tests shall:
(a) Verify, by means of the applicant's standard operating procedure, that the device is in a normal condition and status;
(b) Establish the standard test environment or the special environment required to perform the test;
(c) Invoke all operating modes or conditions necessary to initiate or to establish the performance characteristic to be tested;
(d) Measure and record the value or the range of values of the performance characteristic to be tested; and
(e) Verify all required measurements have been obtained, and that the device is still in a normal condition and status.

26. **[new rule will allow testing of test modes- Test modes are suspect because they by design use different software than the election mode which they substitute for. Certification of equipment "test modes" means these modes will likely be used in preparing for elections. When tests are done in "Test mode" they say little about how the equipment will function in "election mode" unless the certification test specifically insures that all meaningful functionality in the two modes is exactly the same and the election mode cannot be defrauded without the fraud appearing in test mode. This is probably impossible to test for or to prove. Test modes should not be used.]**

45.6.2.3.2 All tTests shall be generally conducted ~~as described in this section 45.6.2.3~~ in regular election mode. Tests of test mode and diagnostic functions may be conducted in the appropriate test mode

27. **[having deleted the next line, test mode can be tested- but test modes should not be used at all]**

~~.At no point shall testing be conducted in any form of test mode.~~

28. **[contrary to my recommendations, specifications and requirements for practical tests have not been enhanced, but instead reduced or removed]**

~~45.6.2.3.3 Each voting system shall be tested and examined by conducting at least three mock elections which shall include voting scenarios~~
As ~~Amended 5/21/09~~Drafted 9 29 09 Page 48
~~that exist within a primary, a coordinated election, and a recall election.~~
~~45.6.2.3.4 Each component of the voting system shall contain provisions for verifying it is functioning correctly and, whether operation of the component is dependent upon instructions specific to that election. Test scripts shall be substantive and qualitative in form with expected results listed for each test.~~
~~45.6.2.3.5 Election scenarios shall feature at least 10 districts (or district types), comprised of at least 20 precincts that will result in a minimum of 5 unique ballot styles or combinations as indicated in the instructions to providers.~~
45.6.2.3.6 The voting system provider is required to produce ballots and assemble marked test decks and spare ballots as specified in the test plan. ~~in quantities identified below for each of the elections. Enough ballots need to be created to conduct the testing of the voting system as defined in this rule. One complete set of ballots will be tested in each of the applicable counter types (or groups) indicated below:~~
~~(a) Poll Place or Vote Center - ballots are flat – no score marks;~~
~~(b) Early Voting – ballots are flat – no score marks;~~
~~(c) Mail-in – ballots are scored and folded to fit in standard Colorado Mail-in Ballot Envelopes; and~~
~~(d) Provisional – ballots are flat- no score marks.~~

45.6.2.3.7 All ballots provided shall be blank with no marks on them. The following combinations of ballots are required:
(a) Four separate decks of ballots shall be provided consisting of 25 ballots for each precinct/precinct split generated for each election that are flat (1500 minimum combined). At least one deck shall have the General Election data, and at least one shall have the Primary election data as indicated in the instructions for voting system providers;
(b) Four separate decks of ballots shall be provided consisting of 25 ballots for each precinct/precinct split generated for each election that are folded (1500 minimum combined). At least one deck shall have the General Election data, and at least one shall have the Primary election data as indicated in the instructions for voting system providers;
(c) Four separate decks of ballots consisting of 300 ballots of any single precinct from each election. Two of these decks shall be printed in all alternative languages as required for the State of Colorado pursuant to section 45.5.2.3.5;

(d) One separate deck of ballots consisting of 200 ballots of any single precinct from the Coordinated election shall be provided that contains a two page ballot (races on four faces);
(e) One separate deck of ballots consisting of 10 ballots for each precinct generated for the Recall election that are flat as indicated in the instructions for voting system providers; and
(f) Any voting system provider that uses serial numbers printed on ballots for processing shall produce ballots of each requirement above printed both with and without serial numbers.

45.6.2.3.8 The voting system provider shall provide a minimum of ten (10) ballot marking pens/pencils/markers as defined by their system for marking ballots by the Secretary of State or the designee.

45.6.2.3.9 For mark-sense or optical scan devices, the Secretary of State will prepare one (1) or more test ballots with The testing board shall mark a minimum of 300 ballots with marking devices of various color, weight, and consistency to determine the range of marks that can be read and the range and consistency of reading marginal marks.accurate counting with a variety of marking devices.

45.6.2.3.10 Ballots shall be cast and counted in all applicable counter types (or counter groups) as necessary based on the parts included in the voting system. These are, at a minimum,: Poll Place (or Vote Center), Mail-in, Provisional, and Early Voting. Ballots may be run through components 10 or more times depending on components and counter group being tested to achieve a minimum number of ballots cast as follows for each group:
(a) Polling Place / OS = 1,500;
(b) Polling Place / DRE = 500;

(c) Vote Center/ OS = 5,000;
(d) Vote Center / DRE = 500
(e) Early Voting / OS = 5,000;
(f) Early Voting / DRE = 250;
(g) Mail-in = 10,000; and
(h) Provisional = 5,000.

45.6.2.3.11 Ballot design shall be sufficient to verify the cover the scope of allowable ballot designs for the given system under Colorado election law.. For example, if a system is capable of producing As Amended 5/21/09Drafted 9 29 09 Page 50

11" and 18" ballots, then both ballot styles shall be tested in each of the elections above. If more sizes are available, they shall also be tested. Ballots shall be designed and presented with a maximum of four (4) columns and a minimum of one (1) column.

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29. [Above is effectively a dismantlement of functional testing in Colorado. From 300 ballots previously required for testing marginal marks, we go to only "one or more". Embarrassing. All descriptions of numbers of ballots to be tested are deleted. Vendors are expected to provide the test decks. Vendors should not be providing any test materials to the SOS for testing. All materials should be sourced through means which would be typical of the election official or the elector voting from home. This new text effectively removes the specifications for testing which were previously in the Rule.]

30. [below, no requirement is set for the keeping of software (or any other kind of election exception) incident records by vendors or by local election officials, thus there would be no expectation that such records would exist]

45.8.3 The Secretary of State shall conduct an annual visual inspection of all software incident
records maintained by each voting system provider certified for use in the State of Colorado.

31. [the public continues to be excluded from the opportunity to provide information upon which a decertification decision might be based. This is in effect a gag rule.]

45.9.2 Certification of a voting system may be revoked and/or suspended at the discretion of the
Secretary of State based on information that may be provided after the completion of the
initial certification. This information may come from any of the following sources:
(a) The Election Assistance Commission (EAC);
(b) Voting Systems Testing Laboratories (VSTL);
(c) The Federal Election Commission (FEC);
(d) The National Software Reference Library (NSRL);
(e) National Association of State Election Directors (NASED);

(f) The National Association of Secretaries of State (NASS);
(g) Information from any state elections department or Secretary of State; and/or
(h) Information from Colorado County Clerk and Recorders or their association.

32.[Teeth removed from rule for vendors who provide equipment which is not certified]

45.9.3 Any use of a decertified or uncertified voting system for any jurisdiction in the State of
Colorado shall result in possible loss of future and other existing certifications within the sState, at the discretion of the Secretary of State.