

# Audits

## Outcomes, Forensics & Root-Cause Analysis, Quality Control, Distractions, Disinformation, & Fishing Expeditions

2022 EVN Annual Conference

Philip B. Stark  
University of California, Berkeley  
17 March 2022

Trustworthy elections require keeping track of physical objects:

- Ballots, ballot boxes
- Pollbooks
- Voting equipment, including memory cards
- Poll tapes
- Absentee / provisional ballot applications
- Tally sheets
- Logs, chain of custody documents
- ...

Software independence requires physical security.

- Work in public (video stream including documents, public observers, daily doc upload, live-key data, no “backroom”)
- Inventory materials (boxes, equipment, envelopes, forms, ...)
- Preserve evidence (chain of custody, high-resolution reference scans, image drives/memory)
- Serialize ballots
- Use accountable materials (serialize counting sheets, scan sheets, ...)
- Use activity logs (which batches have been scanned, counted, ...)
- Use methods that catch & correct error (redundant, multi-person counting teams; double-key all data entry; accountable materials)
- Take time to answer public questions

2020 New Hampshire State Rep Contest  
Rockingham County District 7

	Hand count			Machine count*				
				2020	2021			
candidate	2020	2021	diff		1	2	3	4
St. Laurent	4357	4355	-2	4456	4355	4349	4352	4367
Azibert	2808	2808	0	2787	2804	2805	2802	2800
Roman	3443	3442	-1	3415	3434	3436	3432	3432
Singureanu	2782	2782	0	2764	2777	2778	2776	2776
Soti	4777	4776	-1	4480	4742	4744	4727	4700
Griffin	5591	5591	0	5292	5558	5557	5540	5516
Lynn	5089	5089	0	4786	5055	5055	5037	5011
McMahon	5554	5554	0	5256	5520	5520	5502	5477
write in	n/a	34		41	41	41	41	41

1. To Vote, Mark Only One Ballot in the circle to the right of your choice. For each office, mark only one circle. If you vote for more than the stated number of candidates, your vote for that office will not be counted.

2. To Vote for Write-In, To vote for a person whose name is not printed on the ballot, write in the name of the person in the "write-in" space. Completely fill in the oval to the right of your choice.

**ABSENTEE BALLOT AND OFFICIAL BALLOT**  
FOR  
**WINDHAM**  
**GENERAL ELECTION**  
**NOVEMBER 3, 2020**



Other Candidates	Democratic Candidates	Republican Candidates	
For President and Vice-President of the United States Vote for not more than 1	Libertarian Jo Jorgensen Jeremy Cohen	Joseph R. Biden Kamala D. Harris	Donald J. Trump Michael R. Pence President and Vice-President
For Governor Vote for not more than 1	Libertarian Darryl W. Parry	Dan Feltes	Chris Sununu Governor
For United States Senator Vote for not more than 1	Libertarian Justin O'Donnell	Joanne Shaheen	Corky Messersmith United States Senator
For Representative in Congress Vote for not more than 1	Libertarian Andrew Olding	Ann McLane Kuster	Steven Negrón Representative in Congress
For Executive Council Vote for not more than 1		Mindi Mescon	Janet Stevens Executive Council
For State Senator Vote for not more than 1		Joshua Bourdon	Regina Birdsell State Senator
For State Representatives Vote for not more than 4		Kristi St. Laurent Henri Azibor Valerie Roman Joana Binguereanu	Julius F. Soto Mary E. Griffin Bob Lyman Charles E. McManus State Representatives

**BALLOT CONTINUES ON BACK - TURN OVER**

Other Candidates	Democratic Candidates	Republican Candidates	
For Sheriff Vote for not more than 1		Patrick William Rivera	Chuck Massachese
For County Attorney Vote for not more than 1		Steven J. Briden	Patricia Conway
For County Treasurer Vote for not more than 1		Ty Quinn	Scott Priestley
For Register of Deeds Vote for not more than 1		Michael McCord	Cathy Stacey
For Register of Probate Vote for not more than 1		Bob Davidson	Ray Tweedie
For County Commissioner Vote for not more than 1		Stephen L. D'Angelo	Brian K. Christensen

*[Large red scribbled area covering the bottom right portion of the ballot, obscuring the back side. Some handwritten numbers and marks are visible through the red ink.]*

	Machine 1	Machine 2	Machine 3	Machine 4
overvote/undervote rate in State Rep contest machine count, 2020	14.5%	19.3%	15.5%	16.0%

# Neopost DS-35

Product Details: [Download PDF Brochure](#)



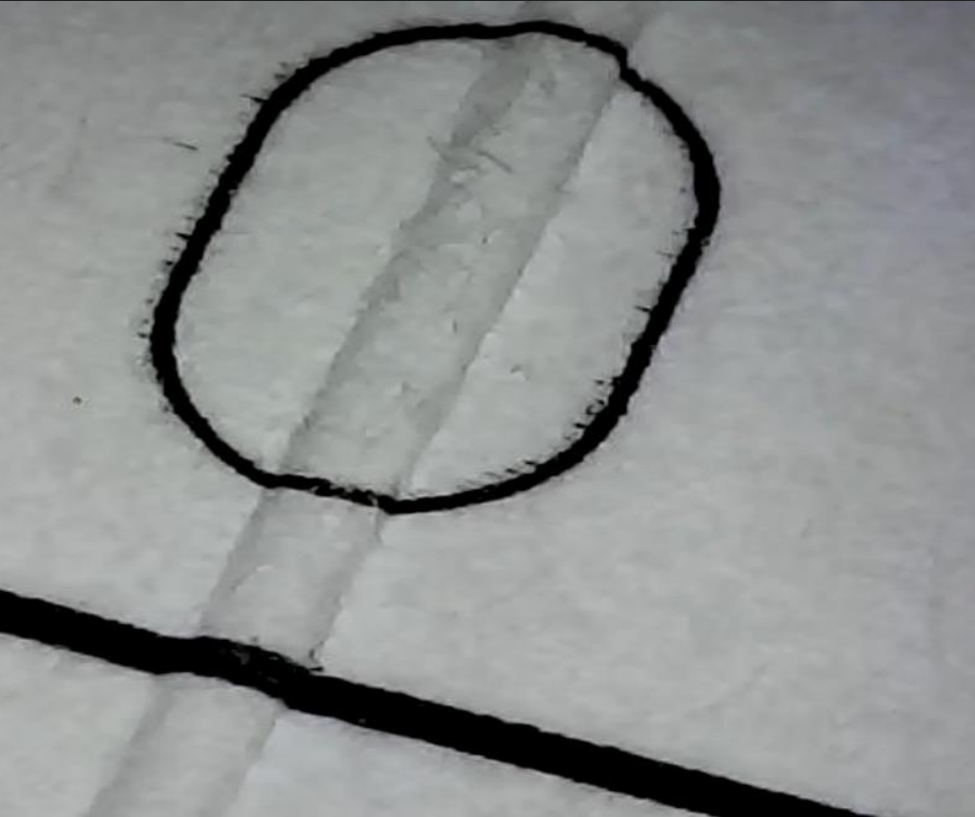
[hr]

Isn't your time too valuable to spend stuffing envelopes? Now the DS35 can do it for you, simply and efficiently. The Neopost DS35 Folder Inserter neatly prepares your documents for mailing with ease and accuracy. It's quiet. It's simple. And you'll wonder how you ever got along without it.

- State-of-the-art full color touch screen
- 15 programmable jobs
- 2 sheet and 1 insert/BRE feeders
- No. 10 up to 6 x 9.5 envelopes
- secure'n feed double detection

Complete mailing solution for business and home use. Neopost DS35 Folder Inserter with secure'n feed technology.







Machine	head first face up	head first face down	foot first face up	foot first face down
2 (78355)	27	46	46	27
"school" (81365)	54	54	52	41

Number of erroneous overvotes on 75 ballots folded through Kristi St. Laurent's otherwise unmarked vote target when the State Representative contest was fully voted for all four Republican candidates. Poll tapes available at

<https://www.doj.nh.gov/sb43/documents/test-deck-poll-tapes.pdf> Test deck available at

<https://www.doj.nh.gov/sb43/documents/test-election-1-folded.pdf> Test deck with no

folds available at <https://www.doj.nh.gov/sb43/documents/test-election-1-unfolded.pdf>

Machine	head first face up	head first face down	foot first face up	foot first face down
2 (78355)	25	24	27	15
"school" (81365)	43	32	37	24

Number of erroneous votes for St. Laurent on 75 ballots folded through Kristi St. Laurent's otherwise unmarked vote target when only one candidate in that contest was selected. Poll tapes available at <https://www.doj.nh.gov/sb43/documents/test-deck-poll-tapes.pdf> Test deck available at <https://www.doj.nh.gov/sb43/documents/test-election-2-folded.pdf> Test deck with no folds available at

<https://www.doj.nh.gov/sb43/documents/test-election-2-unfolded.pdf>

## INSTRUCTIONS TO VOTERS

ABSENTEE BALLOT AND OFFICIAL BALLOT  
FOR  
**WINDHAM**  
GENERAL ELECTION  
NOVEMBER 3, 2020



1. To Vote. Completely fill in the oval ☐ to the right of your choice. For each office vote for not more than the number of candidates stated in the sentence: "Vote for not more than \_\_\_\_." If you vote for more than the stated number of candidates, your vote for that office will not be counted.
2. To Vote by Write-In. To vote for a person whose name is not printed on the ballot, write in the name of the person in the "write-in" space. Completely fill in the oval ☐ to the right of your choice.

Offices	Other Candidates	Democratic Candidates	Republican Candidates	Write-in Candidates
For <b>President and Vice-President of the United States</b> Vote for not more than 1	Libertarian <b>Jo Jorgensen</b> <input type="radio"/> <b>Jeremy Cohen</b> <input type="radio"/>	<b>Joseph R. Biden</b> <input type="radio"/> <b>Kamala D. Harris</b> <input type="radio"/>	<b>Donald J. Trump</b> <input type="radio"/> <b>Michael R. Pence</b> <input type="radio"/>	<input type="radio"/> President and Vice-President
For <b>Governor</b> Vote for not more than 1	Libertarian <b>Darryl W. Perry</b> <input type="radio"/>	<b>Dan Feltes</b> <input type="radio"/>	<b>Chris Sununu</b> <input checked="" type="radio"/>	<input type="radio"/> Governor
For <b>United States Senator</b> Vote for not more than 1	Libertarian <b>Justin O'Donnell</b> <input type="radio"/>	<b>Jeanne Shaheen</b> <input type="radio"/>	<b>Corky Messner</b> <input checked="" type="radio"/>	<input type="radio"/> United States Senator
For <b>Representative in Congress</b> Vote for not more than 1	Libertarian <b>Andrew Olding</b> <input type="radio"/>	<b>Ann McLane Kuster</b> <input type="radio"/>	<b>Steven Negron</b> <input checked="" type="radio"/>	<input type="radio"/> Representative in Congress
For <b>Executive Councilor</b> Vote for not more than 1		<b>Mindi Messmer</b> <input type="radio"/>	<b>Janet Stevens</b> <input checked="" type="radio"/>	<input type="radio"/> Executive Councilor
For <b>State Senator</b> Vote for not more than 1		<b>Joshua Bourdon</b> <input type="radio"/>	<b>Regina Birdsell</b> <input checked="" type="radio"/>	<input type="radio"/> State Senator
			<b>Julius F. Soti</b> <input checked="" type="radio"/>	<input type="radio"/> State Representatives
		<b>Kristi St. Laurent</b> <input type="radio"/>	<b>Mary E. Griffin</b> <input checked="" type="radio"/>	<input type="radio"/> State Representatives
For <b>State Representatives</b> Vote for not more than 4		<b>Henri Azibert</b> <input type="radio"/>	<b>Bob Lynn</b> <input checked="" type="radio"/>	<input type="radio"/> State Representatives
		<b>Valerie Roman</b> <input type="radio"/>	<b>Charles E. McMahon</b> <input checked="" type="radio"/>	<input type="radio"/> State Representatives
		<b>Ioana Singureanu</b> <input type="radio"/>		<input type="radio"/> State Representatives

BALLOT CONTINUES ON BACK - TURN OVER

~600

## INSTRUCTIONS TO VOTERS

ABSENTEE BALLOT AND OFFICIAL BALLOT  
FOR  
**WINDHAM**  
GENERAL ELECTION  
NOVEMBER 3, 2020



1. To Vote. Completely fill in the oval ☐ to the right of your choice. For each office vote for not more than the number of candidates stated in the sentence: "Vote for not more than \_\_\_\_." If you vote for more than the stated number of candidates, your vote for that office will not be counted.
2. To Vote by Write-In. To vote for a person whose name is not printed on the ballot, write in the name of the person in the "write-in" space. Completely fill in the oval ☐ to the right of your choice.

Offices	Other Candidates	Democratic Candidates	Republican Candidates	Write-in Candidates
For <b>President and Vice-President of the United States</b> Vote for not more than 1	Libertarian <b>Jo Jorgensen</b> <input type="radio"/> <b>Jeremy Cohen</b> <input type="radio"/>	<b>Joseph R. Biden</b> <input checked="" type="radio"/> <b>Kamala D. Harris</b> <input type="radio"/>	<b>Donald J. Trump</b> <input type="radio"/> <b>Michael R. Pence</b> <input type="radio"/>	<input type="radio"/> President and Vice-President
For <b>Governor</b> Vote for not more than 1	Libertarian <b>Darryl W. Perry</b> <input type="radio"/>	<b>Dan Feltes</b> <input type="radio"/>	<b>Chris Sununu</b> <input checked="" type="radio"/>	<input type="radio"/> Governor
For <b>United States Senator</b> Vote for not more than 1	Libertarian <b>Justin O'Donnell</b> <input type="radio"/>	<b>Jeanne Shaheen</b> <input checked="" type="radio"/>	<b>Corky Messner</b> <input type="radio"/>	<input type="radio"/> United States Senator
For <b>Representative in Congress</b> Vote for not more than 1	Libertarian <b>Andrew Olding</b> <input type="radio"/>	<b>Ann McLane Kuster</b> <input checked="" type="radio"/>	<b>Steven Negron</b> <input type="radio"/>	<input type="radio"/> Representative in Congress
For <b>Executive Councilor</b> Vote for not more than 1		<b>Mindi Messmer</b> <input checked="" type="radio"/>	<b>Janet Stevens</b> <input type="radio"/>	<input type="radio"/> Executive Councilor
For <b>State Senator</b> Vote for not more than 1		<b>Joshua Bourdon</b> <input checked="" type="radio"/>	<b>Regina Birdsell</b> <input type="radio"/>	<input type="radio"/> State Senator
			<b>Julius F. Soti</b> <input type="radio"/>	<input type="radio"/> State Representatives
		<b>Kristi St. Laurent</b> <input checked="" type="radio"/>	<b>Mary E. Griffin</b> <input type="radio"/>	<input type="radio"/> State Representatives
For <b>State Representatives</b> Vote for not more than 4		<b>Henri Azibert</b> <input checked="" type="radio"/>	<b>Bob Lynn</b> <input type="radio"/>	<input type="radio"/> State Representatives
		<b>Valerie Roman</b> <input checked="" type="radio"/>	<b>Charles E. McMahon</b> <input type="radio"/>	<input type="radio"/> State Representatives
		<b>Ioana Singureanu</b> <input checked="" type="radio"/>		<input type="radio"/> State Representatives

BALLOT CONTINUES ON BACK - TURN OVER

~4

## INSTRUCTIONS TO VOTERS

1. To Vote. Completely fill in the oval ☐ to the right of your choice. For each office vote for not more than the number of candidates stated in the sentence:  
"Vote for not more than \_\_\_\_." If you vote for more than the stated number of candidates, your vote for that office will not be counted.

2. To Vote by Write-In. To vote for a person whose name is not printed on the ballot, write in the name of the person in the "write-in" space. Completely fill in the oval ☐ to the right of your choice.

ABSENTEE BALLOT AND OFFICIAL BALLOT  
FOR  
**WINDHAM**  
GENERAL ELECTION  
NOVEMBER 3, 2020



Offices	Other Candidates	Democratic Candidates	Republican Candidates	Write-in Candidates
For <b>President and Vice-President of the United States</b> Vote for not more than 1	Libertarian <b>Jo Jorgensen</b> <input type="radio"/> <b>Jeremy Cohen</b> <input type="radio"/>	<b>Joseph R. Biden</b> <input checked="" type="radio"/> <b>Kamala D. Harris</b> <input checked="" type="radio"/>	<b>Donald J. Trump</b> <input type="radio"/> <b>Michael R. Pence</b> <input type="radio"/>	President and Vice-President <input type="radio"/>
For <b>Governor</b> Vote for not more than 1	Libertarian <b>Darryl W. Perry</b> <input type="radio"/>	<b>Dan Feltes</b> <input type="radio"/>	<b>Chris Sununu</b> <input checked="" type="radio"/>	Governor <input type="radio"/>
For <b>United States Senator</b> Vote for not more than 1	Libertarian <b>Justin O'Donnell</b> <input type="radio"/>	<b>Jeanne Shaheen</b> <input checked="" type="radio"/>	<b>Corky Messner</b> <input type="radio"/>	United States Senator <input type="radio"/>
For <b>Representative in Congress</b> Vote for not more than 1	Libertarian <b>Andrew Olding</b> <input type="radio"/>	<b>Ann McLane Kuster</b> <input checked="" type="radio"/>	<b>Steven Negron</b> <input type="radio"/>	Representative in Congress <input type="radio"/>
For <b>Executive Councilor</b> Vote for not more than 1		<b>Mindi Messmer</b> <input checked="" type="radio"/>	<b>Janet Stevens</b> <input type="radio"/>	Executive Councilor <input type="radio"/>
For <b>State Senator</b> Vote for not more than 1		<b>Joshua Bourdon</b> <input checked="" type="radio"/>	<b>Regina Birdsell</b> <input type="radio"/>	State Senator <input type="radio"/>
		<b>Kristi St. Laurent</b> <input type="radio"/>	<b>Julius F. Soti</b> <input type="radio"/>	State Representatives <input type="radio"/>
		<b>Henri Azibert</b> <input type="radio"/>	<b>Mary E. Griffin</b> <input type="radio"/>	State Representatives <input type="radio"/>
		<b>Valerie Roman</b> <input type="radio"/>	<b>Bob Lynn</b> <input type="radio"/>	State Representatives <input type="radio"/>
For <b>State Representatives</b> Vote for not more than 4		<b>Ioana Singureanu</b> <input type="radio"/>	<b>Charles E. McMahon</b> <input type="radio"/>	State Representatives <input type="radio"/>

BALLOT CONTINUES ON BACK - TURN OVER



## INSTRUCTIONS TO VOTERS

1. To Vote. Completely fill in the oval ☐ to the right of your choice. For each office vote for not more than the number of candidates stated in the sentence:  
"Vote for not more than \_\_\_\_." If you vote for more than the stated number of candidates, your vote for that office will not be counted.

2. To Vote by Write-In. To vote for a person whose name is not printed on the ballot, write in the name of the person in the "write-in" space. Completely fill in the oval ☐ to the right of your choice.

ABSENTEE BALLOT AND OFFICIAL BALLOT  
FOR  
**WINDHAM**  
GENERAL ELECTION  
NOVEMBER 3, 2020



Offices	Other Candidates	Democratic Candidates	Republican Candidates	Write-in Candidates
For <b>President and Vice-President of the United States</b> Vote for not more than 1	Libertarian <b>Jo Jorgensen</b> <input type="radio"/> <b>Jeremy Cohen</b> <input type="radio"/>	<b>Joseph R. Biden</b> <input checked="" type="radio"/> <b>Kamala D. Harris</b> <input checked="" type="radio"/>	<b>Donald J. Trump</b> <input type="radio"/> <b>Michael R. Pence</b> <input type="radio"/>	President and Vice-President <input type="radio"/>
For <b>Governor</b> Vote for not more than 1	Libertarian <b>Darryl W. Perry</b> <input type="radio"/>	<b>Dan Feltes</b> <input type="radio"/>	<b>Chris Sununu</b> <input checked="" type="radio"/>	Governor <input type="radio"/>
For <b>United States Senator</b> Vote for not more than 1	Libertarian <b>Justin O'Donnell</b> <input type="radio"/>	<b>Jeanne Shaheen</b> <input checked="" type="radio"/>	<b>Corky Messner</b> <input type="radio"/>	United States Senator <input type="radio"/>
For <b>Representative in Congress</b> Vote for not more than 1	Libertarian <b>Andrew Olding</b> <input type="radio"/>	<b>Ann McLane Kuster</b> <input checked="" type="radio"/>	<b>Steven Negron</b> <input type="radio"/>	Representative in Congress <input type="radio"/>
For <b>Executive Councilor</b> Vote for not more than 1		<b>Mindi Messmer</b> <input type="radio"/>	<b>Janet Stevens</b> <input type="radio"/>	Executive Councilor <input type="radio"/>
For <b>State Senator</b> Vote for not more than 1		<b>Joshua Bourdon</b> <input type="radio"/>	<b>Regina Birdsell</b> <input type="radio"/>	State Senator <input type="radio"/>
		<b>Kristi St. Laurent</b> <input checked="" type="radio"/>	<b>Julius F. Soti</b> <input type="radio"/>	State Representatives <input type="radio"/>
		<b>Henri Azibert</b> <input type="radio"/>	<b>Mary E. Griffin</b> <input checked="" type="radio"/>	State Representatives <input type="radio"/>
		<b>Valerie Roman</b> <input type="radio"/>	<b>Bob Lynn</b> <input type="radio"/>	State Representatives <input type="radio"/>
For <b>State Representatives</b> Vote for not more than 4		<b>Ioana Singureanu</b> <input type="radio"/>	<b>Charles E. McMahon</b> <input checked="" type="radio"/>	State Representatives <input type="radio"/>

BALLOT CONTINUES ON BACK - TURN OVER



## INSTRUCTIONS TO VOTERS

## ABSENTEE BALLOT AND OFFICIAL BALLOT

FOR

WINDHAM

GENERAL ELECTION  
NOVEMBER 3, 2020
 SECRETARY OF STATE  
*Chris Sununu*

1. To Vote. Completely fill in the oval ☐ to the right of your choice. For each office vote for not more than the number of candidates stated in the sentence:  
 "Vote for not more than \_\_\_\_" If you vote for more than the stated number of candidates, your vote for that office will not be counted.
2. To Vote by Write-In. To vote for a person whose name is not printed on the ballot, write in the name of the person in the "write-in" space. Completely fill in the oval ☐ to the right of your choice.

Offices	Other Candidates	Democratic Candidates	Republican Candidates	Write-in Candidates
For <b>President and Vice-President of the United States</b> Vote for not more than 1	Libertarian <b>Jo Jorgensen</b> <input type="radio"/> <b>Jeremy Cohen</b> <input type="radio"/>	<b>Joseph R. Biden</b> <input checked="" type="radio"/> <b>Kamala D. Harris</b> <input checked="" type="radio"/>	<b>Donald J. Trump</b> <input type="radio"/> <b>Michael R. Pence</b> <input type="radio"/>	<input type="radio"/> President and Vice-President
For <b>Governor</b> Vote for not more than 1	Libertarian <b>Darryl W. Perry</b> <input type="radio"/>	<b>Dan Feltes</b> <input checked="" type="radio"/>	<b>Chris Sununu</b> <input type="radio"/>	<input type="radio"/> Governor
For <b>United States Senator</b> Vote for not more than 1	Libertarian <b>Justin O'Donnell</b> <input type="radio"/>	<b>Jeanne Shaheen</b> <input checked="" type="radio"/>	<b>Corky Messner</b> <input type="radio"/>	<input type="radio"/> United States Senator
For <b>Representative in Congress</b> Vote for not more than 1	Libertarian <b>Andrew Olding</b> <input type="radio"/>	<b>Ann McLane Kuster</b> <input checked="" type="radio"/>	<b>Steven Negron</b> <input type="radio"/>	<input type="radio"/> Representative in Congress
For <b>Executive Councilor</b> Vote for not more than 1		<b>Mindi Messmer</b> <input checked="" type="radio"/>	<b>Janet Stevens</b> <input type="radio"/>	<input type="radio"/> Executive Councilor
For <b>State Senator</b> Vote for not more than 1		<b>Joshua Bourdon</b> <input type="radio"/>	<b>Regina Birdsell</b> <input type="radio"/>	<input type="radio"/> State Senator
For <b>State Representatives</b> Vote for not more than 4		<b>Kristi St. Laurent</b> <input checked="" type="radio"/> <b>Henri Azibert</b> <input checked="" type="radio"/> <b>Valerie Roman</b> <input type="radio"/> <b>Ioana Singureanu</b> <input type="radio"/>	<b>Julius F. Soti</b> <input type="radio"/> <b>Mary E. Griffin</b> <input type="radio"/> <b>Bob Lynn</b> <input type="radio"/> <b>Charles E. McMahon</b> <input type="radio"/>	<input type="radio"/> State Representatives <input type="radio"/> State Representatives <input type="radio"/> State Representatives <input type="radio"/> State Representatives

BALLOT CONTINUES ON BACK - TURN OVER



For details, see  
<https://www.doj.nh.gov/sb43/documents/20210713-sb43-forensic-audit-report.pdf>

Verified extra possibles: 268

Verified over possibles: 609

Ratio:  $268/609 = 0.44$

Expected handcount extras: ~22

Estimated lost for St. Laurent:  $99+22 = 121$

Estimated extras for Rs:  $299-22 = 277$

Ratio:  $121/277 = 0.44$

Other things we checked:

Number of ballots: 10,006 +/- 2, as reported

Pollbook signatures counted

Absentee applications and envelopes inspected & counted (found three uncounted ballots)

Forensic inspection of ballots: printing, ink, hand-marking, paper thickness, UV

# 2020 Georgia Presidential Election

Margin 12,670 votes

Count	Ballots / "Turnout"	Votes
MC1	5,026,684	4,998,482
MC2	5,025,683	4,997,716
"Audit"	5,145,771	5,003,568

No evident pollbook reconciliation or participation reconciliation

No evident accounting for memory cards or other materials

No evident ballot accounting, independent ballot inventory, or ballot manifest

Lax chain of custody



## Fulton County (Atlanta)

Count	CVRs/Ballots	Missing image files
MC1	528,776	376,863
MC2	527,925	17,852
“Audit”	528,035	

[illegible]

## Audit Board Batch Sheets, Fulton County

Tally sheets not serialized or accountable

1927 copies of filled-out sheets, but only 1916 rows of data in audit spreadsheet

>3,900 hand-tallied votes missing from Fulton audit spreadsheet

Discrepancy between MC1 and audit ~0.9% (reported margin ~0.25%)