1 March, 2018

Comments for March 2, 2018 Colorado Secretary of State Election Rulemaking Hearing

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Re: Amendments to Code of Colorado Regulations (CCR) 1505-1, Rule 25 Post-election audit

Thank you for the opportunity to submit written comments about proposed revisions to election rules regarding post-election audits in Colorado.

Verified Voting is a national non-partisan, non-profit educational and advocacy organization committed to safeguarding elections in the digital age. Founded by computer scientists, Verified Voting's mission is to advocate for the responsible use of emerging technologies to ensure that Americans can be confident their votes will be cast as intended and counted as cast. We promote auditable, accessible and resilient voting for all eligible citizens.

For a number of years Verified Voting has supported experts and citizens as they have helped develop legislation, pilot projects, and rule-making for risk-limiting audits in Colorado. Last year we were very pleased to have various Verified Voting volunteers and paid staff working with Dwight Shellman and other staff in the Colorado Secretary of State's Elections Division to help develop and deploy the first state risk-limiting audits in the United States. We're glad that Secretary of State Wayne Williams and staff in the Elections office have recognized that implementing risk-limiting audits will require several years, and that they have welcomed our continued collaboration to help refine the rules and software to help facilitate that implementation as an iterative process.

Many other states are looking to Colorado to see how risk-limiting audits work, and what legislation and rules they might emulate. As a result, what Colorado does is very important not only for its own citizens, but for the entire country.

The current [Working Draft Of Proposed Rules (Jan 16, 2018)](#) includes a number of good revisions based on lessons learned in Colorado's 2017 statewide risk-limiting audits. It also contains some provisions that should be changed before the 2018 elections.

We generally support detailed comments and suggestions for revision submitted by the following individuals and organizations:

- [Harvie Branscomb, Neal McBurnett, and Philip Stark - 2/23/2018 (PDF)](#)

- [Toni Larson, President, League of Women Voters of Colorado – 2/26/2018 (PDF)](#)

We particularly want to emphasize the following points:

1. Specify contests to be audited in legislation or rules rather than selected by a person

We agree with others who have said that contests to be audited should not be selected (or "targeted") by an individual person (such as the Secretary of State). It would be particularly unfortunate to have the Secretary of State selecting contests to be audited if s/he is running in the same election. It would be best to specify which contests should be audited in legislation or rules.

We strongly recommend that all statewide contests be audited; that will not require manually counting many ballots in each county unless a contest is extremely close. For example, if contestants in a statewide contest are separated by just 0.3% of the votes, we can achieve a 5% risk limit by counting just 2,333 ballots state-wide.

We also think all federal and state legislative contests should be audited. For lower level contests, we recommend that the county-wide contest with the narrowest margin should be targeted for audit in each county. Other county and sub-county contests could be selected for audit at random in each election.

If the Secretary of State insists on having discretion to select target contests in 2018, that discretion should be limited (e.g., all statewide contests should be audited in any case), and the rules should include a sunset provision to end that the SoS discretionary authority in 2018.

2. Escalate to Full Hand Counts as required by RLA algorithm

We recognize that state and local election officials are understandably concerned that risk-limiting audits sometimes lead to hand counting of many ballots – particularly in close contests or when many problems arise. It is difficult for local election officials to plan for audits when the number of ballots to be manually examined is not known until after the election.

As Philip Stark says, "if an audit process doesn't lead to full hand counts when necessary, then it is not a risk-limiting audit."

We have been troubled by reports that Colorado's Secretary of State and other state election officials may have stated that there will not be **any** audits that escalate to a full hand recount.

To date, Colorado has been the national leader in implementation of risk-limiting audits. Laws, rules, and implementation that are used specifically to avoid auditing close contests because they might lead to full hand counts or recounts would jeopardize Colorado's status as a model for other states. Rather than avoiding full hand counts, we recommend supporting any counties who must carry them out. When auditing a very close statewide or other multi-county contest leads to requiring a full hand count for that contest, the financial and resource burden should not fall completely on individual counties. Instead, we recommend that the legislature budget money to cover such expenses, and that in the interim, that the Secretary of State allocate

a portion of some funds used to support all counties in other ways to be used to help offset the costs associated with performing full hand counts due to very close statewide and multi-county contests. It will be much easier to budget for these expenses at the state level for all counties in the state.

3. Standardize names/labels for contests & candidates

Prior to the 2017 statewide audit, people in the State Audit Working Group urged the Secretary of State's Election Division to create a list of standard names and labels to use for contests and candidates prior to each election, and to require each county to use those standard names and labels when they submit data to the Secretary of State and Audit Central. When counties submit data using different names and labels it creates an additional burden for the central office to merge data for statewide and multi-county contests (e.g., Governor, state legislature).

The recently issued RFP for auditing software enhancements requires that the software be able to merge data with different names and labels, which will not only be more costly to develop, but also will require more human intervention when it comes time to merge data.

Requiring counties to use standard names and labels for multi-county contests will not be burdensome for counties if they use those names and labels as a part of the ballot definition process. In fact, since most counties in Colorado now use Dominion systems, the state might even be able to save counties some time and effort by sending out standard names and labels in a form that can be directly loaded into Dominion ballot programming systems.

We therefore urge the Secretary of State to add a rule requiring that the Division of Elections create a set of standard names and labels for multi-county contests in a form that can be used for Dominion systems ballot programming a specified number of days before each election, and that each county use those standard names and labels for all data submitted to the Secretary of State for that election.

4. Publish data for the public before elections are certified

One of the shortcomings of Colorado's statewide audits in 2017 is that the Secretary of State did not publish a number of important datasets that are crucial for citizens who wish to double check parts of the audit on their own. Some of that data still has not been published months after the November election.

Data sets that need to be published before certification include:

- Risk Limit(s)
- Any parameters chosen in the algorithm, such as the error inflation factor
- List of contests selected for audit

- Tabulated results for contests selected for audit
- Ballot manifest files (with hashes, if necessary to prove timely commitment)
- CVR files (with hashes, if necessary to prove timely commitment)
- Tabulated results exported from RLA tool
- Random sequence of ballot cards used for the audit.
- List of ballot cards assigned for review by each Audit Board
- RLA computer system record of voter intent as interpreted by the Audit Board
- For each contest and each type of discrepancy, the number of those discrepancies between the Audit Board interpretation and the CVRs
- Status and results of any full hand counts

Please see http://bcn.boulder.co.us/~neal/elections/PublicRLAOversightProtocol.pdf for a good discussion of best practices for public oversight of risk-limiting audits.

One kind of data that is essential for checking the audit are cast vote records (CVRs) -- electronic representations of votes for each contest on a single voter's ballot. Last year the Secretary of State was understandably concerned about publishing full CVRs with all contests because doing so might reveal the identity of some voters -- particularly voters who cast ballots in very small contests.

Since last year there have been a number of suggestions about how to deal with this ballot anonymity problem. One of the best ideas is to create a separate CVR file for each contest, which would only contain electronic representation of marks for that contest, and similarly to create an audit CVR file for each contest which would contain only the electronic representation for marks in that contest PLUS an indication of whether the vote represents a 1 or 2 vote over or understatement. Observers could download the CVR file and the "audit CVR" file (created by judges during the audit) for a particular contest and calculate the risk-limit for that contest.

5. Ballots must be sampled from independent ballot manifests, not CVRs

In 2017, Colorado and Free and Fair's audit software had to use CVRs to create ballot manifests for a number of counties. In 2018 and the future, we hope state and county election officials can work with election experts to come up with better ways to create ballot manifests that are independent of the scanning and tabulation software used to create CVR's.

6. Sort ballots by groups of styles or individual styles before scanning and tabulation

As the commentary by Harvie Branscomb, Neal McBurnett, and Philip Stark - 2/23/2018 (PDF) points out, by far the most powerful process to obtain both efficient sampling and necessary anonymity is to sort ballots by groups of styles or individual styles (in envelopes or outside them). Boulder County sorted and batched by presumed style in 2017 using both passes of its Bell and Howell envelope scanner sorter. Counties have demonstrated willingness and ability to

number (by hand in most cases) the ballots prior to audit. We would expect them to be willing to hand sort or machine sort ballots (as applicable) if they are aware of the benefits. All counties can and ought to sort primary ballots by political party. That sorting is almost already required for Unaffiliated packets returned in the primary. Discovery and reporting by actual returned party-style is legally (newly) required. This is just one step more difficult than simply sorting by presumed style as indicated by the SCORE record of what ballot style was sent.

Although county officials are beginning to recognize the benefits of sorting, we've heard that SOS staff are saying there is resistance to sorting among counties - so rules will be written in an attempt to avoid sorting. That means that the audit would have to depend inappropriately on CVRs--which are themselves the subject of audit, so that is a substantial flaw in the audit.

Rules should encourage practices in the audit that do not rely upon a presumption of accuracy of the CVR- including presumption that the style of the actual CVR correctly represents what the voter marked, or what they were eligible to mark.

In order to minimize anonymity issues and simplify sorting and batching by style, it would help to limit the number of styles, at minimum by using three techniques outlined in [Harvie Branscomb, Neal McBurnett, and Philip Stark - 2/23/2018 (PDF)](#) (some of which may require regulatory or statutory changes).

7. Recounts must use actual ballots, not ballot images

Recounts, like audits, should use actual paper ballots, not scanned images of ballots. A successful audit for one contest does not authenticate scans for any other contest and should not be used to justify any reuse of ballot images/pictures for recounts.

We suggest that 10.9.2 be revised as follows: 10.9.2 A COUNTY THAT HAS SUCCESSFULLY COMPLETED A COMPARISON AUDIT OF A CONTEST THAT RESULTED IN A FULL HAND COUNT UNDER RULE 25.2, NEED NOT RE-SCAN OR REINTERPRET BALLOTS DURING A RECOUNT OF THAT CONTEST. ~~BUT MUST RE-ADJUDICATE BALLOT IMAGES FOR VOTER INTENT IN ACCORDANCE WITH RULE 10.13.3.~~

Conclusions

Colorado's current revised election rules have a number of good changes and additions, but much work still remains to be done. Verified Voting looks forward to continuing to work with state and local election officials, experts, and advocates in order to help Colorado stay in the forefront of post-election audits in the United States.