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Colorado Risk-Limiting Tabulation Audit

Preserving Anonymity of Cast Vote Record

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Executive Summary:

Colorado has passed a law requiring a "risk-limiting audit" to be conducted starting in 2017. That means a vote tabulation audit that will provide confidence in an election outcome by sampling—depending on contest margin—some number of paper ballots by hand, confirming correct interpretation, and—only if necessary—escalating to a full hand count. The election rule implementing this audit calls for "cast vote records"—individual vote patterns resulting from tabulation by the voting system to be employed in a comparison to human interpretation of voter intent on individual randomly selected ballots. Fifty-four of the 64 Colorado counties have acquired equipment capable of creating these "CVRs" as of 2017. [Update: 60 counties as of March 2018.]

Colorado's elections produce a profusion of ballot styles. This complication is due to Colorado's many chaotically intersecting districts (legislative, county, municipal, school, special).

About 95% of Colorado's ballots are distributed and returned in the form of mail ballot packets. Upon return, unsorted envelopes containing ballots are divided into batches for eligibility determination. An identifiable return envelope associated with a specific residence address and ballot style is checked for evidence of eligibility.

Colorado law requires secrecy in voting, meaning ballots being prepared for tabulation must be separated from the voter's identity. The CVR—which is a simplified, numerical interpretation of voted ballot content—consists of an electronic record that is crucial to the comparison type of risk-limiting audit. The CVR must be available to the public, for audit purposes. Therefore, not only must separation of a voter-identity-bearing envelope from the ballot occur at the earliest possible moment but also the envelope must never be able to be re-associated with the ballot itself or its image, whether a scanned image or in the form of a CVR.

This document (1) **addresses potential risks** for correlation of the CVR with the identity of the voter and (2) then offers possible means of preserving the **anonymity of the CVR** so that it may be used as required for the audit and by the public. Among these are temporary redaction methods and RLA-specific remedies that allow the audit to proceed without public access to specific CVRs that could be identified to the voter because the ballot style is one used by only a few voters (termed a "rare style"). Also proposed are best-practice batch redefinition such as supported by draft election rule 7.5.10 and longer-term solutions such as beneficial restrictions on setting of district boundaries and ballot design.

The process of redaction of a CVR file to maintain voter privacy does motivate remediation for any violations of privacy that are the result of systematic poor practice, such as maintaining ballots in small batches each containing many ballot styles identical to a batch of envelopes grouped together at eligibility check and still similarly grouped at tabulation. The redaction of a CVR file should not be used as a tool to prop up a systematic practice that defeats the intention of the Colorado constitution that no ballot be marked (or presumably handled) in a manner that would reveal who voted it. One hopes that redaction methods proposed here will only temporarily be used until both the paper and its electronic counterparts are systematically rendered anonymous and public access to CVRs proves the desired anonymity to the public.

Principles:

1) Audit process and materials must be available for in-person public inspection and verification.
2) Public access to physical ballot is necessarily limited by logistics of access, so alternative means for partial access are needed that function remotely such as over the internet.
3) Audited evidence must be "committed to" in public before generating the random seed for the audit.
4) Several levels of access are arranged for separate categories of individuals:
    a. Election officials (clerk, clerk's staff, SOS staff, canvass board, contractors)
    b. Watchers (credentialed by interested parties)
    c. Candidates
    d. Public
5) Modes of access to evidence may vary depending on the type of evidence:
    ● Original voter-hand-marked paper ballot
    ● BMD-printed ballot voted in person
    ● BMD-printed ballot voted remotely
    ● Duplicated ballot representing original voter markings
    ● Image of ballot as scanned by voting system
    ● Photograph of voter-marked paper ballot taken by, e.g., auditors
    ● Instances of above categories where voter has substantially self-identified
    ● Cast Vote Record (CVR) as produced by the voting system for unofficial results
    ● CVRs as uploaded and published for audit
    ● CVRs as updated during audit

6) Under the Colorado Open Records Act (C.R.S. 24-72-205.5), a county is required to cover or redact before "making available for public inspection" a voted ballot if
    ● the voter has self-identified through marking or
    ● there are fewer than 10 instances of the ballot's style (or requested portion thereof) in the election.

Discussion:

Anonymity issues affect access to paper ballots, scanned images, and (of course) photos of paper ballots, but these topics are not addressed here. Risks caused by voter self-identification of the paper ballot and copies thereof are not being discussed here. Self-identification of ballots via pattern voting is also not a topic of interest as it cannot be used to provably identify a ballot or a CVR and requires the cooperation of the voter to expose his or her identity through a pattern of selections that might not be unique. Self-identification with paper ballots and images thereof is currently and regrettably from the point of view of election integrity allowable under Colorado law. C.R.S. 1-13-712

Here we are concerned with the potential for a published or viewed CVR to be identified with a particular voter, and the steps that need to be taken to largely remediate this risk.

The susceptibility of the CVR to being identified with the voter depends on the policies and procedures of each county that uses a voting system that is capable of creating a CVR. It also depends on the fields chosen to be included in the CVR.

In Colorado, the CVR is still a record with somewhat dynamic definition. It has been subject to rulemaking since 2016. The Appendix contains the Colorado definition of the CVR under Election Rule 21. There will likely be 8 fields required by rule to be included.

If counties follow proposed Colorado Election Rule 7.5.10 properly, there are a small number of situations that still need to be addressed, which we consider under (A). If counties do not follow the processes described in that rule, the situation is much more problematic, which we consider as case (B).

A) The **envelope batches are disassociated from the tabulation batches** physically and logically prior to tabulation per Colorado Election Rule 7.5.10 as follows:

> *7.5.10 Before tabulating ballots, the county clerk must, to the extent practicable, dissociate counting batches from any SCORE batch number that could trace a ballot back to the specific voter who cast it.*

In this case the only CVRs that will be identifiable are those for which the style plus any other discriminating factor (e.g. "CountingGroup) is unique within any collection that matches a group of ballots which is maintained intact from the (identifiable) eligibility check to the (presumably anonymous) tabulation. Such a collection is likely to be defined as all ballots in the entire county for most small counties, but in larger counties it might represent a tub of 1000 or 2000 ballots. Harvie Branscomb has elsewhere (see link below) proposed implementation of such a collection of batches that is of minimum size 5x the number of styles contained within. This "collection" represents an intentionally large-scale partitioning of the ballots for which direct accountability of counts of pages is maintained.

http://www.sos.state.co.us/pubs/rule_making/written_comments/2017/20170718Branscomb.pdf

Under proposed rule 7.5.10 there remain three cases of anonymity risk at the CVR level built into the current Colorado election system that must be watched for. Once remedied, we are able to freely publish the CVR without risk to voter privacy.

1) *First is the case of the voter who is unique because of district overlap, considering the set of districts being coordinated in an election, regardless of method of voting chosen. The problem is the inevitable public revelation through the voter registration list of the matching set of districts that corresponds to the voter's residence address. If the voter lives at an address that makes the voter eligible for a rare ballot style, the voter's privacy is subject to risk.*

In some counties there are unfortunate cases where a coordinated ballot style is printed in very small quantity, bordering on unique. Instances exist in which perhaps only one or two of these rare styles are cast. Such cases arise from, e.g., a school district border that briefly crosses a county line or a congressional district that does so (e.g., CD1 voters in Jefferson County in a previous decade). This privacy hazard generally results from a poor decision during redistricting. These situations generate both CVRs and ballots that simply ought not be audited in public. In fact, these district boundaries and procedures violate the constitutional guarantee of secrecy in voting and ought not be allowed.

Fortunately, risk-limiting audit theory allows for the handling of such rare and publicly inaccessible ballots. It treats them as if they are voted in a manner that least confirms the presumed winning choices. The existence of these ballots tends to add to the number of discrepancies and increases the workload of the audit, perhaps only enough to be tolerable but motivate an eventual solution to the source of the rare style.

These cases are rare and trivially soluble at the time the setting of district boundaries is done. Another opportunity for remedy occurs before the county agrees to coordinate to add the unfortunately designed district onto a county ballot via an Inter-Governmental Agreement. At both times this problem can be solved by following best practices that remain insufficiently understood.

One such solution is to design the coordinated election to isolate the contest on a separate ballot card or, equally effectively, to leave it in a separate election. This solution leads to a proposal for change in the Form of Ballot statute to encourage a smart separation of contests on multiple ballot pages in a coordinated election:

http://www.sos.state.co.us/pubs/rule_making/written_comments/2017/20170718BranscombMcCarthy.pdf

A possible solution is to modify references (in the CVR field named "BallotType") to ballot styles rendered rare by specific contests and redact those specific contest columns of the CVR to remove only the offending district election (e.g., school board) for all entries or rows in the CVR file. It may be wise to redact similarly the CVR columns in all other affected counties (to avoid the mistake of presuming that all ballots containing the contest are represented while a county contribution to the results is missing.) This approach does not solve anonymity problems, if any, with a corresponding paper ballot to be audited.

To implement such a redaction, not only do the choice columns for the problematic contest need to be removed from all affected county CVR files, but the style numbers pertaining to rare rows need to be edited or removed so that these newly styled CVR rows merge with others not containing the offending contest. Note that this modification to the CVR is not trivial and that redaction prior to public release is never the best solution. Redaction need not be experienced if the other two alternatives are pursued (not coordinating and properly setting district borders).

2) *Second is the case of a voter who opts to use a rare method of voting that is revealed in a column in the Dominion cast vote record entitled "CountingGroup." The method of voting is also revealed to the public in the "who voted" list that parties use. With Dominion voting systems the only in-person method of voting always available for use by the voter (by HAVA requirement) is one that generates a different form of ballot that is selections-only with a QR code—as differentiated from the mark-sense style or "full face" ballot that mail-ballot voters use.*

Considering that only a few percent of voters choose to vote in-person in Colorado, the number of those in-person voters using each style of ballot is very low. Therefore, some ballots voted in-person by Ballot Marking Device may easily remain unique by ballot style in the county. This problem is aggravated in direct proportion to the number of styles. In a large county, selections-only ICX ballots are more likely unique in the collection of tabulated ballots that is accounted for as a compared count with the envelopes. Many of the in-person ballots and likewise rows of CVR files, if they include the CountingGroup field, are rare enough to require treatment as anonymity-risk ballots and anonymity-risk rows. Even after the CountingGroup field is removed from the CVR, such BMD/QR ballots may be, by non-ideal procedure, grouped in specific batches or planned to be counted on a specific scanner, thus revealing their category (in effect, CountingGroup) in the scanner ID. Anonymity is best ensured by mixing these ballots in with those from other voting methods as they are scanned. This is one more reason to re-create batches prior to tabulation. Best practices in batch management and redaction of

CountingGroup from CVR will remove the indication of method of voting and remedy this risk of voter privacy within the CVR file.

> 3) *Finally, there are military and overseas ballots (UOCAVA), which can be treated much like in-person ballot marking device ballots. In this case, however, the voter signs an affidavit recognizing the built-in lack of privacy of the transmission method for the ballot. The so-called UOCAVA ballots are even more rare than in-person ballots, but as far as one can predict, these ballots will not be separately identified in the CVR unless by batch or scanner ID if the county decides to use a specific scanner or a special set of batches only for UOCAVA. UOCAVA batches might be identifiable if only because some of the ballots included will only have federal races on them (FWAB), and these will be recognizable within the CVR only if unnecessarily grouped together.*

In conclusion, when rare styles are printed on ballots to be sent out (anticipating a return of 9 or less), counties must be ready to avoid auditing these ballots if they are randomly sampled and treat them as exceptions or "zombies." To defend anonymity of in-person selections-only/QR ICX ballots, from a CVR point of view, the CountingGroup field must be removed from the Dominion CVR format before publication. For UOCAVA voters, the original ballot tends to be identifiable even if the duplicate ballot is not. Among these UOCAVA ballots, those that have identifiable voter-verified originals that were subsequently duplicated for tabulation, if randomly sampled, should also be considered inaccessible and treated as exceptions.

B) In this alternative scenario, the procedures in proposed Colorado Election Rule 7.5.10 are not followed. Thus the **envelope batches and tabulation batches are closely related** in content (only a few ballots are either missing or removed for ineligibility reasons, and these are carefully accounted for in batch tracking records). Some measures may have been taken to improve anonymity of ballots in batches, such as to shuffle the order of ballots within batches, and the envelope batch numbers may have been textually disassociated from and no longer relate to the tabulation batch numbers. The following concerns remain after these measures have been taken:

Many of the fields contained within the CVR file still give ample evidence about the match between the envelope and tabulation batches. Batch sizes are likely small compared to the number of styles printed (including precinct styles in some elections). Once batches are matched, all of the unique styles contained will be identifiable. In many more instances of rare styles, the voter intent will be exposed for all voters in the same style if they vote alike in a contest.

Here are examples of ways to use various CVR fields to match disassociated batches from eligibility check (envelopes are identifiable) to tabulation (ballots presumably anonymous):

Batch ID—Use of a common Batch ID between eligibility and tabulation is of course an invitation to match the two. Once renumbered, the count of batches and the order of numbered Batch IDs may provide evidence for matching the batches. Redaction of the BatchID is not a solution because the BatchID (and container ID at least indirectly) is needed to locate the paper ballot to match to the CVR for the risk-limiting tabulation audit (RLTA).

Ballot Position—The max of this sequence number will indicate the size of each batch. The count of ballots in a batch is very good evidence for matchup of batches used for envelopes and used for

tabulated ballots. Making all batches the same size could resolve this issue, but because of unexpected changes in batch size after envelope opening due to missing and double ballots returned, equal size batches is difficult to obtain without re-batching. Again, either Ballot Position or Imprinted ID will be needed to locate the ballot within a batch. One of these fields is needed within the CVR to accomplish the RLTA.

Imprinted ID—Assuming this is a semi-sequential number to aid in ballot location, the range of Imprinted IDs will also reflect the batch size and possibly batch tabulation order. If these are sequential across batches, they will also match loosely to envelope batch creation order, thus revealing clues to batch identity.

Ballot Type (as named in Dominion's CVR format)—This field contains the Ballot Style (terminology from CO SOS Rule.) This data in each unsorted batch reveals a pattern that is a signature of the content of the batch that almost certainly uniquely identifies it to a specific envelope batch. That is true unless sorting by style was done in making the envelope batches such that the ballots within a batch are provided anonymity by uniformity in style. Ballot style is inherent to the CVR for whatever contest choice columns are not redacted. These could be redacted at the loss of auditability for those contests, but the Ballot Style entry for each CVR row that contains redaction would have to be edited to prevent it from revealing the redacted contest coded by the style number. The easiest solution is to remove the contents of the BallotType column in the CVR when contest column redaction is used.

These matching methods are possible because of the dangerous policy of maintaining batch identity from envelope to tabulation. How do we redact the CVR in order to prevent use of the above methods of matching? The remaining fields within the CVR must be adequate to permit public commitment and sharing of at least the CVR columns for audited contests. Far better would be a sharing of access to the paper and a sharing of the ballot scanned images, but that is beyond the scope of this discussion.

One method proposed by Neal McBurnett would suffice to defend voter privacy and allow public access to the audit assuming that the audited contest(s) are all countywide. That method would simply split the CVR such that remaining contests reported are all countywide or greater. This means removing all columns that relate to partial-county contests. At the same time, the column for Ballot Style must also be removed along with "CounterGroup." This method would put into effect a simulation of a two-card ballot election where the second card contains only the non-countywide contests and is not audited—or at least, in this case, ignored for purposes of audit. The virtual second card is separated from the first card so that any rare style association with the first card is eliminated. This approach removes the style consciousness of the CVR and that makes the CVR amenable to delivery to the public including under the terms of the Colorado Open Records Act (CORA) C.R.S. 24-72-205.5 (4)(b)(III). And it paves the way for an adoption of a two-card ballot anonymity defense that isolates all the style complications to a separate physical card, tabulated separately and producing a separate CVR.

If there is no countywide contest and the SOS has selected a partial-county contest for "audit," then the redaction must be more sophisticated or more drastic in order to permit an audit of some contests to be held in public.

For example, only the entries for one interesting set of contests could be committed to and published in a CVR file without the columns for "CountingGroup" or "Ballot Style."

Obviously these redaction approaches need extension when a combination of statewide, countywide, and partial-county contests are being audited—as we expect for the 2018 election. In that case we will be measuring the number of unique styles in any collection that matches an associated collection of envelopes to see if they meet legal criteria for voter privacy. At present those criteria are only available in CORA (C.R.S. 24-72-205.5). It would be better to have election-auditing-specific criteria in election law (Title 1) for maintaining voter privacy; particularly valuable would be criteria that motivate solutions to privacy problems that are effective as close to the source and as early in the process as possible. A very useful step for solving these issues is sorting of ballots by style (or groups of styles) either before envelope batches are formed or after opening envelopes but before forming tabulation batches. Reformulating batches after opening and before tabulation is a best practice. Sorting ballots by machine or by hand according to style or groups of styles while the ballots are still in envelopes is beneficial and almost essential if envelope batches will continue to match tabulation batches.

March 2018 Addendum by H. Branscomb:

Recently, several large counties have fulfilled open records requests for CVR files with specific contests removed. CORA C.R.S. 24-72-205.5 allows for portions of ballots to be requested, such as columnar portions of a CVR file. Once an analysis of the layout of the election is done, revealing how many ballots of each style have been returned and what contests are on each style, it is possible to calculate the minimal amount of column (contest) redaction that needs to be done that still allows the resulting CVR file to comply with the Colorado Open Records Act. This redaction may range from dozens of contests in Adams County to a handful in Arapahoe County to zero in the case of El Paso County.

In order to enable learning the extent of redaction needed, the best method seems to be to publish a modified CVR file for each county that reveals only the voter privacy risks without revealing any voter intent. Such a file could be called a Cast Card Record. Here is a procedure for producing a Cast Card Record from a Dominion Cast Vote Record file:

> 0) Open the Dominion CVR .csv file in a spreadsheet and import the columns.
> 1) Bulk replace all 0s in voter intent columns with X.
> 2) Bulk replace all 1s in voter intent with X; leave blanks as blanks.
> 3) Clear contents (but not the headers) in columns that identify individual rows—
> - CVRNumber,
> - RecordID,
> - ImprintedID.
>
> 4) Leave these columns untouched: CountingGroup, PrecinctPortion, BallotType, TabulatorNum, and BatchID.
> 5) Sort by BallotID or otherwise jumble the original order of rows so they cannot be matched later with fulfilled voter intent.

The resulting (.csv or .xlsx) file can be published to express the design of the coordination and turnout by style of the election. Note in a multicard election there will be one of these for each card.

Once the contest redaction has taken place, the CVR file to be provided to the public will have some problematic but unnecessary columns redacted by clearing contents on nonheader portions of some or

all of the following columns: BallotType, PrecinctPortion, CountingGroup. In addition, the voter intent portion of the redacted columns, one column per choice per redacted contest, will also be cleared. It is likely that such a columnar-redacted CVR can be designed to contain all targeted for RLA contests and as many other contests for opportunistic auditing as possible.

It would be possible for the Secretary of State to evaluate a comparable file that reflects the layout of the election in each county prior to return and prior to mailing of ballot packets, where each row in a Sent Card Record reflects a ballot that will be provided to an elector. Such a file, for each county would allow prediction of voter privacy issues prior to return of envelopes and help with guidance about decisions for coordination and layout of contests on cards.

APPENDIX

Excerpt of Election Rule 21

21.4.14 Ballot-level Cast Vote Records and Exports. *All voting systems certified by the Secretary of State for use in Colorado on or after January 1, 2016 must meet the following requirements for ballot-level cast vote records and exports on or before December 31, 2016:*

(a) The voting system must capture a ballot-level cast vote record (CVR) consisting of a single record for each ballot tabulated, showing the manner in which the voting system interpreted and tabulated the voter's markings on the ballot, as adjudicated and resolved by election judges, if applicable.

(b) The voting system must be able to aggregate in a single file and export all CVRs in comma-separated value (CSV) text format.

(c) The CVR export must contain the following fields, with values or data populated by the voting system:

*(1) **CVR Number.***	*A sequential number from one to the number of CVRs in the export file. This can be used as an alternate method to identify each CVR.*
*(2) **Batch ID.***	*Identifies the batch in which the paper ballot corresponding to the CVR is located.*
*(3) **Ballot Position.***	*Identifies the position of the paper ballot corresponding to the CVR within the batch.*
*(4) **Imprinted ID.***	*If the scanner model supports imprinting a unique character string on the ballot during the scanning process, the voting system must populate this field with the unique character string.*
*(5) **Ballot Style.***	*Indicates the ballot style of the paper ballot corresponding to the CVR.*
*(6) **Device ID.***	*Identifies the scanning device by model, serial number, and/or scanning station identifier.*
*(7) **Contest and Choice Names.***	*Each contest and choice on any ballot in the election must have its own field so that voters' choices in all contests can be easily and independently tabulated after the CVR export is imported into a spreadsheet application.*
*(8) **Number of Valid Choices.***	*The number of valid choices (e.g., "Vote for 3") for each contest.*

(d) The header or field names in the CVR export must unambiguously correspond to names of the contests and choices on the paper ballots.

(e) The contests and choices must be listed in the same order as they appear on the ballots.

(f) A vote for a choice must be indicated by a "1". No vote for a choice or an overvoted condition must be indicated by a "0". Choices that are not applicable to the CVR must be left blank.

Constitutional provision for anonymity (secrecy in voting).

Colo. Const. Art. VII, Section 8 ELECTIONS BY BALLOT OR VOTING MACHINE

All elections by the people shall be by ballot, and in case paper ballots are required to be used, no ballots shall be marked in any way whereby the ballot can be identified as the ballot of the person casting it. The election officers shall be sworn or affirmed not to inquire or disclose how any elector shall have voted. In all cases of contested election in which paper ballots are required to be used, the ballots cast may be counted and compared with the list of voters, and examined under such safeguards and regulations as may be provided by law. Nothing in this section, however, shall be construed to prevent the use of any machine or mechanical contrivance for the purpose of receiving and registering the votes cast at any election, provided that secrecy in voting is preserved.

Relevant statute. Note that Colorado Open Record Act is typically relied upon to define access to election records for all persons other than election officials. These others include the public who might

attend the audit or attempt to verify its process and conclusions. Note that "internal batch reports …
for the purpose of auditing" are specifically excluded from access during the "stay period" prior to
certification deadline. This sentence was included over strong objections at the time (2012). Some
language in CRS 24-72-205.5 says "before the ballot may be made available for public inspection" and
that statement does not appear to be dependent on a prior CORA request. Indeed it is unreasonable to
expect the access to "ballots" during the audit to be subjected to limitations that apply for all
members of the public attempting to gain access to public records. But it may be seen as reasonable
for these restrictions to apply to records that are about to be published for the purpose of verification.
Note then that the word "ballot" refers to the ballot scan as well as the Cast Vote Record.

> **C.R.S. 24-72-205.5 (2)(a)** *"Ballot" means a ballot voted by any acceptable, applicable, or legal method
> that is in the custody of an election official. "Ballot" includes any digital image or electronic representation
> of votes cast.*

> **C.R.S. 24-72-205.5 (3) (a)** *Except as otherwise provided in paragraph (b) of this subsection (3), the
> designated election official shall not fulfill a request under this part 2 for the public inspection of ballots
> during the period commencing with the forty-fifth day preceding election day and concluding with the date
> either by which the designated election official is required to certify an official abstract of votes cast for
> the applicable candidate contest or ballot issue or ballot question pursuant to section 1-10-102 or 31-10-
> 1205 (1), C.R.S., as applicable, or by which any recount conducted in accordance with article 10.5 of title
> 1, C.R.S., or section 31-10-1207, C.R.S., is completed, as applicable, whichever date is later. The denial
> of public inspection of ballots authorized pursuant to this paragraph (a) shall also apply to any internal
> batch reports generated by a designated election official for the specific purpose of auditing ballots
> received in the course of conducting an election.*

> **C.R.S. 24-72-205.5 (4) (b) (I)** *The original ballots shall at all times remain in the custody of the
> designated election official or his or her designee. In the discretion of the designated election official or his
> or her designee, and subject to the provisions of paragraph (a) of this subsection (4) and this part 2, the
> designated election official or his or her designee shall determine the manner in which such ballots may be
> viewed by the public.*

(4) (b) (II) The designated election official or his or her designee shall cover or redact, based upon the
most practical means available, any markings or message on a ballot that may identify the particular
elector who cast the ballot before the ballot may be made available for public inspection;

(4) (b) (III) To protect the privacy of particular electors, any ballots cast by electors within groups of
discrete individuals who are more susceptible of being personally identified, such as military and overseas
electors, shall be made available for public inspection only to the extent such ballots may be duplicated
without identifying elector information. Insofar as such ballots are not able to be duplicated without
identifying elector information, they are not available for public inspection. Notwithstanding any other
provision of this section, no ballot, or any portion thereof, may be made available for inspection where the
ballot, or any requested portion thereof, is identical in printed form, considering a combination of the
election contests at issue and precinct coding, to only nine or fewer ballots, or comparable portions
thereof, among all ballots used in the same election. However, any such ballot, or any requested portion
thereof, that is identical in printed form to ten or more ballots, or comparable portions thereof, used in the
same election may be inspected.

(4) (b) (IV) To protect the privacy of particular electors, ballots made available for inspection may be
presented in random order selected by the designated election official or his or her designee;

…

(5) Notwithstanding any other provision of this section, nothing in this section affects either the rights of
a watcher set forth in the provisions of titles 1 and 31, C.R.S., or the operation of a canvass board in
accordance with the provisions of articles 1 to 13 of title 1, C.R.S.

Sample of Dominion Cast Vote Record as provided by Dwight Shellman

(many other columns on the right hand side of the figure, representing choices in various contest choices, have been redacted for clarity and column names have been split onto two lines for readability; also the CVR file has been sorted by "BallotType")

Cvr Number	Tabulator Num	Batch Id	Record Id	Imprinted Id	Counting Group	Precinct Portion	Ballot Type	Presidential Electors (Vote For=1) Hillary Clinton / Tim Kaine DEM	Presidential Electors (Vote For=1) Donald J. Trump / Michael R. Pence REP
128	9	3200	49	9-3200-49	Mail	4295603363-01 (363-01)	1	1	0
129	9	3200	50	9-3200-50	Mail	4295603363-01 (363-01)	1		
156	10	2	16	10-2-16	In Person	4295603363-01 (363-01)	1	1	0
93	9	3200	3	9-3200-3	Mail	4295603365-02 (365-02)	2	0	0
130	9	3200	4	9-3200-4	Mail	4295603365-02 (365-02)	2		