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September 16, 2022

I have been asked to review scans and ballot count sheets from the November 2020 election in Allegheny County, Pennsylvania.

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.

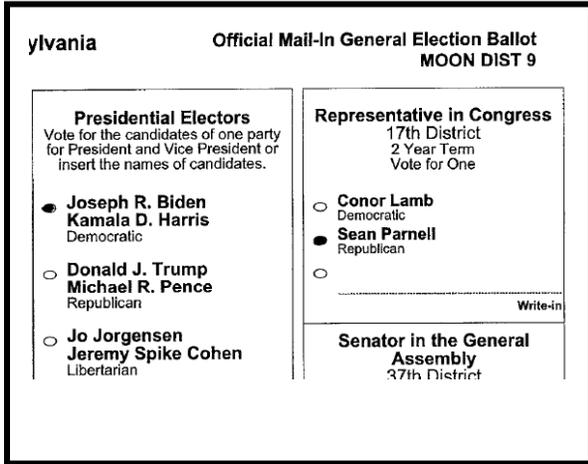
The polling site (election day) ballots are the lowest ballot numbers and the first series counted. The mail in/absentee being the next series counted and the provisional ballots being the final group counted.

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.

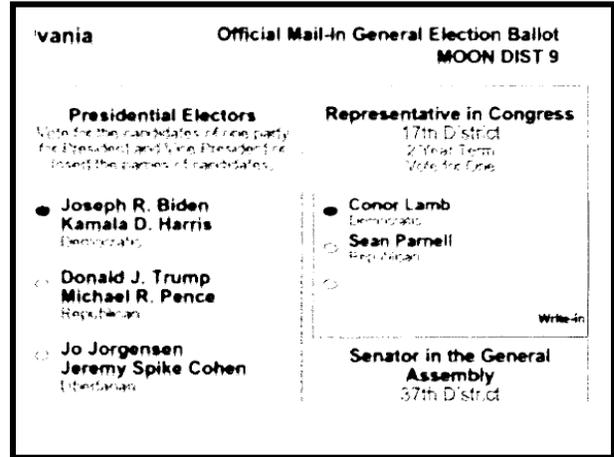
When the series of the mail in ballots was examined, a range of ballot ID numbers contained images that were far inferior to the other ballot images provided. See image comparisons below:

Good Scan



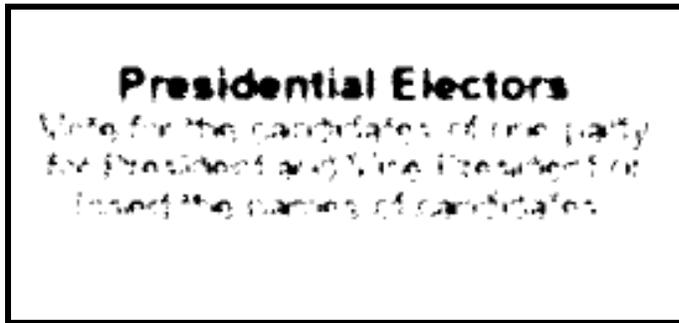
Cast Vote Record 455140
Record 8 Moon Dist. 9

Bad scan

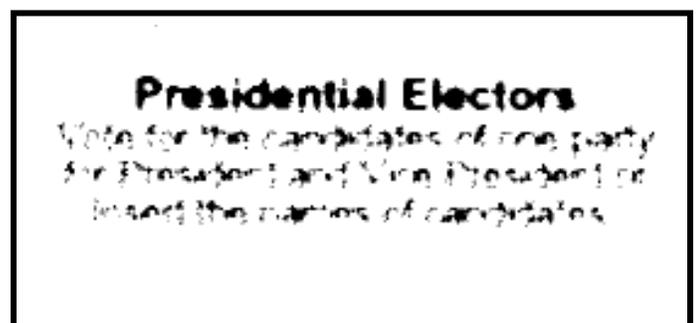


Cast Vote Record 455005
Record 8 Mood Dist. 9

When the poor image ballots were examined and compared to the corresponding tabulation record, the scanner that appeared for these images was consistently the same (8520050452). Many of these images have similar defects in the printing/copying process which would indicate common source of production, but different than the remaining examined ballots. Clearly in the mail in counting area, a random printing defect that may have existed in mailing out of ballots could not consistently come back and be counted on the same scanner. Therefore, a printing defect on the printing side of the ballot creation is not the likely cause of this anomaly.



Cast Vote Record 444064
Record 7 McKee Rock Ward 1 Dist. 2



Cast Vote Record 445034
Record 2 Casl Shannon Dist. 1

It would be a theoretical possibility that the issue in image quality was caused by the scanner at the time of counting or tabulation through a malfunction or an issue with a setting instead of a repeatable defect caused by common printing/copying source. However, upon further investigation, there are a number

of ballot images captured by this anomalous scanner (8520050452) that contain no issues in image quality or repeatable defects. Below are four examples of ballots scanned in the mail in ballots.

Ivania Official Mail-In General Election Ballot
BETHEL PARK WARD 4 DIST 1

<p>Presidential Electors Vote for the candidates of one party for President and Vice President or insert the names of candidates.</p> <p><input type="radio"/> Joseph R. Biden Kamala D. Harris Democratic</p> <p><input checked="" type="radio"/> Donald J. Trump Michael R. Pence Republican</p> <p><input type="radio"/> Jo Jorgensen Jeremy Spike Cohen Libertarian</p>	<p>Representative in Congress 18th District 2 Year Term Vote for One</p> <p><input checked="" type="radio"/> Mike Doyle Democratic</p> <p><input type="radio"/> Luke Edison Negron Republican</p> <p>Write-in</p>
	<p>Senator in the General Assembly 37th District 4 Year Term Vote for One</p>

Cast Vote Record 460779
Record 1 Bethel 4 Dist. 1

Ivania Official Mail-In General Election Ballot
FOX CHAPEL DIST 2

<p>Presidential Electors Vote for the candidates of one party for President and Vice President or insert the names of candidates.</p> <p><input type="radio"/> Joseph R. Biden Kamala D. Harris Democratic</p> <p><input checked="" type="radio"/> Donald J. Trump Michael R. Pence Republican</p> <p><input type="radio"/> Jo Jorgensen Jeremy Spike Cohen Libertarian</p>	<p>Representative in Congress 17th District 2 Year Term Vote for One</p> <p><input type="radio"/> Conor Lamb Democratic</p> <p><input checked="" type="radio"/> Sean Parnell Republican</p> <p>Write-in</p>
	<p>Representative in the General Assembly 30th District 2 Year Term Vote for One</p> <p><input type="radio"/> Lissa Geiger Shulman</p>

Cast Vote Record 458116
Record 4 Fox Chap Dist.

Ivania Official Mail-In General Election Ballot
OHIO DIST 3

<p>Presidential Electors Vote for the candidates of one party for President and Vice President or insert the names of candidates.</p> <p><input checked="" type="radio"/> Joseph R. Biden Kamala D. Harris Democratic</p> <p><input type="radio"/> Donald J. Trump Michael R. Pence Republican</p> <p><input type="radio"/> Jo Jorgensen Jeremy Spike Cohen Libertarian</p>	<p>Representative in Congress 17th District 2 Year Term Vote for One</p> <p><input checked="" type="radio"/> Conor Lamb Democratic</p> <p><input type="radio"/> Sean Parnell Republican</p> <p>Write-in</p>
	<p>Senator in the General Assembly 37th District 4 Year Term Vote for One</p>

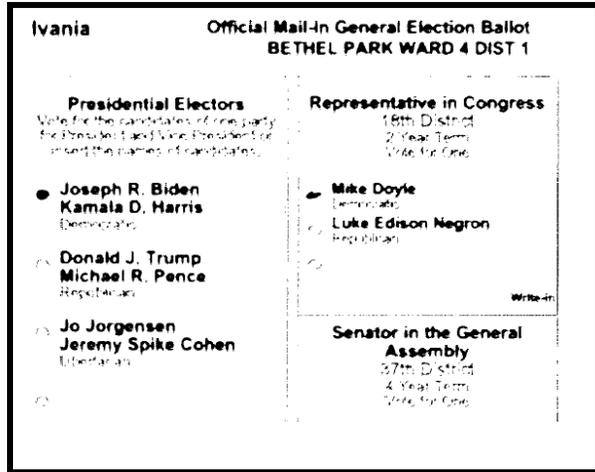
Cast Vote Record 469103
Record 10 Ohio Dist. 3

Ivania Official Mail-In General Election Ballot
PLUM DIST 1

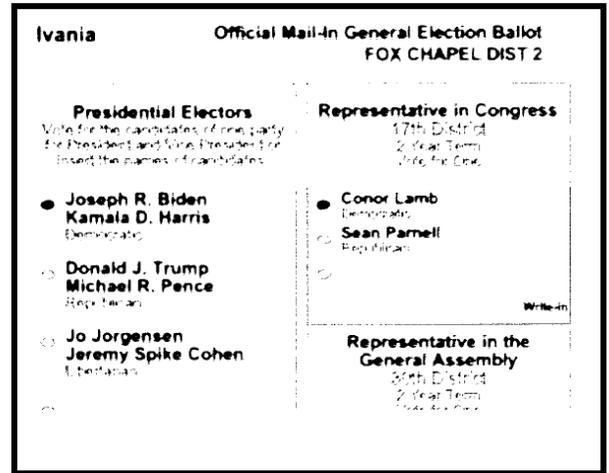
<p>Presidential Electors Vote for the candidates of one party for President and Vice President or insert the names of candidates.</p> <p><input checked="" type="radio"/> Joseph R. Biden Kamala D. Harris Democratic</p> <p><input type="radio"/> Donald J. Trump Michael R. Pence Republican</p> <p><input type="radio"/> Jo Jorgensen Jeremy Spike Cohen Libertarian</p>	<p>Representative in Congress 18th District 2 Year Term Vote for One</p> <p><input type="radio"/> Mike Doyle Democratic</p> <p><input checked="" type="radio"/> Luke Edison Negron Republican</p> <p>Write-in</p>
	<p>Senator in the General Assembly 45th District 4 Year Term</p>

Cast Vote Record 443200
Record 16 Plum Dist. 1

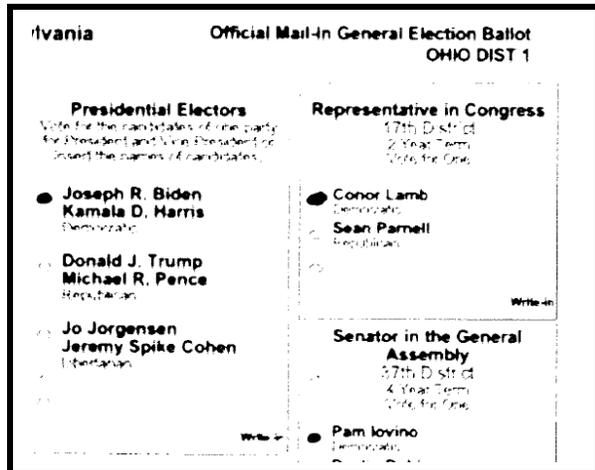
Below are four examples of ballots with poor scans from the same areas in the same scanning range by the numerical ID for the ballot.



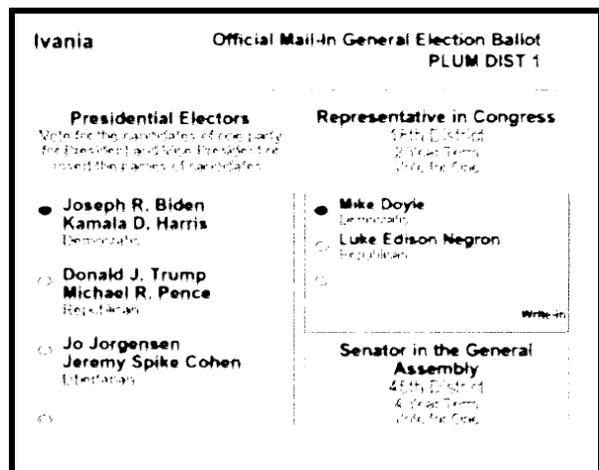
Cast Vote Record 444476
Record 1 Bethel 4 Dist. 1



Cast Vote Record 451891
Record 4 Fox Chap Dist. 2



Cast Vote Record 448587
Record 10 Ohio Dist. 1



Cast Vote Record 43361
Record 16 Plum Dist. 1

At this point in my review, I have identified thousands of ballots with this visible defect. The number is checked by hand at calculated on current totals over 10,000 ballots contain this issue from the same scanner. Based on the identical nature of the anomalies, it is my opinion that this subset of ballots

originated from the same source at some point but not the same source that printed the other ballots where the images have no visible issues.

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.

1. 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.

A handwritten signature in black ink, appearing to read 'Erich Speckin'. The signature is written in a cursive style with a large initial 'E' and a long horizontal stroke at the end.

Erich Speckin

Forensic Document Analyst