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CITIZENS' OVERSIGHT PROJECTS
CitizensOversight.org

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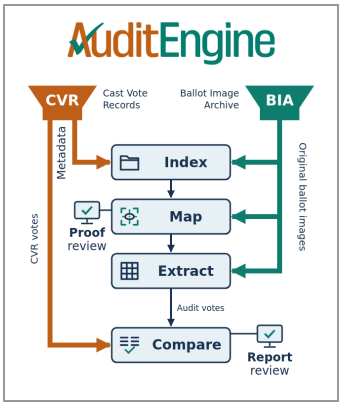
REF: M2070

John Arntz
Director, San Francisco Department of Elections
City Hall, Room 48
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San Francisco, CA 94102
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Dear San Francisco Department of Elections:

We are rushing this communication to you as we detected REPEATED SCANNED BALLOTS and REPEATED CVR records in the 2024 election. This points to a possible gap in the chain of custody and may impact the 2026 elections.

AuditEngine and San Francisco's published election records



Citizens' Oversight has developed an auditing system called AuditEngine[1]. This system takes cast vote records and ballot images and reconciles them to look for any inconsistencies. Thank you for making these records available for each election on your website.

Review of 2024 Election in San Francisco

We have been exercising AuditEngine on your data from the 2024 election. We did a full review of sheet 1 of that election across all eleven districts. We also processed all ballot-marking device (BMD) ballots in full because they include all of the contests and are on sheet 1. We use optical character recognition (OCR) to read the printed selections on those ballots and compare them with the cast vote records. This lets us check whether the recorded votes reflect the printed selections, including any errors that might be encoded in the QR codes.

120 Images with No CVR Records

At the end of this process, we noticed that there were 120 images that had no matched cast vote records. When we looked into it further, we found a set of cast vote records that matched the votes on those images, but they already had ballot images associated with them. Thus, since these

ballot images were already paired with CVR records, they could be ignored as already incorporated in the election.

Six Batches Scanned Twice and Included Twice

In the process of looking into the 120 unmatched images, we went ahead and looked for other repeated batches. We found another six batches that were scanned twice, totaling 335 ballots (i.e. sheets, since we only looked at Sheet 1, but the other three sheets are probably repeated as well). See Appendix A for the list and link to the more thorough report.

The images differ at the pixel level, and some have artifacts such as more background noise or streaks than the corresponding image. So they are definitely different scans. When we look at the individual ovals and how they're marked, they the same markings throughout, and some are quite distinctive. The two sets of images in each of the repeated batches have the same number of ballots, and exactly the same votes. The batch totals are the same, and you can see the same distinctive marks in the ovals. The problem is that they are both included in the CVR and in the ultimate results.

Our matching approach does not attempt to confirm repeats in batches with only one or two ballots, and there are many such batches. So there may be more repeated batches than the ones we list. However, we do know for certain that the batches listed in Appendix A were identical batches scanned twice.

Repeated Scans Raise Chain of Custody Concerns

Getting two sets of scans raise potentially serious chain-of-custody concerns. We are bringing it to your attention now, so you can check the 2026 election prior to certification. Our reconciliation report compares the results with these repeats removed, and based on our analysis, the outcome of any contest is not in question for 2024. We doubt that this will change any results in 2026, if it is of the same scale.

The full report is at https://us-east-1-audit-engine-jobs.s3.amazonaws.com/US/CA/CA_SanFrancisco_20241105_sheet1/reports/Reconciliation_Report.html so you can check any contest for yourself. If you are not familiar with our report, we would be happy to schedule a virtual meeting with you to present our system and results.

Few discrepancies and careful handling of write-ins and overvotes

Your processing in general is excellent. We found relatively few discrepancies. You're doing a really good job adjudicating write-ins and overvotes. Nevertheless, we did find a very small number of mistakes made by the voting system that were not adjudicated. Our system had some difficulty with BMD ballot printouts that were washed out and hard to read, and some of the redaction blocks you added to the images caused our system to misidentify votes. We've included some suggestions on those points below.

We want to help

We can offer a quick-turnaround audit of the current 2026 election once the ballot images and cast vote records are available. We'd like to work with you to complete that review within the certification period so we can detect similar repeated ballot scans. We only need the same data you are already providing (Images, CVR, Hash report) and preferably ballot style masters.

Sincerely,

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[1] More information about AuditEngine is at https://auditengine.org and in our backgrounder at https://copswiki.org/Common/AuditEngine

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Appendix A. Repeated batches

The full report, with the ballots paired one for one, the sample images and the votes in each batch, is at:

https://us-east-1-audit-engine-jobs.s3.amazonaws.com/US/CA/CA_SanFrancisco_20241105_sheet1/reports/Repeated_Batch_Report.html

Summary Report

Each row is one pair of batches holding the same ballots. Batch numbers are as they appear in the cast vote record and the ballot image files. The counts are sheet 1 ballots.

Batch	Repeated as batch	Sheet 1 ballots	Both batches in the CVR
00035_00092	00912_00000	100	yes
00035_00058	00813_00000	74	yes
00035_00065	00601_00000	70	yes
00035_00064	00752_00000	54	yes
00001_00765	00001_00802	26	yes
00011_00567	00011_00568	11	yes
00035_00170	00995_00000	70	no, images only
00035_00169	00995_00000	27	no, images only
00014_01677	00014_01694	21	no, images only

Appendix B. Information that would help us audit ballot images

Redaction block locations would help us process the images

For ballots that have redactions, the redactions are implemented using black rectangles to conceal voter marks. The voting system processes the ballots before the redactions are added,

while we receive the images with redactions added before we do our processing. That can sometimes mean our system misinterprets those blocks as votes. We may devise a way to identify the redacted images and then find and white-out the redaction blocks, so our normal process will not misinterpret these. It might be that you can generate a report about which ballots have redactions and where they are in the image (x,y,w,h), that would be helpful.

2024 ballot style masters would help us locate invisible ovals

The 2024 election used invisible ovals, i.e. printed in red ink and the scanners were configured to remove that color. Since we can't see the empty ovals in the images, our automated mapping process won't work, and so we have to turn to a manual process. It works fine, but it takes additional time to map them. We asked for the ballot style masters for the 2024 election through your normal process, and we haven’t received them yet. Those would be very helpful because we could parse them directly. Right now, we have to place the targets manually on the images where we believe the ovals are because we can’t see them. If we get data for the 2026 election, please provide these so we can accelerate our process. We still have two types of proofing so our process is not completely reliant on the voting system information in this regard.

Data we need for immediate review

We can run our auditing software immediately using ballot images and CVR files you have for the 2026 election and look for repeated batches. To find the repeats, we need to actually look at the ovals on the ballots of each possible repeat. You can also do a check by looking for batches with identical totals, and number of ballots. We go one step further and compare the ovals and also have human-eye inspection before we conclude that they are matched. This is something we can discuss with you as we want to help.