

Commentary on CO SOS draft rules of Jan. 16

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Comments specifically on current draft rules:

General: A serious shortcoming of the current RLA process is the presence of many barriers to observability, during and after the audit. The public needs to be able to determine whether the audit was conducted (and terminated) correctly. To this end, broadly, all data that feeds into and comes out of the audit must be made public -- of course while preserving voter privacy -- and the whole audit process must be held in public. Audit processes that are not visible to the public will never be very convincing. Reports of investigations that happen away from public oversight are likewise unconvincing. All elements of the audit should be publicly verifiable via observation and access to data.

For more detail, see <http://bcn.boulder.co.us/~neal/elections/PublicRLAOversightProtocol.pdf>

10.9.2 Recounts: The draft language implies that a county that has completed an RLA of *any* contest is exempt from rescanning ballots during a recount as in the existing recount procedures. This is unacceptable. An RLA of one contest, in itself, provides no information about any other contest. Whatever evidence may be provided through opportunistic auditing -- if any -- of the contest to be recounted cannot be relied upon to provide sufficient evidence to warrant using the original scans for the recount. (Of course, if an RLA of a contest proceeds to a full hand count, the result of that hand count can stand in place of any further recount.)

25.2.2(i) Choice of target contests. We think it is crucial to select at least one *statewide* contest in each major party. It is far preferable for the first RLA of a statewide contest to occur in June, not in November. This may well require little or no more auditing than the draft language, because of the efficiencies gained by sharing workload statewide. In general, we recommend setting a risk limit for *all* statewide contests, although it is not necessary to do so in June.

The first criterion, "closeness of the reported tabulation outcome," should be clarified to make clear that, all else equal, closer contests are to be preferred as target contests. The last criterion, ability to complete the audit before the canvass deadline, is undesirable, as it implies on the contrary some bias *against* confirming the outcomes of the closest contests.

In the longer run, the secretary of state's discretion to select target contests should be strictly limited as procedural advances allow. The rules should provide more guidance on selection of target contests, and they should assure large enough samples in every county to provide useful evidence beyond the target contests. We recommend that, at a minimum, all federal contests be treated as target contests as soon as this is feasible (presumably following some software improvements and, ideally, the capacity to conduct comparison audits in every county).

25.2.2(j) Number of ballot cards to audit: The formulas and protocols described in "A Gentle Introduction to Risk-limiting Audits" are insufficient to conduct an efficient "hybrid" RLA of a

statewide contest, which will combine comparison audits in some counties with ballot polling in others. (This complication will disappear once all counties are able to conduct ballot-level comparison audits.) A paper titled "Preparing to Audit Colorado's 2018 Primaries," by Mark Lindeman, Neal McBurnett, Kellie Ottoboni, Ronald L. Rivest, and Philip B. Stark, is nearing completion, and will document the statistical methods to be used for a hybrid audit. This paper can be incorporated by reference as with the materials already mentioned.

25.2.3(a)(1) and (2) Use of digital images in ballot retrieval: In a comparison audit, we consider that the audit board might want to refer to a ballot image in investigating discrepancies, but we are reluctant to allow an audit board to examine a digital scan before it interprets the ballot itself. At least the rule should be revised to clarify that the scans should not influence the interpretation of voter intent. In a ballot polling audit, we would not allow the audit board to consult digital images at all. In ballot polling, inadvertently retrieving a ballot adjacent to the intended one should not bias the results; efforts to find “true matches” very well might.

More generally, no change should be made that would jeopardize the principle of “blind capture”: that the audit board interprets voter intent from the ballots themselves, without any other source of information about what marks they should expect to see. (However, with software improvements, it should be feasible to investigate discrepancies more expeditiously, provided that they are recorded and reported.)

Comments on best practices and ongoing challenges:

Sorting ballots by style: The most valuable procedural change to improve audit efficiency and to protect ballot 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 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 sort ballots (by hand or by machine, as applicable) if they are aware of the benefits. We hope that more counties will explore this approach in June.

Importing data from SCORE: As previously discussed, SCORE data can provide a very valuable check upon the numbers of ballots of each style. (These counts need not be exact as long as conservative maximum counts are available.) With this check, it becomes more feasible to use -- without blindly relying upon -- data contained in the CVRs to audit contests that appear on a small fraction of ballots. Of course, the more progress is made in sorting ballots by style, the less important it is to incorporate SCORE information.

Independence of ballot manifest from CVRs: The ballot manifest should be strictly independent of the CVRs being audited, and ideally, of the tabulation scanners. (We believe that this is already the case in many counties, but the rule does not explicitly require it.) CVRs might be used to populate additional fields in the ballot manifest once independent sources (e.g., data from SCORE) are used to verify that CVR data is credible with respect to style and scanner number and batch number.

Limiting the number of ballot styles: In order to minimize anonymity issues and simplify sorting and batching by style, it would help to limit the number of styles, using the following techniques (some of which may require regulatory and/or statutory changes):

Ensure that redistricting splits congressional districts only in counties with large numbers of electors in each district and automatic sorting equipment. Small counties such as Eagle and Park should never contain multiple CDs. House and Senate Districts should match county lines whenever possible. All counties with multiple HDs should be large and should have envelope sorters. Most legislative districts already comply with these guidelines.

Coordination of elections in non-countywide districts should be limited to remove any introduced loss of voter privacy (ballot anonymity).

If elections in some Special Districts, School Districts and/or Municipal Districts are coordinated but anonymity can be preserved by placing the contests on a separate, independently tabulated card, this practice should be allowed and encouraged. (This will probably require a change to statutory form of ballot to put the page break in an appropriate place to achieve anonymity.) This will also reduce the number of styles.

Rules that require keeping first and second cards together, or the creation of a dummy first card when the first card is missing, must be removed so that style and CVR of each card can be made independent and easy to process. Dominion's technology supports this. The cost of additional cards can be borne by coordinated districts that when added to the single card, introduce voter privacy issues by creating additional rare styles. The tabulation system should not attempt to report "ballots cast." The eligibility system should. The tabulation system should report the numbers of cards cast (# of first cards, # of second cards, etc.)

To the extent that paper ballots or portions of CVR files remain non-anonymous and therefore risk voter privacy, the specific items at risk can be excluded from the audit by treating each as inaccessible and also forced to be interpreted as adverse to the presumed outcome (reported tabulation outcome). (This approach tends to increase the number of ballots that must be audited, but should do so only marginally unless these problematic ballots are very common.) Of course, this presumption of adversity should not be recorded as an audit discrepancy.