

## APPENDIX A

### Site Visit: Colorado Risk Limiting Audit Demonstration

July 6, 2018 and July 7, 2018

At the invitation of the Colorado Secretary of State's office, Interim Administrator Meagan Wolfe and Elections Specialist Bill Wirkus attended a demonstration of Colorado's Risk Limiting Audit following Colorado's primary election.

#### I. Pre-Visit: Preparations for the Risk Limiting Audit

Prior to the demonstration, Colorado counties and the Secretary of State's office made several preparations for the RLA. This includes selecting a bi-partisan county audit board – one representative of the Democratic Party and one from the Republican Party. In addition, the counties define a ballot batch size, such as groups of 25 or 100 ballots. The county will keep and store the ballots in the same order in which they were scanned or will imprint the ballots with a unique identifier. The county will also create and upload a ballot manifest, which is a list of the ballot group identifiers and the number of ballots in each group. Finally, the county will export the Cast Vote Record (CVR) to the Secretary of State. The Secretary of State's Office selects the state- or county-wide ballot contests for each county to be audited and selects a "risk limit" such as 5% or 10%.

#### II. July 7, 2018: Audit Begins Throughout the State

On the 9<sup>th</sup> day after the primary election, the Secretary of State's office held a public meeting to select random numbers to input in its RLA software to generate a seed and randomly select ballots to audit.

Hand Count	County	Name
↓	Adams	Attorney General - DEM
↓	Adams	Governor - REP
↓	Alamosa	Attorney General - DEM
↓	Alamosa	Governor - REP
↓	Arapahoe	Attorney General - DEM
↓	Arapahoe	Governor - REP
↓	Archuleta	State Treasurer - DEM
↓	Archuleta	Archuleta County Treasurer - REP
↓	Baca	State Treasurer - DEM

1: Contests to be audited



2: Participant rolls 10--sided die for random seed generation

### III. Ballot Retrieval and Inspection Begins on County Level



3: 20 Participants total rolled 20 10-sided die to input into RLA software

The random seed established at the July 6<sup>th</sup> public meeting is:

Roll	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Seed	8	7	6	4	2	9	6	6	8	5

Roll	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Seed	7	7	5	2	1	2	3	3	6	2

The Secretary of State will publish on the Audit Center of his official website (<http://www.sos.state.co.us/pubs/elections/auditCenter.html>) this record of the random process of die roll.

4: Results of Die Roll

After the random number seed is generated, a list of random ballots from each county are created from which the county is to retrieve from their various batches. Depending on the margin of the contest selected, the number of ballots retrieved per county varied from as low as 66 ballots to a high of 387. Denver County, which we observed, was required to retrieve 222 unique ballots.

Ballot boxes with the selected ballots were retrieved and placed in a secure room where the boxes were divided up among several pairs of staff from the Denver Elections Division. Each pair opened a ballot box confirming tamper-evident seals and retrieving the ballot in question, replacing with a colored piece of paper purportedly containing a facsimile of the ballot.

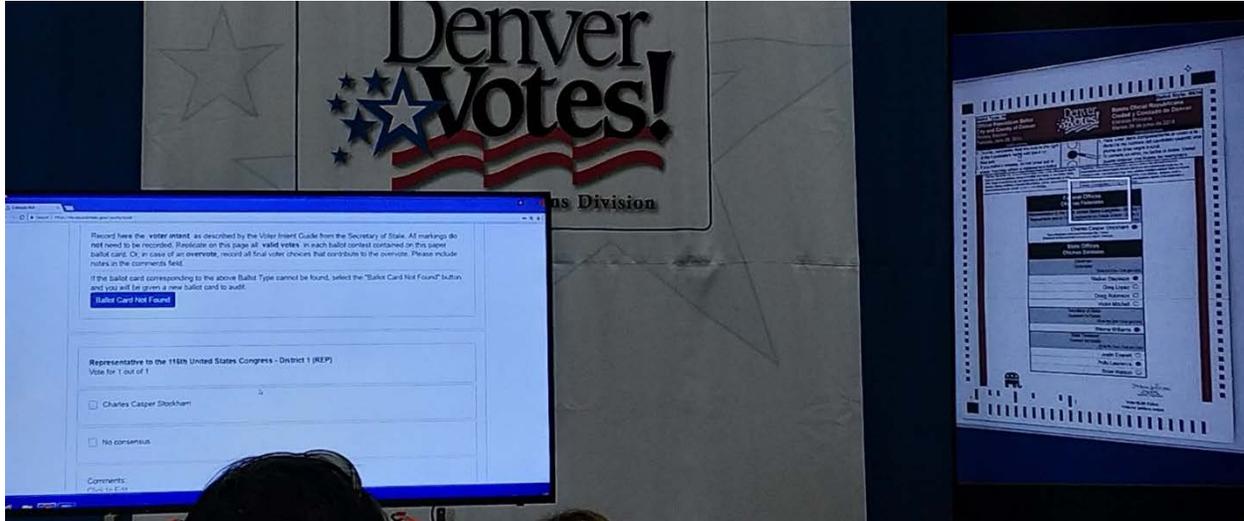
The ballots were imprinted with a serial number so they could be more easily identified in the batch.



5: Staff verify seals, open ballot boxes, and retrieve selected ballots



A short time after ballots were retrieved, the two members of the bi-partisan audit board began examining the selected ballots, manually interpreting the voter selections and inputting the selections into the computer software specially designed for the audit. This manual interpretation was done “blind,” meaning the audit board could not see the cast vote record during interpretation so as not to influence the way in which they interpreted the ballot.



On the above image, on the right-hand side, the ballot being examined by the board is simultaneously being projected on a screen for observers to follow along. On the left-hand side is a projection of the software screen in which the auditors input their interpretation of the ballot by selecting a multiple-choice button. The auditors must agree on the interpretation, or “disagreement” may be marked which could cause additional rounds of audit.

After the audit board has gone through all 222 selected ballots, the results are submitted and then automatically compared with the cast vote record (CVR). If no discrepancies are identified, then that county’s audit is complete. If there is a discrepancy, that county would need to complete another round of audit. In this case, Denver County had no discrepancies identified during the audit:

County Info	
County:	Denver
Status:	Audit complete
Current Round:	
Ballot cards remaining in round:	0
Ballot cards audited (all rounds):	222
Disagreements (all rounds):	0
Discrepancies (all rounds):	0

Denver’s audit was complete. However, at least 1 county in Colorado did have a single discrepancy, which caused the SOS to send a list of additional ballots to retrieve and inspect by that county only. Colorado Secretary of State staff indicated that every discrepancy to date has been the result of human error (i.e. misinterpretation or inputting incorrect information during the process).

Note: The vast majority of Colorado counties, 58 counties, participated in the Comparison RLA. An additional 3 counties, which use older voting equipment incapable of capturing and exporting a ballot-level cast vote record, participated in a Ballot Polling RLA. Further, there are three counties that use exclusively hand-count paper ballots, which did not participate in the audit.