

2023-24 GRAND JURY REPORT EL DORADO COUNTY JUNE 5, 2024 – CASE #24-09

ELECTION INTEGRITY: SEPARATING FACT FROM FICTION

Election integrity issues remain a divisive topic across the country leading into a Presidential election this Fall. We try to separate fact from fiction to see if the Elections Department can or should do anything more to ensure election integrity.

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Cover Caption: Election night monitoring screens available to the public at the County Election Headquarters. Taken March 5, 2024.

SUMMARY

Summary

*"Voting is the most precious right of every citizen,
and we have a moral obligation to ensure the
integrity of our voting process."*

- Hillary Clinton

HIGHLIGHTS

Election integrity issues continue to be one of the most controversial and divisive issues across the country. This is a major concern as we head into a Presidential election this November. Tension over easing voting accessibility at the expense of loosening identification and citizenship requirements fuel debate nationwide. Common concerns include: 1) management of voter rolls and voter eligibility, 2) processing of mail-in ballots, 3) the signature verification process and 4) security of the ballot tabulation machines. Despite claims to the contrary, credible news and technical reports have exposed potential security vulnerabilities in automated election systems that continue to trouble the public.

In the opinion of the Grand Jury, El Dorado County (County) is fortunate to have a very qualified and transparent Elections Department. They are eager to educate the public on the election process, the technologies involved, and the security measures they have in place. The Elections Department should be commended for the design and operations of the new offices and headquarters they moved into in 2023.

Nevertheless, legitimate public questions arise when looking at statewide election procedures and mandates that have come under fire and create concerns about the County election procedures. There are concerns about the accuracy of the statewide voter registration database as well as opportunities to exploit the mail-in ballot process which has largely replaced in-person voting since the Covid pandemic.

SUMMARY

In this report, the Grand Jury separates fact from fiction in the election integrity debate, alleviating public concerns where possible and suggesting cost-effective measures that could be added to further reduce potential risks to fraudulent and illegitimate voting and results.

Election integrity remains a deeply contentious topic nationwide. The Grand Jury collectively recognizes the proliferation of conflicting media narratives surrounding this issue, sparking widespread public unease. Within this report, we present select media articles that have contributed to this climate of uncertainty. It's important to note that we do not endorse the veracity of these articles but offer them as illustrative examples of the media's impact on public perception and the need for further scrutiny.

RECOMMENDATIONS SUMMARY

The Grand Jury recommends that the Elections Department furthers its public communications and education efforts by acknowledging legitimate risks and informing them of their preventative measures. There are opportunities to improve voter rolls within the County, drop box surveillance, as well as some security improvements that can be made to the tabulation room and systems that should be evaluated.

Our full analysis of the County election operations follows.

Background

Election integrity continues to be a controversial and divisive topic throughout the country. Multiple reports and news stories continue to surface about the vulnerabilities of the California-required automated tabulation machines as well as the vote-by-mail process used throughout our state and other parts of the country.

Shasta County, in 2023 went public with their intent to defy state mandates and perform a hand count of election results based on their own election integrity concerns ([news link](#)). Similar public concerns in El Dorado County are frequently discussed throughout social media and sent directly to the Elections Department.

The Grand Jury investigated the County's election procedures in detail to separate fact from fiction in the public's election integrity concerns.

UNDERSTANDING PUBLIC CONCERNS

The Grand Jury looked at a few comprehensive reports on election procedures in California and nationwide to better understand the source of public concerns and to focus our investigation efforts to determine facts from fiction.

On June 3, 2023, The Transparency Foundation, a non-partisan group focused on election integrity in California, released an analysis of the election procedures in the state during the 2021-2022 election cycle ([link](#)). Based on a 10-point scorecard, the investigation documented several deficiencies in how California conducts its elections statewide.

Notable statistics from the Transparency Foundation report indicated:

- 14.17% of voters with rejected ballots indicated that someone else must have voted their ballot
- 56% of ballots rejected with bad signatures remained uncured (unresolved after sending notification of signature mismatch to the voter) statewide

BACKGROUND

- 9.2% of households received an “erroneous” ballot for someone who doesn’t live there, is deceased or a duplicate/triplicate ballot
- 60% of California voters indicated they were concerned about election fraud

In December 2023, Rasmussen Reports and the Heartland Institute issued results of a nationwide survey which found, “... 21% of likely U.S. voters who voted by absentee or mail-in ballot in the 2020 election say they filled out a ballot, in part or in full, on behalf of a friend or family member, such as a child or spouse.” The report continued, “... 17% of mail-in voters say that in the 2020 election, they cast a ballot in a state where they were no longer a permanent resident. These practices are illegal, Heartland Institute officials noted.” ([link](#))

The Grand Jury believes poll results like these, if valid, cause legitimate public concern and could call for more proactive measures to reduce the possibility of any illegitimate votes. We sought to determine the validity of these concerns and learn about the County’s procedures to circumvent any illegitimate ballots.

The duty of election officials is to produce fair and transparent elections, respond to public concerns and ensure the community has faith in the election process that is the foundation of our system of government. The survey results mentioned above only serve to highlight the challenge of improving public perception of election integrity. The fact that these public concerns are not easily resolved underscores that potential or perceived problems with election transparency still need to be addressed.

ANALYZING ELECTION PROCESSES AND TECHNOLOGY

Since the pandemic, many states, including California, have increased the mail-in voter numbers. This may produce multiple or fraudulent ballots, a known vulnerability to mail-in voting. Many checks and balances are in place throughout the state to ensure these vulnerabilities do not affect ballot counts. Each county is responsible for ensuring the checks are in place, updated regularly and are secure, and we sought to understand our County’s procedures.

BACKGROUND

There are a few ways to analyze election integrity or audit election results that are not realistic for the Grand Jury to perform (although other jurisdictions have):

- Conduct a full hand recount of votes and compare the results to the machine tabulation.
- Canvass neighborhoods door to door to ensure that ballots were signed by eligible voters.
- Review election data from signature verification machines to re-verify signatures.

The Grand Jury's investigation was limited to an analysis of the systems and procedures to determine voter eligibility; collect, verify, tabulate votes; and report results. We looked for potential vulnerabilities in both systems and procedures that could be exploited rather than comparing any data from past elections or verifying voter eligibility data.

While there have been many suspicions or claims of fraud in past elections, the Grand Jury cannot weigh in on these specific concerns. No court has ruled on the merits of these claims and the Department of Justice stated they found no evidence of widespread voter fraud. We can only look at current procedures and make recommendations to ensure the most accurate and fair elections in the future.

CALIFORNIA ELECTIONS CODE AND TECHNOLOGY MANDATES

The County Elections Department is required to conform to numerous California state statutes and procedures for running elections, including procedures for accepting mail-in ballots and the choice of machines for voting, signature verification, and tabulation. California centrally manages the voter eligibility database and voter registration system. These statewide mandates and processes are outside the jurisdiction of the County Grand Jury. We can only investigate the County Elections Department and cannot make formal findings and recommendations regarding statewide election procedures.

METHODOLOGY

Methodology

INTERVIEWS

- Elections Department staff
- County Counsel staff
- Tour of the Elections Office and Public Open House

DOCUMENTS REVIEWED

- “Audit Reveals Evidence of Voter Fraud in California’s 2022 Election”, Report by the Transparency Foundation ([link](#))
- California Secretary of State Memorandum on Election Security, May 6, 2022 ([link](#))
- Prof. J. Alex Halderman, Ph.D., “Security Analysis of Georgia’s ImageCast X Ballot Marking Devices” ([link](#))
- “CISA Releases Security Advisory on Dominion Voting Systems Democracy Suite ImageCast X”, CISA Alert Bulletin, June 03, 2022 ([link](#))
- Dominion Democracy Suite 5.2 Source Code Test Report for California, prepared by SLI Compliance ([link](#))
- “Best Practices for Security Election Systems” CISA blog post, November 11, 2022. ([link](#))
- Article: “Reckless and stupid: Security world feuds over how to ban wireless gear in voting machines”, Politico, February 9, 2021 ([link](#))
- Article: NPR, March 10, 2023, “A California county has dumped Dominion, leaving its election operations up in the air” ([link](#))
- April 10, 2024 Letter from 16 Attorneys General to Merrick Garland (Homeland Security) on Mail-in Voting ([link](#))

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- May 15, 2024 Press Release from Ohio Secretary of State regarding expanded efforts to verify citizenship status of voter rolls. ([link](#))
- El Dorado County Elections Website: [Elections - El Dorado County \(edcgov.us\)](#)

Discussion

The Elections Department moved into a new facility in mid-2023 on Ponderosa Rd. in Shingle Springs. The new election headquarters is better designed to process a large number of ballots in a “vote center” model, where the majority of ballots cast are now mail-in or drop-box rather than in person, which has now become the norm across the state. The facility is laid out to process ballots throughout the voting period and through the various phases of ballot and voter verification and tabulation. The facility is well-designed from a security perspective with video surveillance, secure access to critical areas and systems isolated on their own local area networks where required. See the cover photo of this report for surveillance images from the election headquarters from election night, March 2024

The Grand Jury investigated key election processes in detail to see which, if any, election integrity concerns were valid. We broke down the election analysis into four key areas:

- 1) Management of voter rolls and voter eligibility
- 2) Processing mail-in ballots
- 3) Signature verification process
- 4) Ballot tabulation machines

VOTER ROLLS, ELIGIBILITY CHECKS, AND IDENTIFICATION

The Elections Department is subject to the state elections code to identify voters and verify voter eligibility. There are conflicting goals of ensuring that every vote is cast by an eligible voter versus imposing identification requirements on voters that could hinder the ability of certain demographics to vote. The current system in California, as in most states, does not require identification to verify voter eligibility and identity. Though this has not been identified as a current problem of major consequence, there is an opportunity for individuals to introduce illegitimate votes into the final tally. While the County does a lot to reduce the number of

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ineligible votes through its own verification checks, it is hard to know the number of votes that are illegally cast in an imperfect system.

The Grand Jury found that the issue of ineligible voters ending up on the voter rolls and ineligible voters casting ballots is a relatively small percentage in the County. The Elections Department is doing a good job at minimizing this issue given constraints placed on it by the state. We researched how the County can improve its own voter eligibility data and potentially further reduce the number of fraudulently cast ballots as we describe below.

Federal law (the National Voter Registration Act passed in 1993) makes it a legal requirement for each state to maintain accurate voter lists. This is a challenging and expensive process considering that there are 22 million registered voters in California with a significant population moving between counties and states, new immigrants, and people dying or becoming ineligible to vote for another reason.

Starting in 2012, California implemented the VoteCal statewide database system to track voter registrations and eligibility. The job of maintaining voter lists is a shared responsibility between the state (mainly by the California Secretary of State) and the County (led by the Registrar of Voters). VoteCal has been integrated with the Department of Motor Vehicles (through the California New Motor Voter Program in 2015, Assembly Bill 1461) to facilitate voter registration with applications for identification cards and driver's licenses. AB 1461 made voter registration an opt-out process rather than an opt-in process. The default option for a DMV transaction is to register the person to vote unless they explicitly opt-out or state they are not eligible to vote. If a person who is ineligible to vote fails to provide the correct response, they can be incorrectly placed on the statewide voter roll. The County is not in a position to identify and correct those errors without access to other data.

Consistent with what is reported in other California counties, the County Elections Department has some frustrations with sharing data with VoteCal and maintaining a completely accurate voter registration list within the County. Synchronizing updates between the County and VoteCal

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is a daily process of dozens or hundreds of records. Electronic communication between the two database systems has been slow in the past, although it has apparently improved in recent years. There is a potential for duplicate records for the same person with multiple DMV interactions that are not matched, causing duplicate ballots. The County, however, does its best to catch these in the ballot verification process.

Another known issue with VoteCal is that it doesn't remove voters from the database after moving out of state even if they register to vote in the new state. There are systems that track interstate voter registrations such as the Electronic Registration Information Center (ERIC). This system is used by 24 states and the District of Columbia, but not California. There are other datasets from federal and state agencies that VoteCal could leverage for more accurate data but elect not to do so, such as the U.S. Postal Service's National Change of Address (NCOA) database, federal tax returns or property tax rolls. NCOA is a public database, but only about 20% of interstate moves are reported to the Post Office. Even a small number of errors, duplicate ballots, or multiple registrations becomes a serious concern when elections can be decided by a few votes or a tenth of a percentage point or less.

To ensure address changes are identified, Elections Code 2220 requires county elections officials to conduct residency confirmation procedures at least 90 days before the direct primary election by mailing a non-forwardable preelection residency confirmation postcard to each registered voter in the county. As an alternative to sending this postcard, the county elections official may contract with the US Postal Service to use the NCOA database. (Elections Code 2222). County elections officials may also contract with a consumer credit reporting agency to obtain change of address data. (Elections Code 2227).

The Elections Department indicated they pursued their own attempts to improve the accuracy of the County-maintained voter roll database. They have spoken to Homeland Security about collecting immigrant data, that, for personal security reasons cannot be accessed. There is no way to check for residency status in statewide data resources, so there are no good answers at the federal or state level. The Elections Department indicated that non-citizens do not want to receive

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ballots because they do not want their residency status known, and generally do not return completed ballots. However small the probability, best practices for creating accurate voter rolls should be maximized.

The Grand Jury was informed about a possible dataset available within the County that could be leveraged to screen out ineligible voters that is currently not being used. The Superior Court of El Dorado County receives responses to jury summons that are returned as ineligible to serve based on not being a U.S. citizen, no longer living, or no longer living in the state. This information can likely be shared directly with the Elections Department to screen out ineligible voters.

Just as this report was being finalized, the Ohio Secretary of State issued a press release on May 15, 2024 about expanding their efforts to verify citizenship status in Ohio. ([link](#)) Ohio uses very similar rules to California through their Bureau of Motor Vehicles (BMV). The review of identification records found 137 voter registrations to residents that had twice confirmed their non-citizenship status to the BMV. This would not even cover any ineligible voters that had neglected to twice confirm their non-citizen status to the BMV.

The Ohio Secretary of State indicated that they would take additional steps to verify these registration records. To help facilitate this review and cross-checks, Ohio is asking the Biden administration for:

- Access to the federal SAVE database, a U.S. Citizenship and Immigration Services resource used to verify citizenship status
- Access to citizenship-identifying records from Department of Homeland Security and Social Security Administration databases
- Federal district court records disclosing individuals disqualified from jury service due to a lack of United States citizenship

As we noted above, accessing jury service responses that indicate non-citizenship from either County Superior Court or Federal district court records could be worth pursuing. The County

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also expressed to the Grand Jury that they had pursued some of these same immigration records from Homeland Security and elsewhere in the past which are currently not being used.

MAIL-IN BALLOTS AND BALLOT DROP-BOX MONITORING

The Grand Jury did not investigate in-person voting procedures, including identification checks (or lack thereof) and how fraudulent votes could potentially be cast. We believe that there is far more concern about the mail-in procedures that greatly exceed in-person voting (only 15-20% of votes are cast in person both statewide and in the County, with a low of 6% in a recent election). There is research that shows vulnerabilities with in-person ballot marking systems that could potentially be compromised to alter vote counts, although the Grand Jury did not look into details of these systems. The most thorough study of the Dominion ImageCast X ballot marking system used in both Georgia and California was released in July 2021, authored by Prof. J. Alex Halderman from the University of Michigan. ([link](#)).

Many of the public's concerns with mail-in voting and drop-boxes were spelled out in an April 2024 letter supported by 15 State Attorneys General, the Indiana Attorney General stated, citing multiple sources, "Numerous security risks exist with mail-in voting and drop boxes, and these methods of voting have led to the proliferation of election fraud." ([link](#)) The following few paragraphs describe how the Elections Department addresses these concerns in the County.

Prior to the 2020 election, California, based on Covid-19 concerns and stay-at-home orders, moved to a "vote center model" for elections. Under the Voter's Choice Act every voter in the voter eligibility database automatically gets sent a mail-in ballot, whether they request one or not. The mail-in ballot can be exchanged for an in-person ballot at any election office or any polling place.

El Dorado County now typically receives about 80-85% of ballots through mail-in or ballot drop box (the highest recorded being 94% per the County website). Voters can exchange their mail-in ballot for an in-person ballot at any vote center. This places a new burden on the Elections Department that did not exist more than five years ago. VoteCal helps determine if the same

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person has voted multiple times across different counties through multiple ballots. If the County receives a second vote from the same person, it is easily identified and discarded. There appears to be virtually no enforcement of penalties for casting ineligible or multiple ballots in this manner.

The Elections Department is small (roughly seven full time employees) and does not have the capacity to monitor all video surveillance tapes of drop boxes throughout the County during the election cycle. Not all drop boxes have video surveillance. The County does spot checks of people dropping off ballots to ensure that a reasonable number are being deposited or that the same person doesn't appear multiple times, or at multiple locations. There's virtually no checking during night hours unless the tapes are reviewed in the morning, but that has been rare.

The Elections Department website states the following regarding surveillance cameras on drop boxes ([link](#)):

There are two types of Drop Boxes:

- *Manned: Located where they can be seen by someone which includes stores, libraries, vote centers or other locations where people are present.*
- *Unmanned: Those are typically outside boxes that provide 24-hour drive up availability.*

Placement of cameras at all drop boxes is not feasible:

- *The location is a private business, and they may have their own cameras, or for liability reasons we cannot add county equipment to their facility.*
- *Some locations are remote or do not have a way for us to cost effectively place a camera.*
- *The drop box at our office is under 24-hour camera monitoring. Others coming in the next year.*

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The highest return of ballots in El Dorado County has historically had 94% of voted ballots arrive by mail. The bulk of these ballots are returned to drop boxes, approximately 60%.

The Elections Department indicated during an interview that they are currently looking at improving drop box video surveillance coverage to nearly 100% with newer solar powered surveillance cameras from remote locations, which we found very encouraging. The Grand Jury also raised the possibility that the drop box surveillance systems could be streamed online with public volunteers providing more thorough around-the-clock monitoring. This may not be practical, but it may be worth exploring at the discretion of the Elections Department to increase public trust. Knowing that surveillance videos are streamed online may be a deterrent to some illicit activity. It could be an additional deterrent if signs are put on all drop boxes that they are under surveillance (even if not) and any tampering will be prosecuted.

Finally, it may never be possible to address all concerns with predominantly mail-in voting even with the best of procedures. The public, for example, has been influenced by the 2022 movie release, “2000 Mules”, which covers issues with mail-in ballots and monitoring of drop boxes. The Grand Jury cannot verify the claims in this movie, and there was much controversy over its accuracy. We acknowledge the movie’s effect on some people and the Elections Department challenge to overcome these concerns.

SIGNATURE VERIFICATION, BALLOT TRACKING AND CURING

The Grand Jury investigated this phase of ballot handling and did not have any recommendations. We include the following information for interested readers.

Given the opportunity for fraudulent votes with mail-in ballots, the signature verification process has become a critically important step to ensure election integrity. When a voter uses a mail-in ballot, they must sign and date the accompanying envelope containing the ballot. The Elections Department must validate the signature on the envelope and compare it to online signatures the County has from the voter registration. This ensures that the registered voter is the one casting

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the ballot. The California Secretary of State issues regulations that the Elections Department must follow to verify signatures. These requirements are broad and leave some flexibility to the County. There can be varying signature rejection rates across counties within the state as a result, which could be an opportunity to move an election one way or the other based on different rejection criteria.

One requirement that the state imposes is that the County needs to assume by default that the signature matches the voter's registration record, unless "... multiple, significant and obvious distinctive differing characteristics with all signatures in the voter's registration record" exist and will be subject to additional review by the elections official (2 California Code of Regulations Section 20960).

The Secretary of State guidelines continue that a ballot will only be rejected if "...two different elections officials unanimously find beyond a reasonable doubt that the signatures differ in multiple, significant, and obvious respects from all signatures in the voter's registration record." Ballots cannot be rejected if the last name differs from the original voter registration record, such as in the case of marriage. The below figure shows some of the complex details that must be evaluated in the signature verification process. These differences may be hard to see at quick glance (when not highlighted in red as in Figure 1).

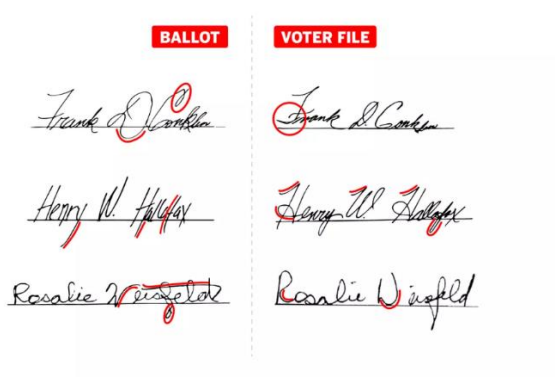


Figure 1 – Examples of some of the signature details that are compared in the verification process.

Source: <https://www.latimes.com/california/story/2020-10-28/2020-election-voter-signature-verification>

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The Elections Department is compliant with all the state election procedures. The County's Agilis® mail sorting and signature verification system is used to provide an initial match and pass through a bulk of incoming ballots. (Note that the current County Registrar worked for Runbeck Election Services, the manufacturer of the Agilis election mail sorting and processing system, as the CIO and VP of Cybersecurity for approximately 10 years prior to working for El Dorado County). The Agilis system can be configured to different sensitivities for signature matches. We were told that the County sets the system at maximum sensitivity (requiring a nearly exact match) to manually inspect the greatest number of ballots for maximum security. We were also told by County officials that the usual signature match cleared by the Agilis system is either 30% or up to 40-55%. The rest of the ballots require a manual or visual verification process. A typical Presidential election requires hand-processing approximately 110,000 ballots in the County.

The Grand Jury learned that in the last Presidential election the County received approximately 88,000 mail-in ballots, and approximately 30% were cleared by the machine. Manually verifying upwards of 60,000 signatures is a necessary but time-consuming task for the elections staff and volunteers. They receive one day of training each election season on what to look for and what constitutes a significant deviation from the registration record. There could be ten people total working on batches of 300 ballots at a time. Signature verification may continue after the election up to one-and-a-half weeks.

Random audits are performed to verify the signatures being passed through the Agilis machines are legitimate. Signature verification staff are allowed to check multiple ballots and signatures in the same envelope from a husband and wife. Envelopes with no ballots or the wrong number of ballots for the signatures provided are also rejected. The entire signature verification process is one of the most highly scrutinized and observed by the public. Screens showing the evaluated ballots are available to the public every day during election season.

Rejected ballots go through a curing process (mismatched signatures attempting to be resolved by contacting the voter, if necessary) to confirm the registered voter was the one who signed the

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ballot. This process works well in the County and throughout the state. A notification is sent to the voter, and they can submit a new signature or verification. The total number of ballots that were ultimately rejected by the verification process in recent elections is surprisingly low, around 200-500 out of nearly 100,000 mail-in ballots cast. This would indicate that most ballots are being cast by the registered voter.

These results can vary in other counties by comparison, according to statewide surveys we reviewed. The report from the Transparency Foundation surveyed rejection rates across nine California counties and found discrepancies in the 2022 general election. Rejected ballots (that remained uncured) for Los Angeles County was .76%, Sacramento County .24%, and San Joaquin County 2.18%. El Dorado County was not included in the survey, but it appears to be approximately .5% from the data we were provided. Public trust is reduced if there is wide disparity in individual county rejection rates, possibly suggesting one county is inappropriately accepting a greater percentage of illegally cast ballots.

Elections staff only have a few seconds to verify a match to get through the volume required. The default decision is to assume it's a valid signature without significant or obvious deviation between the signatures. There are concerns that quality control could take a backseat to just getting all the ballots processed and the election certified. Public oversight and participation during the election is the last resort safety measure in this phase of ballot verification. The Grand Jury does not believe it's a significant problem in our County, but the process appears imperfect enough that it could let a small number of illegitimate votes through.

SECURITY OF BALLOT TABULATION SYSTEMS

Once ballots have been verified and cured (if necessary), they are moved to an adjacent room for tabulation. The Dominion electronic tabulation systems required by the state and used by the County are among the most controversial aspects of election integrity. Controversies (both legitimate and illegitimate) surrounding Dominion voting systems have contributed to the public's loss of trust in California elections.

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For example, a Politico article from February, 2021, covered the controversy in the security community about election systems that included hardware that could connect to wireless networks, but requiring that such capabilities be disabled ([link](#)). “Supporters say it’s reasonable for the Election Assistance Commission to adopt compromise language that falls short of a full prohibition. But many security experts say it opens the door to cyberattacks.”

The California Secretary of State (SOS) addresses a number of these concerns on the SOS elections web site ([link](#), see Appendix 3). The layered security approaches described therein include source code reviews, certification of trusted software builds, and physical intrusion prevention controls.

The Elections Department has done a lot of additional work to ensure the integrity of these machines, which are among just a few alternatives that have been certified by the state. Among the security measures employed by the County to ensure proper ballot counts by the Dominion systems:

- The Elections Department performs a logic test before every election, running a test set of ballots through the system to ensure an accurate count and no vote switching.
- During the election (and post-election), the Elections Department spot checks roughly 1%-2% of ballots by hand and compares them to the machine count. If the machines are not counting accurately during the election season, it will most likely be caught through this process.
- The Dominion systems are not connected to a network that can access the internet. They are on their own network in the room using color-coded cables for an isolated local network that does not access the internet.
- The tabulation room can only be accessed by three County staff. Access logs are maintained showing when the systems were physically accessed. Access logs are checked daily and kept for seven days.

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- When a Dominion technician enters the machine room to administer the machine, County staff are always present.
- All maintenance of the Dominion systems is done physically on the system, never remotely. No software updates are allowed once a certified system (by the state) has been delivered to the County.

The Grand Jury, however, was left with a few concerns with the ballot tabulation process and the security of the systems. Even though there is no physical network connection, there is some controversy about Dominion voting machines accessing global networks through cellular networks ([link](#), [link](#)). The Elections Department stated they cannot rule out the possibility of the systems connecting wirelessly. We have a specific recommendation to remove this concern below.

The Elections Department regularly performs spot checks early in the election process to detect if the Dominion machines are communicating wirelessly and found no evidence that they were doing so. However, this was not an ongoing check, and the possibility still exists the machines may connect sporadically, even for a few seconds at a time. Even if votes are not being altered through any communication, any unauthorized communication of preliminary results to an outside party would be a serious breach of security and integrity.

More effort is required to ensure that the systems are perpetually isolated electronically from any wireless network. Shielding and isolating a device from all electronic signals can be achieved by using a Faraday cage, named for the English physicist who pioneered the field of electromagnetism and magnetic induction. A Faraday cage can be built from metallic screening material that can block wireless electronic signals in both directions relatively inexpensively [see Appendix 1]. Screening the work area around the systems in a shielded tent readily available in the marketplace could ensure complete electronic isolation of the Dominion systems.

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Image – An example of a Faraday tent shielding a desktop system. Source: Faradaydefense.com

Dominion tabulation systems are complex systems that do not lend themselves to easy analysis or verification. Typically, vote recognition and tabulation are relatively simple processes used by all sorts of common tabulation machines, including those that score student exams. The Dominion machine requires more than 2.1 million lines of code to operate according to source code analysis reports we reviewed. That amount of source code makes it impossible to determine all the system behavior or vulnerabilities from inspection of the source code. Computer scientists, programmers, and operating specialists have questioned the Dominion software and firmware complexity. In addition, the Dominion software runs on complex operating system software such as Microsoft Windows, which can introduce its own set of vulnerabilities to access systems and data. The Elections Department concurred that the presence of Microsoft's Internet Explorer (a web browser and primarily means of internet communications) is always included along with Windows on these platforms, and which can't be removed, is concerning.

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To improve system security, the state of California elections website states that Dominion voting systems undergo source code review and evaluation. We could find no evidence of California's source code certification process from the California Secretary of State website, although the Grand Jury found an undated "Dominion Source Code Test Report for California" ([link](#)). This level of source code review merely confirms security design best practices, coding conventions, and ability to handle common threats. For full list of source code review objectives, see Appendix 2.

This level of source code review is warranted and provides some measure of confidence in the integrity of the election systems, but they do not ensure the systems cannot be compromised, or are free from vulnerabilities, especially if an attacker is familiar with the system and has physical access. This specific test report, albeit on an older version of the Dominion system software, identified sixty-nine discrepancies with the Dominion 5.2 code base, although it concluded they were nearly all low-risk vulnerabilities and would require in-depth knowledge of the system and code base to subvert the system.

The conclusion reached from this report is that source code reviews are often loosely claimed to provide confidence that we can know exactly what the machines are doing and that they have no designed capability to allow for manipulation of election results. This is not the case, as the source code review can only verify design best practices and security implementations. The systems may still contain vulnerabilities, and key insiders could make changes with physical access to the systems without leaving a trace.

For example, in June 2022, the Cybersecurity & Infrastructure Security Agency (CISA), a department within Homeland Security, issued a technical alert for Dominion Voting Systems Democracy Suite ImageCast X systems. These are not the tabulation systems, but the in-person voting system that generates a printed ballot for tabulation. ([link](#))

The Grand Jury did not investigate the County Election Departments risk mitigation procedures for these specific vulnerabilities in the in-person ballot marking systems and has no evidence that

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this is a risk in the County. It was not apparent that the vulnerability mentioned had ever been exploited and required physical access to the system to perform the exploit. But this serves as an example that vulnerabilities in complex voting systems do exist, however rare and difficult to exploit they can be.

Virtually all security vulnerabilities require some degree of physical access to the system. Authorized individuals (such as vendors and election officials) could bypass the system software and potentially manipulate the vote without risk of detection ([link](#)). This raises the possibility that authorized individuals could conceivably alter results, however unlikely it is that they would do so.. This is a small risk given the staff the County currently employs and the security measures already in place, but it is a risk that should be addressed. Performing a background check equivalent to a top-secret security clearance could potentially reduce this risk measurably, but maybe not completely, and is very expensive. Nor is it obvious who would be qualified to do it. The Grand Jury investigation learned that three County elections staff have access to the tabulation room. Requiring that two people always be present in the tabulation room together would also reduce risk measurably. These are typical countermeasures to ensure some of the most secure systems in the world. It might be time to consider that our elections systems require the same level of security hardening and procedures.

CONCLUDING REMARKS

The Grand Jury believes that the Elections Department is doing an excellent job of running free and fair elections. Virtually all the issues arise from state mandates, codes, and procedures. Some public concerns about election integrity are valid, and lack of information and some degree of speculation has led to some unfounded concerns.

More can be done by the Elections Department to acknowledge and address the concerns of the public and educate them on the reality of the situation. Election integrity concerns are not confined to the domain of conspiracy theories any longer, and the public doesn't want to be misled that current election processes are not without their vulnerabilities and could be ripe for

DISCUSSION

exploitation. It may be too expensive to fix in some cases, but it's not a perfect system. The best solution may be to acknowledge and accept some level of risk, while pursuing some prudent solutions to close known vulnerabilities and improve communication in addressing the public's reasonable concerns.

Hopefully this report has clarified some of the misleading information out there, separating fact from fiction in the mind of the public, and focusing on some specific worthwhile recommendations.

Findings

F1 – The new election headquarters is a well-designed and efficient operation for managing high-volume elections while providing transparency to the public. The Registrar of Voters and staff are to be commended for the design of the headquarters, integration of the systems and the oversight capability provided.

F2 – The Grand Jury did not find that any election results in the recent past have been materially altered or rigged through the voter eligibility procedures or vote tabulation systems.

F3 – The Registrar of Voters and the Elections Department are sincere in their desire for free and transparent elections but are required to utilize California certified voting equipment and procedures that may introduce vulnerabilities and a lack of transparency into the election process.

F4 – The Registrar of Voters and the Elections Department can do more to alleviate public concerns around election integrity through more frequent public communications (emails, newsletters, blogs, etc.), as they may have attempted in the past.

F5 – Due to the complexity of the Dominion vote tabulation systems, it is impossible to be completely assured of having removed all vulnerabilities. In addition, they are not physically shielded from wireless communications, which is apparently possible, causing additional concerns.

F6 – The video surveillance in use at ballot drop boxes is a spot check and does not cover all drop-boxes. Complete surveillance is likely impossible, but there may be additional ways to enhance coverage that should be considered.

F7 - The Elections Department is complying with all state statutes, although additional safety checks and procedures may be available in vote-by-mail procedures that should be considered.

RECOMMENDATIONS

Recommendations

R1 – By the November 2024 election, the Dominion vote tabulation systems should be electronically isolated (e.g., a Faraday cage surrounding the tabulation system) to improve security and remove the possibility of any cellular or internet communication. Fiscal impact: \$25,000-\$50,000 (See Appendix 1)

R2 – By the November 2024 election, the Elections Department should look into the feasibility of streaming drop box video surveillance cameras online for ad hoc public monitoring. In addition, all drop boxes should have signs that indicate they are under surveillance and illegal tampering will be prosecuted, which should be a further deterrent.

R3 – By the November 2024 election, the Elections Department should evaluate the feasibility of receiving non-citizen responses to jury summons from the Superior Court of El Dorado County or Federal district court records to cross-check County voter rolls and continue such periodic checks annually thereafter.

R4 – By January 1, 2025, the Elections Department should change security procedures to require a minimum of two people present when accessing the vote tabulation rooms and systems.

R5 – By November 2024, the Registrar of Voters should begin publishing a periodic newsletter (e.g., online blog or social media) designed to acknowledge and address public concerns. Questions should be solicited and screened to avoid the social media free-for-alls of the past.

R6 – The Elections Department should conduct a public poll of election integrity concerns by the end of 2024 and 2025 to measure any improvements in public perception and the success of the public outreach.

RECOMMENDATIONS

R7 – By January 1, 2025, the Registrar of Voters should establish a volunteer public advisory board to help monitor election processes, make improvements, and coordinate public outreach/communication.

REQUEST FOR RESPONSES

Request for Responses

A Civil Grand Jury report details a single investigation. Each report lists FINDINGS and RECOMMENDATIONS. The responsible organization is notified and is required to respond to the report.

The California Penal Code § 933(c) specifies response times.

- PUBLIC AGENCIES. The governing body of any public agency (also referring to a department) must respond within 90 days from the release of the report to the public.
- ELECTIVE OFFICERS OR AGENCY HEADS. All elected officers or heads of agencies/departments are required to respond within 60 days of the release of the report to the public.
- FAILURE TO RESPOND. Failure to respond, as required to a Jury report, violates California Penal Code Section 933.05 and is subject to further action that may include additional investigation on the subject matter of the report by the Jury.

The following responses are required pursuant to Penal Code § 933 and § 933.05:

From the following government bodies:

- El Dorado County Board of Supervisors
 - All Findings and Recommendations
- El Dorado County Registrar of Voters
 - All Findings and Recommendations

For more information refer to [*How to Respond to an El Dorado County Grand Jury Report*](#) available on the El Dorado County Grand Jury webpage.

APPENDIX AND RELATED INFORMATION



Select Fabricators Inc.
6 Framark Dr.
Victor, NY 14564
United States

Ph: 585-393-0650

Fax: 585-393-1378

Quote
ID: 15343 Date: 18-Apr-24

To

[Redacted]

Quote To

[Redacted]

Ph: [Redacted]

Ph: [Redacted]

Terms		Ship Via		Salesperson	
Net 30		FedEx Ground		0010 - Andrew	
Quantity	Description	Unit Price	Amount		
1 ea	Line: 003 Expiration Date: 17-Jun-24 Part: RMEC0222 CUSTOM Rev: Wall Mounted IO Plate Includes: (1) AC Filtered Power 120/240 VAC at up to 10 Amps with power cord and (5) outlet power strip (CK-0060) and (1) DUAL RJ45-1G (CK-0034).	\$3,047.00	\$3,047.00		
	*** Note: Nova Select Shielding Fabric is Not Flame Rated *** ***Subject to review and inspection of specifications upon receipt of order. *** **** Freight is NOT included in this quote, unless otherwise specified. **** **** FOB: Victor, NY **** *** Terms are subject to credit approval. *** PLEASE REFERENCE THE SFI QUOTE NUMBER ON YOUR PURCHASE ORDER. NORMAL LEAD TIMES ARE 6-8 WEEKS ARO and APPROVED PENETRATION DRAWING (TEMPLATE INCLUDED WITH QUOTE), AND MAY CHANGE BASED ON MANUFACTURING SCHEDULES AND INVENTORY AT THE TIME OF ORDER PLACEMENT. QUOTE IN U.S. FUNDS UNLESS OTHERWISE NOTED. QUOTE VALID FOR 60 DAYS. If these commodities, technology, or software were exported from the United States, these items are controlled by the U.S. government and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. government or as otherwise authorized by U.S. law and regulations.	Total:	\$42,371.00		

APPENDIX AND RELATED INFORMATION

APPENDIX 2 – SOURCE CODE REVIEW

The detailed list of what the source code analysis includes:

- Adherence to applicable standards in the California Voting System Standard (CVSS)
- Adherence to coding format conventions and best practices for coding languages used
- Analysis of program logic and whether the system is designed in a way that allows meaningful analysis (using code analysis tools), including code complexity that hides logic
- Search for exposure to common vulnerabilities
- Correct implementation of cryptography and key management
- Analysis of error and exception handling
- Likelihood of security failures being detected
- User ability to escalate administration rights beyond those authorized
- Check for sound engineering practices
- Looking for embedded, exploitable code, e.g., backdoor access
- Other security best practices that would prevent vulnerabilities and system hacking

APPENDIX AND RELATED INFORMATION

APPENDIX 3 – CALIFORNIA SOS ON ELECTION SECURITY



SHIRLEY N. WEBER, Ph.D. CALIFORNIA SECRETARY OF STATE

Office of Voting Systems Technology Assessment | 1500 11th Street, 6th Floor
Sacramento, CA 95814 | Tel 916.695.1680 | www.sos.ca.gov

May 6, 2022

County Clerk/Registrar of Voters (CC/ROV) Memorandum # 22105

TO: All County Clerks/Registrars of Voters
FROM: /s/ Susan Lapsley
Deputy Secretary of State, HAVA Director and Counsel
RE: OVSTA: Voting Technology Security

Security is layered into every aspect of California's voting technology. Our office, in partnership with county election offices, take election security very seriously. The following are reminders regarding security processes and procedures:

- California conducts source code review and evaluation, hardware and software security penetration testing, open ended vulnerability testing, operational testing to validate system performance and functioning under normal and abnormal conditions and more to identify any vulnerabilities and have our voting systems resolve or mitigate them.
- Every California registered voter receives a paper ballot – which creates a voter-verified paper audit trail that provides voters an opportunity to review their choices when casting their paper ballot and provides elections officials with a means to confirm the accuracy of tabulation.
- California voting systems and tabulators - ARE NOT connected to the internet, nor do they have modems or hardware in them that could be remotely "activated."
- California voting systems have physical intrusion prevention security controls and safeguards.
- California voting systems are installed only with trusted build software provided by the Secretary of State.

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May 6, 2022

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- Every county must validate - before every election - that the voting system is identical to the Secretary of State supplied trusted build by reinstalling the trusted build or utilizing the Secretary of State trusted build cryptographic HASH (essentially a digital fingerprint of the software and firmware) to ensure it matches the approved version and has not been modified.
- Ballot printers are regularly inspected and certified by our office.
- Vendors and county officials follow strict physical security and chain of custody requirements for all voting technology software, firmware and hardware which meet or exceed federal guidance including that of the [Justice Department](#), the [Cybersecurity and Infrastructure Security Agency](#) and the [Election Assistance Commission](#).
- If chain of custody has been compromised or attempted to be breached, the Secretary of State must be notified immediately, and investigation, verification, and sanitization (e.g. NIST Media Sanitization guidelines <https://csrc.nist.gov/publications/detail/sp/800-88/rev-1/final>) procedures be followed.
- County election officials must follow specific role-based permissions, administrative and management controls, access controls, security procedures, operating procedures, physical facilities and arrangements controls, and organizational responsibilities and personnel screening.
- Minimum password complexity, length, strength, and lock out policies for failed attempts is required. Under no circumstances may default passwords be used.
- Every county performs logic and accuracy testing.
- For every election, each county must conduct an audit by manual tally or risk limiting auditing to identify and resolve any discrepancies.

Chain of Custody

The Secretary of State mandates voting system vendors, security consultants and county officials follow strict chain of custody requirements for voting system software, firmware and hardware throughout testing, certification, and operation. Voting system software, firmware and hardware is used at the jurisdiction in a process-controlled environment where chain of custody and software integrity is strictly controlled.

Counties must adhere to the security and chain of custody requirements in the certified Use Procedures, Certification document, and state law. If the chain of custody of voting technology has been breached, jurisdictions are required to notify the Secretary of State immediately.

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May 6, 2022
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Further, pursuant to California Elections Code Sections 19216, 19217 and 19218, any modifications to a voting system, including additions, and/or deletions of certified firmware, software, or hardware, must be authorized by the Secretary of State. No addition and/or deletion of voting system components are allowed unless authorized and provided by our office.

Below are additional California Elections Code sections and California Code of Regulation sections that further protect voting systems from unauthorized access:

- Pursuant to Elections Code section 18564.5, tampering with a voting system is prohibited.
- Pursuant to California Code of Regulations section 20820 (e), during recounts, unauthorized parties are prohibited from "touching any voting system components, ballots, tally sheets, or other special recount board materials."

We are in regular contact with and work closely with federal and state law enforcement and intelligence agencies to ensure we protect our elections. Should anyone attempt to interfere with our election, we will work with state and federal law enforcement agencies to prosecute them to the full extent of law and hold them accountable.