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Thank you for holding the September 9th meeting with election security experts. This is a positive step forward.

The recent disclosure of the Dominion Election Management System code opens vulnerabilities beyond the protective reach of normal testing regimens. It requires that we do a very good job auditing this election.

A statewide post-election risk-limiting audit (RLA) is feasible for this recall election with very few contests and many ballots--perhaps 20 million. The sample size in the proposed ballot-polling RLA would be a small fraction of the total ballots, even for a close 1% margin of victory, and even smaller with a greater margin.

If an RLA is to be conducted, we strongly urge recording votes on hand-tally sheets that are promptly scanned and immediately posted. This method maintains software independence of the audit, eliminating reliance on the "RLA software tool," which requires directly entering votes in a DRE-like fashion, with no audit trail.

The strength of RLAs is the fact that the sample size is increased with closer margins. But many other RLA procedures can be applied to improve traditional election audits. Whether or not this election is audited by RLA, we must tighten procedures and improve transparency in the 1% Manual Tally, as follows:

**1. SAMPLE FROM ALL BALLOTS:**

Most importantly, the share of cast ballots currently required to be included in the 1% Manual Tally may drop to 70% or below in this election. If so, it is likely that 30% of the ballots will not be included in the universe of audited ballots at all.. This is quite unacceptable, and can hardly be expected to secure confidence in audit results. By contrast, the RLA procedures require that all ballots are included in the universe of ballots from which samples are drawn. We agree this

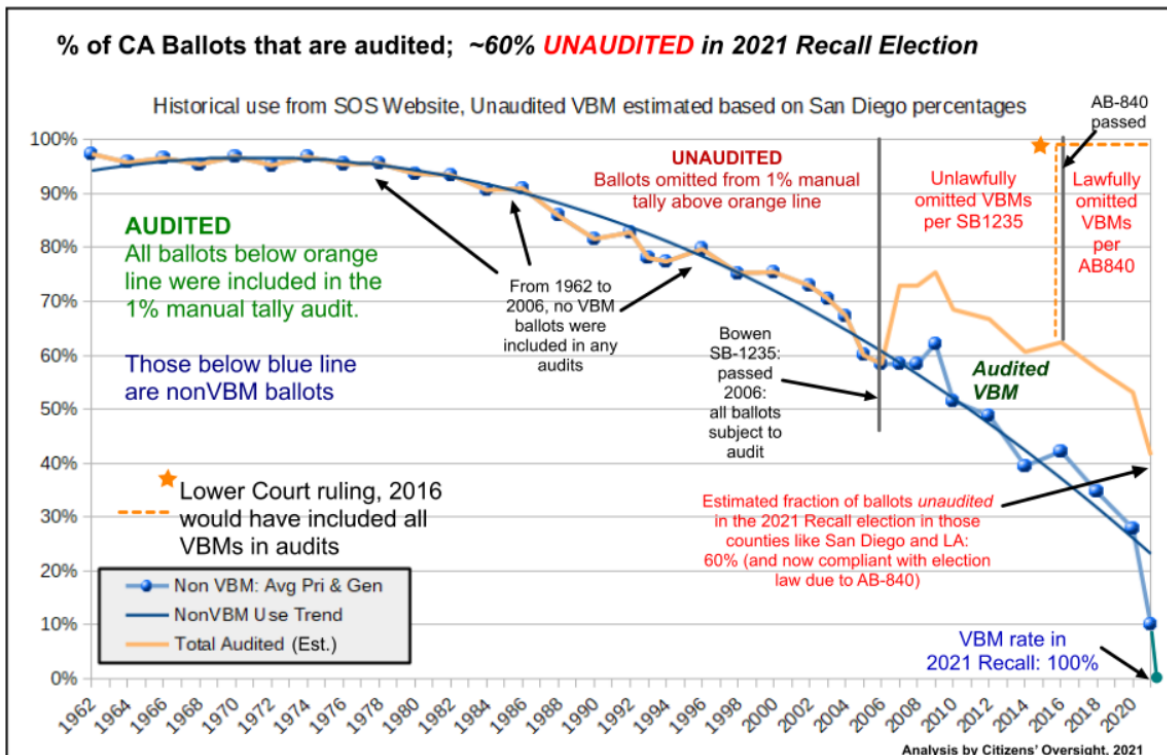
requirement is essential, and must be applied to the 1% Manual Tally. The following will make this point clearer.

We plotted the history of the number of ballots included in the 1% Manual Tally in San Diego County since it was first initiated in 1962, when almost no ballots were excluded from the audit as absentee ballots were rarely used. The number of vote-by-mail (VBM) voters increased due to the ease of at-home voting, and especially as permanent VBM status was made available in the 1990s. In 2006, then-State Senator (later Secretary of State) Debra Bowen championed SB-1235 to include all VBM ballots in the 1% Manual Tally as well. Election officials immediately included all early-arriving VBM ballots -- those that were fully processed by election night -- but largely did not include the later-arriving VBM ballots.

The lower court ruling in 2016 found that indeed it was the intention of SB-1235 to include the VBM ballots. AB-840 was then passed in 2017 to legalize excluding the later VBM ballots.

If numbers are consistent with the 2020 general election, in the upcoming recall election, only about 40% of the ballots in San Diego County, and state-wide, only 69% of the total ballots will be included in the universe of ballots from which the 1% is selected. This is frankly unacceptable, and does not fit the claim that California is a leader in election security. We must undo this situation, particularly for this recall election.

Therefore, the SOS should mandate that all VBM ballots be included for the 1% manual tally, not just the ones processed prior to election night.



The 1% Manual Tally law (Elec. Code 15360) already provides that officials can break up their audit into two parts, one for the ballots processed by election night, and the other part to handle the ballots processed later. This provision was added specifically to address the need to include all VBM ballots in the audit but in recent elections, both parts are based only on the election night ballots.

## **2. DESIGNATE BALLOT IMAGES AND CVRs PUBLIC RECORDS FREELY AVAILABLE FOR REVIEW:**

Ballot images are produced by all modern election equipment as 97% of the largest counties nationwide produce ballot images. The SOS has already mandated that ballot images and Cast Vote Records (CVRs) must be preserved. There is no explicit exemption from disclosure in the California Public Records Act (CA Code 6250). We recommend that the SOS designate that these records are open for review by the public along with detailed ballot-level Cast Vote Records (CVRs).

San Francisco is an excellent model to follow, as they make all their ballot images and CVRs freely available for download and review by anyone who wishes to do so. San Francisco also uses a browser-based tool (provided by Dominion) that will allow the public to review individual ballot images in detail, and third parties can conduct their own independent ballot image audits. As Duncan Buell reiterated during your videoconference, “the best disinfectant is sunshine.”

## **3. FREEZE AND PUBLISH DETAILED RESULT REPORTS PRIOR TO THE RANDOM DRAW:**

Counties open a huge security hole when they conduct the random draw meeting before publishing the report of the portion of the election being audited. It allows anyone with hooks into any of the approved Election Management Systems to thwart the audit without detection. They simply modify the results of unaudited batches, and avoid altering the batches subject to audit. Therefore, the ballot images, Cast Vote Records and reports aggregated to the audited unit (batches or precincts) must be produced and published prior to the random draw.

## **4. STANDARDIZE THE RANDOM DRAW:**

Procedures to conduct the random draw currently differ between counties. We have attempted to provide oversight of these procedures and find that rolling 10-sided dice to choose items from a printed list of batches/precincts is the easiest way to provide oversight, and is faster than other methods. This is similar to the method specified in RLA regulations. The election code states that the SOS would provide consistent procedures but the SOS has not done so.

## **5. IMPROVE REPORTING:**

The SOS used to collect and review audit reports from the counties in CA and post these on the SOS website. That practice seems to have ended around 2012. We ask that the audit reports and scanned detailed tally sheets be submitted to and published by the SOS for all counties, and that the reports include the totals for each contest in each batch audited.

## **6. IMPROVE OPENNESS OF 1% MANUAL TALLY:**

The SOS should declare that the 1% Manual Tally -- and most particularly the random selection

meeting -- should be open for participation and video recording by the public. Many election officials currently do not allow video recording of the random draw. The random draw should be livestreamed by all counties, as is currently the practice in San Francisco County. The 1% manual tally should be meaningfully observable from remote locations using live-streaming video feeds configured to allow participants to ask questions.

#### **7. FULL MANUAL AUDIT BY BATCH:**

If a full manual count is required, to limit potential impact of human error, the manual recount should compare each hand-tallied batch with the computer results on a batch-by-batch basis, similar to how the 1% manual tally is conducted. To avoid any chance that talliers might fudge their tallies to match the (now public) computer report, it is best to split each batch into at least two parts that are hand-tallied separately and then combined when compared with the voting system report.

#### **IS AN ALTERNATIVE APPROACH VIABLE?**

Changes by the SOS are absolutely necessary for this high-profile recall election. Conducting an RLA will solve some of these problems, but it is unlikely to succeed to replace the 1% manual tally, which is only days away.

We recommend focusing on: a) the inclusion of all VBM ballots in the audit, b) strict procedures on producing and publishing voting system reports prior to the random draw, and c) improved post-audit reporting of the totals of each batch and their differences. Then the prerequisites for a meaningful batch-comparison or batch-polling RLA have been largely satisfied. The election can be evaluated using risk-limiting calculations even if the sampling is not driven by them.

For the 1% Manual Tally, assuming 20 million people vote, and batches averaging 200 ballots, then 1,000 batches, and 200,000 ballots would be evaluated.

The proposal by RLA advocates is to use a different sampling procedure and it would not include as many ballots as the 1% Manual Tally, if the changes mentioned above are added. In our meeting, Prof. Stark said that for a 1% margin of victory, he envisions the random selection of 50,000 ballots across all counties. It would be fewer if the margin is wider. Public perception of the quality of the audit might be driven by the number of ballots audited, and minimal sampling requires pristine procedures. We prefer to err on the side of caution and stay with the 1% sample calculation.

Single ballot samples recommended by Stark lead to different procedures that involve removing ballots from batches to which ballots then ought to be returned to retain order. In the 1% Manual Tally (and any batch-oriented audit), the entire box or a portion thereof is sampled and this can be more efficient logistically as fewer boxes are sampled compared to ballots sampled.

Public release of copies of installed Dominion code motivates steps to improve our audits. It is our opinion that all the requirements of a statewide, (all ballots included for sampling)

batch-polling or batch-comparison audit can be achieved with a few critical changes, and without changing as much in this short time window.

Instituting a statewide RLA would also make critical constructive changes but adds a new sampling procedure that will examine fewer ballots than would be reviewed in the 1% Manual Tally. Tightening up the 1% Manual Tally is a preferable alternative, since time is short.

We have been pushing for these changes for the past five years and have actually seen the process get worse due to AB-840. It is essential, however, regardless of audit method, that the auditing procedures be improved per these three principal recommendations:

- the inclusion of all VBM ballots in the scope of the audit,
- strict procedures on producing and publishing voting system reports prior to the random draw, and
- improved post-audit reporting of the machine totals of each batch and the differences from the hand count of the same subset.

Finally, audits of ballot images can find voter intent and other issues better than other approaches due to the 100% coverage and precision of the review. Although we acknowledge that a ballot image audit alone does not review paper ballots, such an audit will increase the difficulty of any hack of the election, because altering images is more difficult than just changing the totals. The SOS should make additional audits using ballot images as an option for election officials and more importantly, the public, to improve voter confidence.

Respectfully submitted,



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