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I have been asked to review scans and ballot count sheets from the November 2020 election in Allegheny County, Pennsylvania. I issued my previous report in September 2022 regarding the scanning issues found in the ballots. This report will focus on the data found on the tabulator CVR forms and the ballots themselves.

I have reviewed election cases including ballots in many instances in my career over the past 29 years associated with my expertise in document examination.

In this case, I had access to PDF scans of the front and back of each ballot as well as the corresponding PDF of the detail for the counting and tabulation of each ballot. Every ballot has a unique individual identifying number associated with the counting and is part of the PDF file name.

There are three primary groups of ballots; first is the poll site (election day) voting. These appear to be processed by different scanners/tabulators than the mail in votes. The second category is the mail in or absentee votes. These appear to be counted at a central location with their own set of tabulators from random areas as would be expected. The final type is a small number of ballots labeled as provisional. These provisional ballots were not focused on during my examination.

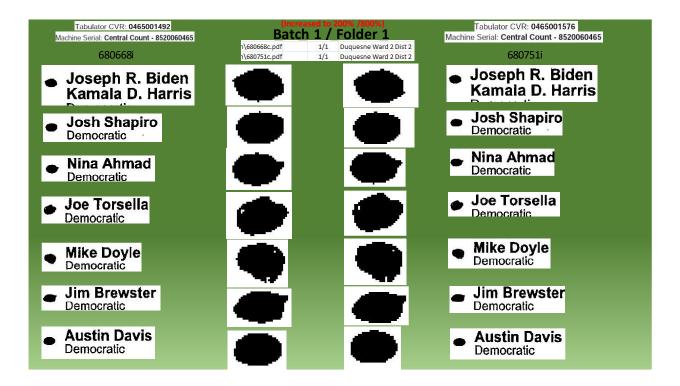
The polling site (election day) ballots are the lowest ballot numbers and the first series counted. The mail in/absentee being the next series counted and the provisional ballots being the final group counted.

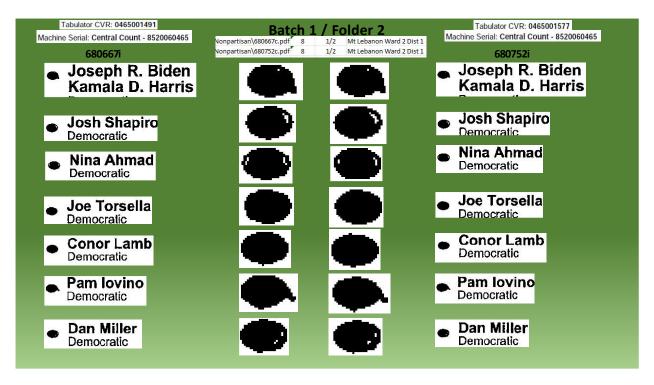
Results:

As a result of only having images, the forensic examination that can be performed is limited. It is always more desirable to have the original evidence when possible. The examination conducted used the available captured reliable evidence in the images to make the findings and arrive at the conclusions.

As one would expect in any election, any one ballot would only be counted one time. In other words, an individual ballot is not counted multiple times in an election. When the scans of the ballots in this county are reviewed and compared to one another, multiple instances are found of ballots being

scanned and counted multiple times. The appearance of the markings and their individual formations show/confirm that the same ballot with the same markings was counted twice. The review for duplicate scanned ballots is ongoing, to date, over 170 instances have been found with this irregularity. See the examples below demonstrating this problem:





The next area of review was in the CVR (cast vote record). On each of the pages for the CVR there is a field for the tabulator CVR, it is my understanding that this is a running count for the ballots that were scanned/ counted on the corresponding tabulator. This number for each tabulator should be unique. However in this county, over 50,000 instances of non-unique tabulator CVR numbers were found on eight of the tabulators used to scan and count votes. Some of the CVR numbers were found twice, some were found three times.

Duplicate Ballots

Machine Serial	Votes
Central Count - 8519110434	5866
Central Count - 8519110435	5694
Central Count - 8519110436	3852
Central Count - 8519110440	10624
Central Count - 8520050451	4536
Central Count - 8520050455	248
Central Count - 8520050460	3802
Central Count - 8520050465	6994
Total	41616

Triplicate Ballots

Machine Serial	Votes
Central Count - 8519110435	6117
Central Count - 8520060465	3006
Total	9123

Based on the forensic findings, it is my opinion that further work and review of the original ballots should be conducted to determine what significance these findings have on the whole of the approximately 700,000 ballots cast.

- Review the original ballots that were scanned and created the submitted images to determine the scope and correlation of these printing anomalies or if an alternative theory could exist that cannot be determined at this time.
- 2. Determine the details of the scanner with the anomalies noted in the user, time frames scanned, and cause of the poor image.
 - a. Then to determine the origin of the original ballots if the issue is with a printing defect.
 - b. Conduct a study of the voting pattern (if any) in these areas compared to other correctly printed ballots.
- 3. If the original ballots are made available:
 - a. To look for impressions of ballots into each other. In the normal course of voting these would not be filled out one on top of each other.
 - b. Using infrared light to determine if more than one ink formulation was used to complete a ballot and which races contained different inks to see if there is any pattern of additions or not.
 - c. In ballots that are color printed to review the CPS code and yellow printed dots to determine similarities in the machines and the timing for the printing process.
- 4. Based on the CVR issues noted, forensic images should be made and examined for each of the devices used in this vote counting/scanning process including each of the tabulators.

Erich Speckin

Forensic Document Analyst