



Risk Limiting Audit: Batch-Comparison Method

Dale Dunn, Chairman
Orange County Electoral Board

PURPOSE

To show how a Batch-Comparison Risk Limiting Audit (BCRLA) was performed in a medium-sized county.

SUMMARY

- On November 29, 2023, the Orange County Electoral Board and Office of the General Registrar performed a BCRLA of the Sheriff's race in the 2023 November general election.

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- This was the first such audit performed in Orange County and only the fourth completed statewide (Loudoun-2, Arlington-1).

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- The process involved hand counting over 7200 ballots from seven of our 13 precincts.

RESOURCES

- [2024 RLA Manual \(GREB Chap. 19\)](https://www.elections.virginia.gov/media/grebhandbook/2024-updates/2024-RLA-Manual_FINAL.pdf)
https://www.elections.virginia.gov/media/grebhandbook/2024-updates/2024-RLA-Manual_FINAL.pdf
- [Virginia's Guide to Hand-Counting Ballots](https://www.elections.virginia.gov/media/formwarehouse/election-management/election-day-instructions-and-forms/2021-Virginia-Guide-to-Handcounting-Ballots.pdf)
<https://www.elections.virginia.gov/media/formwarehouse/election-management/election-day-instructions-and-forms/2021-Virginia-Guide-to-Handcounting-Ballots.pdf>

CRITERIA

- Voluntary
- Must be done on a contested race
- The race must be one wholly within the jurisdiction of the electoral board.
- The margin of victory must be >1%.
- The board chose the sheriff's race because it met all the criteria and was countywide allowing for a greater number of precincts to be counted.

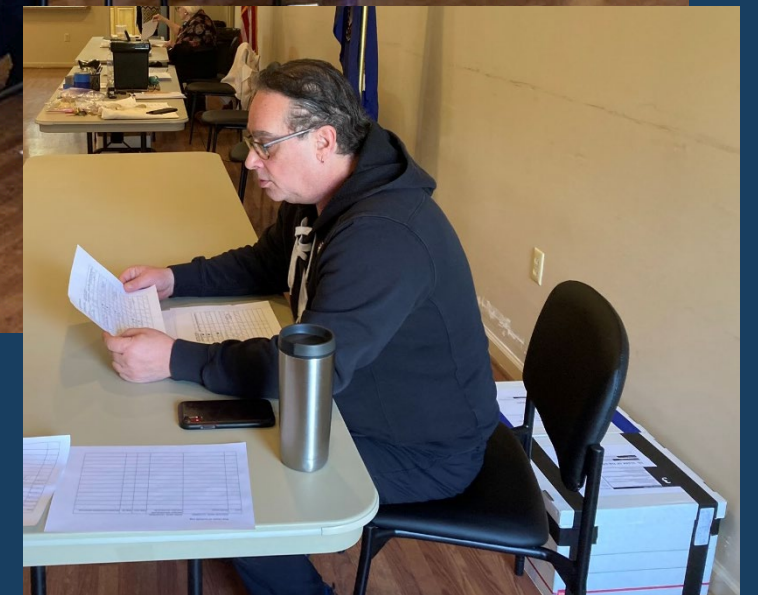
PROCESS

- Got approval from the Department of Elections
- Met at the Town of Orange Community Center on the morning of November 29th
- Chose five audit teams consisting of two election officers each, plus one extra officer to serve as ballot custodian



PROCESS

- Audit teams received instructions and were assigned precincts (batches) to count.
- Ballots were monitored by the custodian.



PROCESS

- The audit teams used the “sort and stack” (then count) method.



PROCESS

- The audit teams used the “sort and stack” (then count) method.
- The audit began at 10AM and was completed just after 2PM.



RESULTS


- Hand counted >7200 ballots from 7/13 precincts (includes CAP-EV) in just over four hours
- Count matched the scanner results with minor exception (Smith +10 votes; LaLuna +6)
- Confirmed the outcome of the election

RESULTS

- Confirmed accuracy of Unisyn FVS scanners (a proxy for 32/133 other locales in Virginia)
- Trained 11 election officers, the GR's staff and the EB in the conduct of BCRLA
- Increased confidence in the election process



WHY IS A BC-RLA IMPORTANT?

- The public is still skeptical about elections.
- It's understandable  increase confidence in our election system
- It is a great opportunity to train all electoral boards and general registrars on the method (good knowledge for a crisis).

CHALLENGES

- The counties that performed a BCRLA in 2023 (Orange, Loudoun and Arlington) use the same UNISYN system. Would auditing other brands of scanners be beneficial for increasing voter confidence?
- Can we do a better job of catching undervotes?
- Can we communicate the results more broadly?

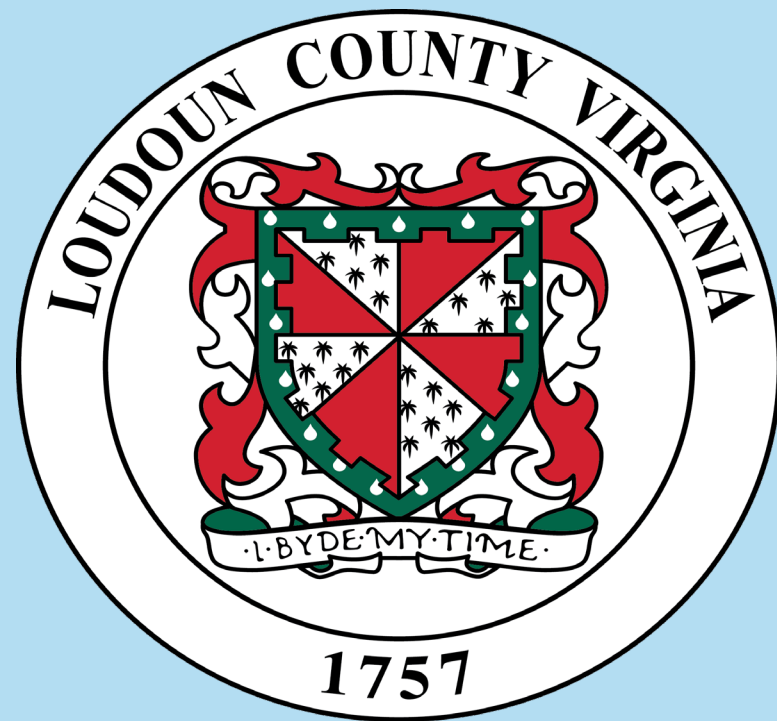


ORANGE COUNTY

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General Registrar and Director of Elections

Batch Comparison Method Risk Limiting Audit

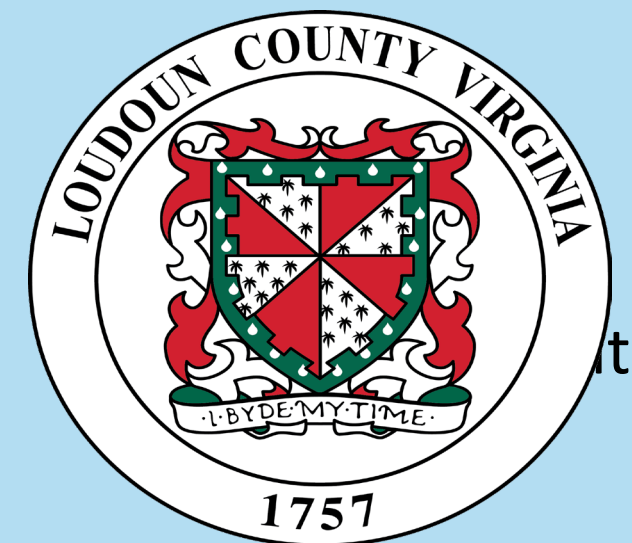


**The Loudoun County Experience
VEBA Annual Meeting
March 23, 2025**

Shelley Oberlander, Vice-Chairman Loudoun County Electoral Board

History of Risk Limiting Audits in Virginia:

- **July 2018:** Risk Limiting Audit law passed 2017 General Assembly. Effective July 1, 2018. Pilot programs by ELECT.
- **February 2021:** First VA statewide Risk Limiting Audit of 2020 Presidential Election, using Ballot Polling Method:
Statewide Audit: 1,400 ballots audited out of 4.5 million ballots cast.
Loudoun County: 63 Ballots audited out of 224,862 ballots cast.
- **2021-2022:** Batch Comparison Method recommended for Risk Limiting Audits.
>More ballots audited and >Verifies accuracy of voting machines
- **March 2023:** VA State Board of Elections approved Batch Comparison Method, for Risk Limiting Audits.
- **June 2023:** Loudoun County Electoral Board unanimously requested **Risk Limiting Audit**, using **Batch Comparison Method**, for House of Delegates Primary race. SBE approved, First Batch Comparison Method, RLA in Virginia. ELECT Staff attended.
- **November 2023:** Loudoun County, Arlington County and Orange County successfully
conducted Batch Comparison Method, Risk Limiting Audits for a contested race
within their jurisdiction.



2 Methods for Conducting Risk Limiting Audits in Virginia

1. Ballot-Polling Method :

- **Manually reviews a number of individual ballots, randomly selected, to determine if outcome of Election contest was correctly reported.**
- **Method used for statewide Risk Limiting Audits of 2020 Presidential Election and the 2024 statewide U.S. Senate Election.**

2. Batch Comparison Method:

- **Manually reviews whole batches of ballots, randomly selected, such as all the ballots cast in one Precinct, and compares the hand count results with corresponding voting machine results, to confirm reported Election results and accuracy of voting machine results.**
- **The State Board of Elections voted to use the Batch Comparison Method, to conduct the statutorily required Risk Limiting Audit of a 2024 Congressional race. (Congressional District 1)**

VA Code 24.2-671.2 : Risk Limiting Audits

- Each locality must participate in a Risk Limiting Audit at least once every 5 years.
- Post Election Audit, occurs prior to certification of contested race.
- Conducted by local Electoral Boards and General Registrars, under supervision of the Department of Elections, in accordance with procedures prescribed by State Board of Elections.
- Margin of Victory must be greater than >1%, if margin of election is wide, fewer votes audited; if margin is narrow, more votes audited.
- Hand Count of Randomly Sampled Printed Ballots.
- Sampling of ballots continues, until strong statistical evidence confirms the reported outcome is correct or a full hand count of all ballots cast determines outcome.
- VA State Board of Elections sets the “Risk Limit” of RLA, following industry best practices and announces “Risk Limit” at State Board of Elections meeting prior to Audit.
- To date, Virginia has used a 10% Risk-Limit.

Risk Limiting Audits: VA Code 24.2-671.2 C and D:

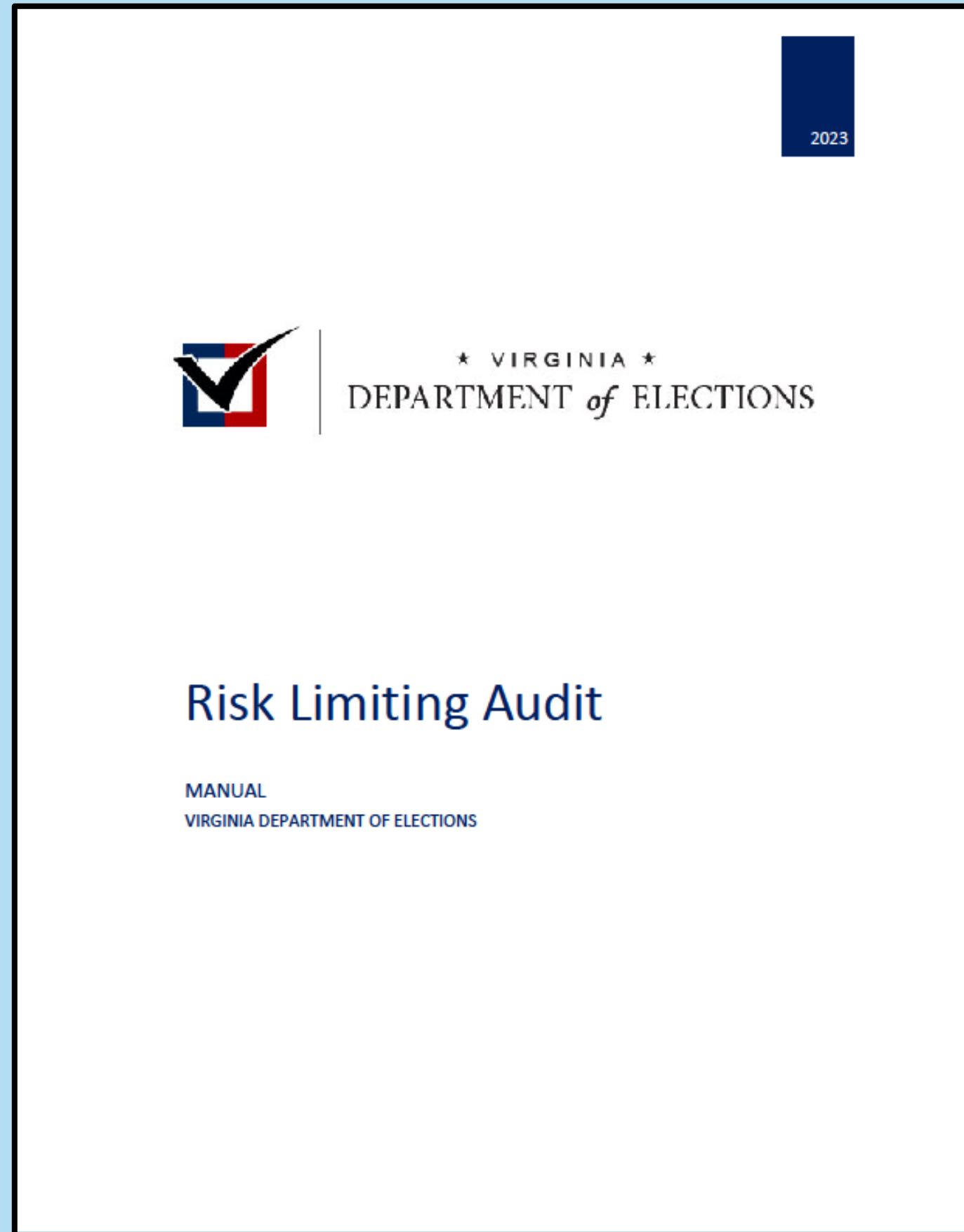
C. The Department (of Elections) shall provide that the following Risk Limiting Audits be conducted:

1. In the year of a General Election for **Members of U.S. House of Representatives**, at least one randomly selected contested race.
2. In the year of a General Election for **Members of the General Assembly**, at least one randomly selected contested race.
3. In any year there is **Not a General Election for a statewide Office**, at least one randomly selected contested race for **a local office, including Constitutional Officers, in which certification by the State Board is required.**
4. In any year, **any other Risk Limiting Audit** of a contested race that is **necessary to ensure that each locality participates in a risk limiting audit within its jurisdiction at least once every 5 years** or that the State Board of Elections finds appropriate. Such audits must be approved by at least a 2/3 majority vote of all members of the Board.

D. A local Electoral Board may request that the State Board approve the conduct of a Risk Limiting Audit for a contested race within the local Electoral Board's jurisdiction.

**The Department Of Elections
2024 Chapter on Risk Limiting Audits,
in General Registrars & Electoral Board
Manual,
has all forms and procedures to
conduct a Batch Comparison Method,
Risk Limiting Audit.**

**(See ELECT's website and Forms
Warehouse).**





PURPOSE OF THIS FORM

Under Code of Virginia § 24.2-671.2(D), "A local electoral board may request that the State Board approve the conduct of a risk-limiting audit [RLA] for a contested race within the local electoral board's jurisdiction." The local electoral board may request an audit of such a race wholly contained within the jurisdiction of the local electoral board by completing and submitting this form to their Election Services Registrar Liaison prior to the State Board of Elections (SBE) meeting to choose races to audit. *If a request is made of a race that is not wholly contained within a locality's jurisdiction, this request will be denied. Please review 1VAC20-60-80 for details on qualifying for a risk-limiting audit request.*

COMPLETE THE FOLLOWING:

Locality: _____

Date of Public Meeting: _____

Contested Race: _____

Town Name/District Number: _____

Date of RLA: _____

Location of RLA: _____

Was Ranked-Choice Voting Used? Yes No

RLA Method Requested: Ballot Polling Batch Comparison

Preliminary Vote Totals: _____

Candidate A: _____

Candidate B: _____

Candidate C (if applicable): _____

Candidate D (if applicable): _____

On the lines below, please include any other relevant information:

Request for a Risk- Limiting Audit
ELECT Form 671.2(D) (page 1)



**ELECT reserves the right to ask additional questions on behalf of the SBE, if necessary.*

***Please submit a form for each contested race your locality is requesting to have audited.*

**** If multiple races are being submitted, the RLA method requested must be the same for all races requested.*

We, the members of the electoral board, request an audit of the above contested race(s), being wholly contained within our jurisdiction:

Printed name of Chairperson Signature Date Vote (Yay or Nay)

Printed name of Vice-Chairperson Signature Date Vote (Yay or Nay)

Printed name of Secretary Signature Date Vote (Yay or Nay)

If your audit request is approved by the State Board of Elections, then the Board may grant an extension of up-to two weeks to your certification deadline under §24.2-671.2 of the Code of Virginia for the audited race.

Request for a Risk- Limiting Audit **ELECT Form 671.2(D) (page 2)**

Risk Limiting Audit Preparations By Electoral Board and Staff

Logistical Decisions Needed Prior to Submitting the RLA Request:

- 1. Choose Location.**
- 2. Make Lists of Bipartisan Election Officers, for Audit Review Boards and Check their Availability.**
- 3. Choose Date and Time (or several dates) **Start Early: 9:00 am.** Reserve second day in case needed.**
- 4. Communicate with Clerk of Circuit Courts (Request to Inspect Sealed Election Materials Form).**
- 5. Extension for Certification, granted by State Board of Election for race being audited, up to 2 weeks.**
- 6. Post RLA publically, at least 3 days in advance.**
- 7. Registrar notifies Unit Chairmen of each major political party and each candidate in audited race.**
- 8. Open to Public and Live streamed (February 2021).**



AMENDED - ADD ADDITIONAL
DATE FOR RLA TO
OCCUR

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COMPLETE THE FOLLOWING:

Locality: LOUDOUN

Date of Public Meeting: Board met 6/21/23

Contested Race: SRINIVASAN / KOMPALU

Town Name/District Number: HOD 26

Date of RLA: 6/28 or
OPTION: 6/29 or 6/30

Location of RLA: LOUDOUN ELECTION OFFICE

Was Ranked-Choice Voting Used? Yes No

RLA Method Requested: Ballot Polling Batch Comparison

Preliminary Vote Totals:

Candidate A: SRINIVASAN 3643

Candidate B: KOMPALU 1738

Candidate C (if applicable): ---

Candidate D (if applicable): ---

On the lines below, please include any other relevant information:

214 Undervotes

Loudoun County
Request for a Risk- Limiting Audit
ELECT Form 671.2(D) (page 1)

Create a Ballot Manifest:

- Two-column Excel spreadsheet created by localities.
- Includes list of “Batch Name” (Column A) and the “Number of Ballots” (Column B).
- Creates inventory of every ballot cast in locality.
- Localities encouraged to build Ballot Manifest as go through election. “Batch” ballots in ways easy to retrieve.
- All participating localities must upload Ballot Manifest before audit can begin.

	A	B
1	Batch Name	Number of Ballots
2	Precinct 1	301
3	Precinct 2	302

Create a Candidate Totals by Batch File:

*Record total number of ballots cast, for each candidate, in each Batch.

*Enter the data for your locality, from your Statement of Results.

	A	B	C	D
1	Batch Name	John Doe	Jane Smith	Write-in
2	Precinct 1	100	200	1
3	Precinct 2	200	100	2

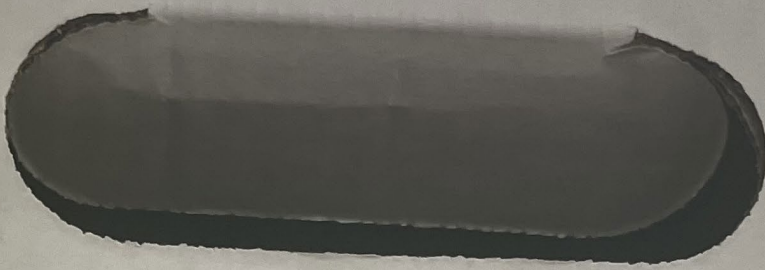
State Board of Elections Generates the Random Seed Number:

- For each audited race, the Risk Limiting Audit software called ARLO uses a 20-digit random seed number to select the ballots or batches of ballots, for retrieval.
- Random seed number is generated at the State Board of Elections meeting, prior to the Risk Limiting Audit.
- SBE Chairman or designated representative(s) rolls twenty, ten sided dice (numbered zero through nine), one time each and the resulting number is recorded on a whiteboard.
- The 20-digit number generated is input into ARLO software by the RLA Administrator or ELECT's staff.
- The software randomly selects and generates a list of ballots or batches of ballots to be retrieved.

June 20, 2023 Loudoun County: Batch Comparison Method, Risk Limiting Audit

10 Batches Chosen By ARLO Software (Batch Retrieval List, HOD 26)

Batch Name	Number of Ballots	Kannan Srinivasan	Sirisha Kompalli	Write-In
Pct 108	200	118	67	0
Pct 112	154	102	45	0
Pct 119	223	134	75	0
Pct 120	256	166	85	0
Pct 121	166	109	49	0
Pct 122	252	154	83	0
Pct 124	163	103	55	0
Pct 126	155	97	50	0
Pct 312	149	85	57	0
Pct 314	379	217	142	0
Pct 321	196	131	57	0
Pct 322	195	139	53	0
Pct 324	109	84	22	0
Pct 325	321	216	94	0
Pct 628	119	75	40	0
Pct 630	273	205	60	0
Pct 712	190	116	66	0
Pct 713	79	14	1	0
Pct 714	355	227	113	0
EV1-Leesburg	2449	150	51	0
EV2-Sterling	639	19	5	0
EV3-South Riding	846	404	194	0
EV4-Purcellville	114	1	0	0
CAP	4708	577	274	0
Post-Election	474	97	37	0
Provisional	267	44	24	0
Totals	13431	3784	1799	0



CONTENTS:

11/5/24 General Election - Early Voting
102524-EV1-5148
Ballots: 1850
Boxes: 2

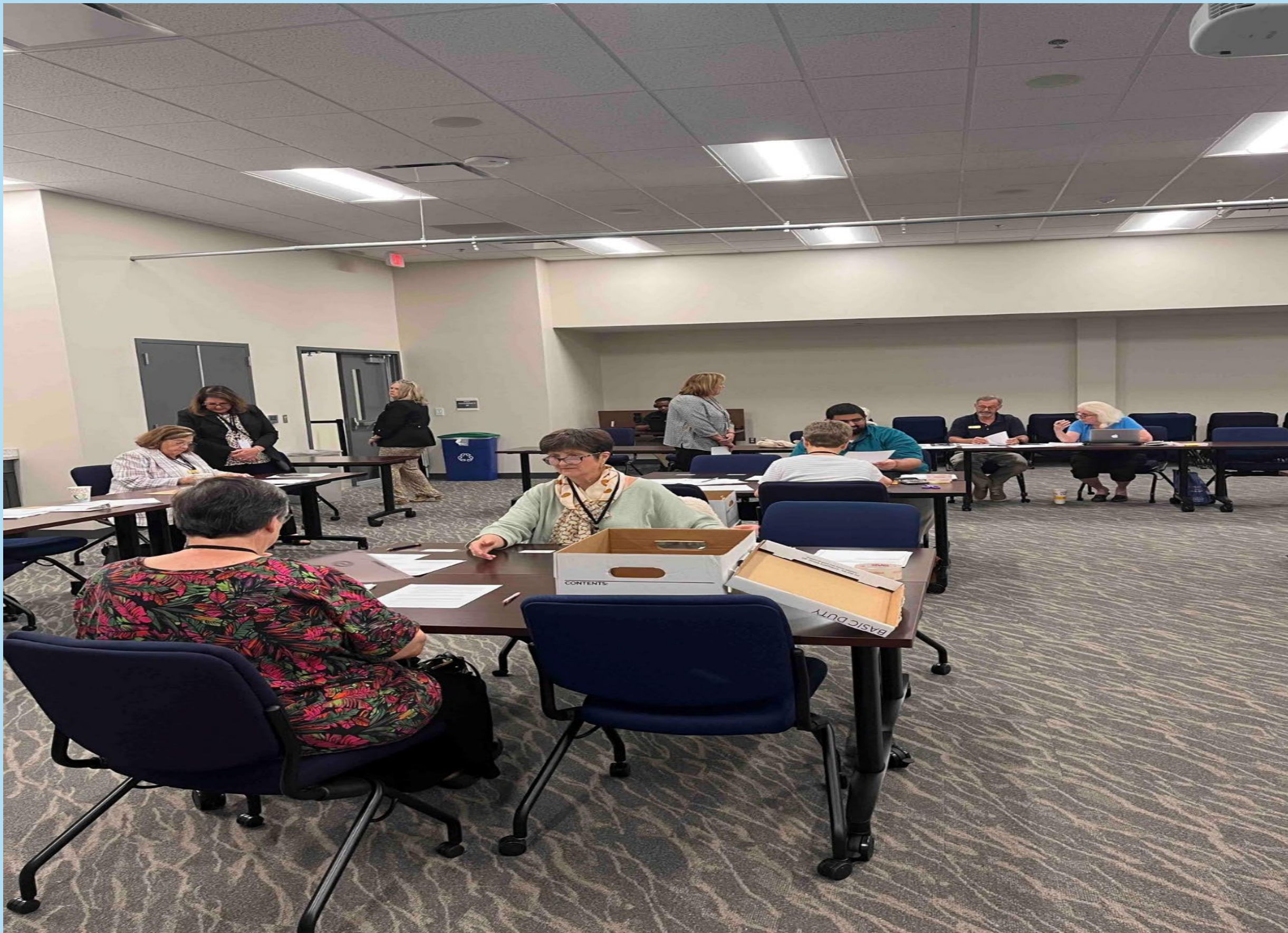
BOX NO.	BOX LOCATION	DESTROY DATE	FROM	TO
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STAPLES

206
2024 Federal Used Ballots Hold for 2 Years
Destroy after November 2026

Staples.







Loudoun County Batch Comparison, RLA June 20,2023

Democratic Primary, House of Delegates District 26 (Batch Retrieval List)

Each Audit Team was assigned one batch of ballots to:

1. Retrieve
2. Sign Out
3. Open
4. Sort
5. Hand Tabulate
6. Report Results
7. Reseal
8. Return and Sign Ballots back into Clerk's staff.
9. Sign out another Batch of Ballots and repeat process.

A total of 9,702 ballots were opened by the Bipartisan Election Officer Audit Teams.

Batch Name	Number of Ballots	Kannan Srinivasan	Sirisha Kompalli	Write-In
Pct 108	200	118	67	0
Pct 112	154	102	45	0
Pct 119	223	134	75	0
Pct 120	256	166	85	0
Pct 121	166	109	49	0
Pct 122	252	154	83	0
Pct 124	163	103	55	0
Pct 126	155	97	50	0
Pct 312	149	85	57	0
Pct 314	379	217	142	0
Pct 321	196	131	57	0
Pct 322	195	139	53	0
Pct 324	109	84	22	0
Pct 325	321	216	94	0
Pct 628	119	75	40	0
Pct 630	273	205	60	0
Pct 712	190	116	66	0
Pct 713	79	14	1	0
Pct 714	355	227	113	0
EV1-Leesburg	2449	150	51	0
EV2-Sterling	639	19	5	0
EV3-South Riding	846	404	194	0
EV4-Purcellville	114	1	0	0
CAP	4708	577	274	0
Post-Election	474	97	37	0
Provisional	267	44	24	0
Totals	13431	3784	1799	0

Ballots sorted and stacked using Sort and Stack Method.

Sort #1:

Only ballots with HOD District 26 race on them were pulled out to be hand tabulated.

(2,666 Ballots had this race).
(2598 +68 Under-Votes)

The ballots designated not having HOD District 26 race on them were double checked and labeled with a sticky note, signed by person who double checked them. Then rubber band put around and set to side of table.

Labels: taped at top of each

Audit Team's Table:

- Candidate names
- Write In Votes
- Under-votes
- Over-votes
- Undecided

Sort #2

Sort Ballots with the HOD District 26 race, into piles under label of Candidate, vote for.

1. One member reads vote aloud.

2. Other member verifies and places ballot under label of that Candidate, while

3. First member observes.

4. When sort complete, double check piles. Make sure ballots in correct Candidate's pile.

The Sort-and-Stack Method

a. For each ballot: one audit board member picks up a single ballot from the stack and reads the vote for the contest being audited aloud, then hands the ballot to the second audit board member.

- The second audit board member verifies the vote that is on the ballot is indeed what the first audit board member read, then places the ballot in the "stack" that corresponds to the vote.
- The first audit board member should watch to make sure the ballot is placed in the correct stack.
- A stack should be created for each contest choice (candidate), overvoted, and undervoted (blank) ballots, and ballots where the audit board cannot agree on the voter's intent.

b. Count the ballots in each stack by having one member of the audit board verbally count the ballot while handing it to the other member for verification.

Example: Candidate A, 1, Candidate A, 2, Candidate A, 3 up to 10. Start over with 1 after reaching 10 to stack in groups of 10.

- Count the ballots in groups of 10, stacking the groups at right angles to each other, so you can easily count the complete groups when you are done. For instance, if you have seven groups of 10 ballots each plus an extra 3 ballots, the total tally would be 73.
- Record the total tally for each candidate on the Audit Board Batch Tally Sheet.

Stack:

Each Audit Team member takes a Candidate's pile of ballots and stacks in groups of 10, at right angles and hand tabulates.

Switch with other Audit Team member to double check hand count for each Candidate.

Record Tabulation on Tally Sheet.

Recommendation:

When start both Election Officers verify #3 Envelope ballot storage box empty. Keep empty box in plain view for Observers.

Adjudication Team:

If the bipartisan Election Officer, Audit Board Team, can not agree on clear intent of Voter's ballot, then bipartisan Electoral Board Adjudication Team decides vote, utilizing helpful guides for accepting ballots.

Virginia's Guide to Hand-Counting Ballots

VIRGINIA'S GUIDE TO HAND-COUNTING BALLOTS

Can this vote count?

A complete guide to hand-counting printed ballots for elections and recounts

+ VIRGINIA +
STATE BOARD of ELECTIONS

Contents

- 1 – Extra Marks
Page 5
- 2 – More than 1 candidate marked
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Page 11
- 5 – Circle-like marks
Page 13
- 6 – Written words
Page 15
- 7 – Write-in votes
Page 17



Ballot Examples

Hand Counting Printed Ballots for Virginia Elections or Recounts

Department of Elections
Commonwealth of Virginia



(Adopted at the 10/6/2015 meeting of the State Board of Elections)

For any printed ballot that can and is to be counted manually, the following guidelines shall be used in determining the voter's intent.

(1) As used below, the "target area" of the official ballot is the square, oval, or incomplete arrow next to the candidate's name on the printed ballot. The "candidate area" is the area between the lines separating candidate names, if the ballot includes such lines, or the area that is clearly closer to one candidate's name than another. The "candidate area" includes the candidate's name and party affiliation if listed, or "I" for any independent using that designation. These instructions only deal with marks that are under the office being recounted, except as provided in items 10 and 11.

(2) These instructions assume that the recount is for a single-seat office. That is, the voter was only permitted to vote for one candidate for the office. For multi-seat offices, the ballot shall be counted pursuant to the guidelines below so long as the voter has not voted for more candidates for that office than he is allowed to vote (in which case no votes are to be counted for the office).

(3) Any ballot that is properly marked (as specified for the type of ballot) in the target area for one candidate only for the office shall be designated as a vote for that candidate.

The Department of Elections Ballot Examples Booklet

First Loudoun County
Batch Comparison Method , RLA
June 2023

Audit Board Batch Tally Sheet: 1/10
Audit Review Board Team fills in Tally Sheet and
Writes Results from Hand Count of ballots in Batch.

Audit Board Batch Tally Sheet

Batch Name: Pct 322

Jurisdiction: Loudoun County

Audit Board (Optional): 4

Batch Type (Optional): Precinct 322

Was the container sealed when received by the audit board? Yes

Candidates/Choices	Enter Stack Totals
Kannan Srinivasan	140
Sirisha Kompalli	53

When work is completed, return all ballots to the ballot container and seal the container.

Was the container resealed by the audit board? Yes

Jean M. [Signature] (Audit Board Member) Dana L. Clark (Audit Board Member)

Check-In/Out Station Steps:

Recorded batch check-in

Entered tallies into Arlo

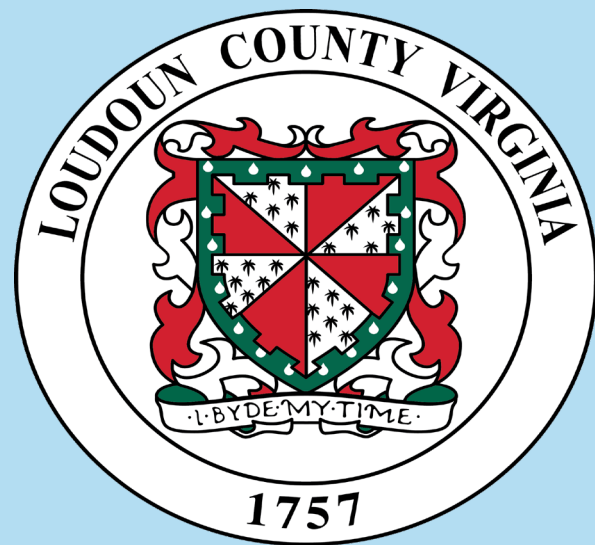
AS Initials of check-in/out station member

UNDERVOTES (2)

SRINIVASAN - 1 ADDITIONAL VOTE - OVAL NOT COMPLETED

First Loudoun County Batch Comparison Method, RLA

June 2023: Results



June 20, 2023 Democratic Primary Election - Batch Comparison Risk Limiting Audit

Changes

4	1	(5)
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Precinct		Srinivasan	Kompalli	Under
120	Reported	166	85	5
	Audit	166	85	5
	Difference	0	0	0
124	Reported	103	55	5
	Audit	103	55	5
	Difference	0	0	0
322	Reported	139	53	3
	Audit	140	53	2
	Difference	1	0	(1)
630	Reported	205	60	8
	Audit	205	60	8
	Difference	0	0	0
712	Reported	116	66	8
	Audit	117	67	6
	Difference	1	1	(2)
714	Reported	227	113	15
	Audit	228	113	14
	Difference	1	0	(1)
EV1	Reported	150	51	13
	Audit	151	51	12
	Difference	1	0	(1)
EV2	Reported	19	5	0
	Audit	19	5	0
	Difference	0	0	0
CAP	Reported	577	274	11
	Audit	577	274	11
	Difference	0	0	0
PE	Reported	97	37	0
	Audit	97	37	0
	Difference	0	0	0

Reported	1799	799	68	2598
Audit	1803	800	63	2603
	69.25%	30.75%		
	69.27%	30.73%		

First Loudoun County, Batch Comparison Method, RLA June 2023: First in Virginia



1. **Audit lasted 3.5 hours.** (Began at 10:00am Ended at 1:15pm).

2. **10 Batches of Ballots Audited: 9,703 Ballots retrieved and sorted, 2,666 Ballots with HOD District 26 race were audited and tabulated.**

Reported: Srinivassan= 1799 + Kompali=799 =Total Votes: 2598 Under-Vote= 68 # Ballots: 2,666

Audited: Srinivassan= 1803 + Kompali= 800 =Total Votes: 2603 Under-Vote= 63 # Ballots: 2,666

3. **Audit resulted in 5 additional votes from the Under-Votes:** (4 for the winner and 1 for losing candidate).

4. **Additional Votes, as bipartisan Audit Team or Adjudication Team, could clearly determine Intent of Voter** while hand counting ballots, which voting machine counted as Under Votes.

5. **Various reasons:** Candidate name circled or voter put a light check or X mark.

6. **ARLO software created Audit Report,** showed election more than **99% accurate**.

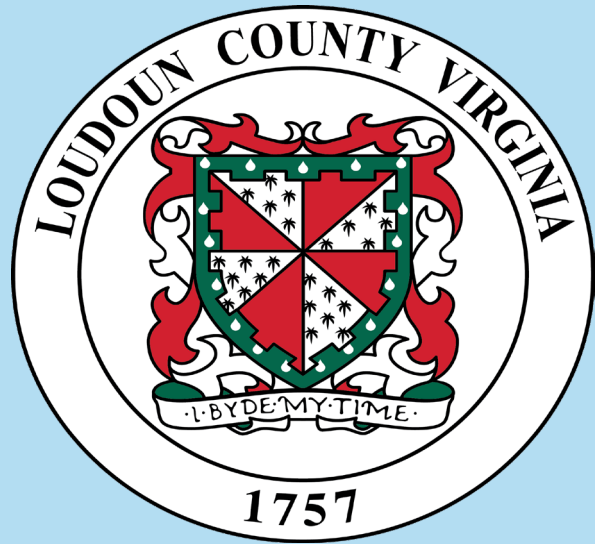
7. **Outcome of Election and general Accuracy of the voting machines was confirmed,** with hand counts matching the voting machine results. (Unisyn)

8. **A new Abstract of the results** for the House of Delegates District 26 race created by Registrar and **included the 5 additional votes determined by the Audit.** Updated Abstract certified by the Loudoun County Electoral Board, sent to ELECT and certified by the State Board of Elections.

Ballot Manifest :

2nd Loudoun County Batch Comparison Method, RLA

November 2023



(46) Ballot Manifest Submitted to Elect 11/2023

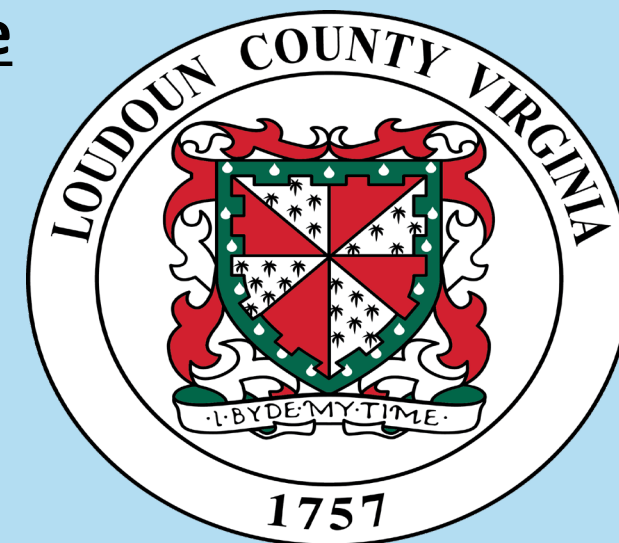
	Harnisch	Reaser	Write-In	
107 - LITTLE RIVER	526	537	7	
114 - DULLES SOUTH	319	335	10	
123 - CARDINAL RIDGE	311	317	0	
209 - POTOMAC FALLS	521	682	10	
210 - CASCADES	462	643	6	
214 - SUGARLAND NORTH	414	557	7	
215 - SUGARLAND SOUTH	442	614	1	
216 - LOWES ISLAND	509	547	3	
217 - SOUTH BANK	539	614	15	
220 - MIRROR RIDGE	380	508	14	
221 - SENECA	384	441	3	
701 - SULLY	341	392	5	
702 - PARK VIEW	333	388	10	
703 - ROLLING RIDGE	305	546	22	
705 - FOREST GROVE	386	476	6	
710 - STERLING	271	230	2	
711 - GUILFORD	127	233	0	2 under votes = 362 ✓
713 - CARTER	92	132	4	
715 - OAK GROVE	113	231	2	
EV1-1	27	57	0	
EV1-2	88	91	0	
EV1-3	86	94	1	
EV1-4	54	53	0	
EV1-5	50	68	0	
EV1-6	23	21	0	
EV1-7	14	21	0	
EV1-8	11	21	0	
EV1-9	7	24	0	
EV2-1	675	897	4	
EV2-2	641	786	1	
EV3-1	177	209	0	
EV3-2	149	184	1	
CAP-10-24-20283	24	74	0	
CAP-10-25-20825	19	30	0	
CAP-10-25-20284	71	114	0	
CAP-10-26-20826	92	189	0	
CAP-10-27-20827	51	139	2	
CAP-10-31-20828	55	150	0	
CAP-11-1-20829	79	212	0	
CAP-11-2-20830	84	209	0	
CAP-11-3-20831	76	181	0	
CAP-11-4-20832	77	160	0	
CAP-11-6-20833	66	162	0	
CAP-11-7-20834	68	184	0	
Post-Election	93	258	1	
Provisional	105	155	2	

EV-1
6 seats

12
CAP

(NONE IN EV4)

November 2023, Second Loudoun County, Batch Comparison Method, RLA: Day 1



1. Loudoun requested Batch Comparison Method, RLA of House of Delegates District 27 race (wholly in Jurisdiction of Loudoun County and Margin of Victory > 1%).

2. State Board of Elections approved.

3. Loudoun submitted Ballot Manifest to ELECT with entire race = 46 Batches.

4. 10 Bipartisan Election Officer Audit Review Boards/ Teams = (20 Election Officers).

5. House of Delegates District 27:

23,302 Ballots Cast= (Election Day, EV and CAP= 22,680) + (Post Election =355)+ (Provisionals=267)

Election Results Reported: Harnisch: 9,737 Reaser: 13,166 Write In: 139 Under Vote: 250 Over-vote: 10

6. Day 1: ARLO Ballot Retrieval List: 24 Batches: (37,093 Ballots Retrieved to Sort)

Votes Cast Per Machine Count: 11,792 and Votes Per Audit Hand Count: 11,811

Difference +19 Votes (human determination of "Voter Intent"): Harnisch= + 8 Reaser= +11 (109/248 under-votes)

Election Percentages: Reported: Harnisch= 42.60% and Reaser= 56.95%

Audit: Harnisch= 42.60% and Reaser= 56.96% .01% Difference

November 2023, Second Loudoun County, Batch Comparison Method, RLA: Day 2



1. Day 2: Round 2 : ARLO Ballot Retrieval **22 Batches (Full Audit of Race, 46 Batches)**

2. **Difference of + 27 Votes** (due to human “Voter Intent” determination): **Harnisch= + 13 and Reaser= +14**

3. **Entire Race Audited: 23,302 Ballots and +46 Under-Votes counted: Harnisch= +21 and Reaser= + 25**

4. **Total Votes on Voting Machine: 22,903: Harnisch= 9,737 and Reaser= 13,166**

Total Hand Count Votes (includes +46 Under-Votes Counted): 22,949: Harnisch= 9,758 and Reaser= 13,191

5. **Audit lasted 2 days, 11.5 hours: Day 1 =7.5 hours (10:00 am-5:30pm) Day 2 = 4.5 hours (9:00 am-1:30pm)**

6. **ARLO Audit Report= 97.9% Accurate Election Outcome.**

7. **Confirmed Election Results Correct and Machine Results, Very Close and Accurate.**

5Ps

- Proper
- Preparation
- Prevents
- Poor
- Performance

Results of the US House District 1 Batch Comparison Audit RLA

- 7 of 18 localities audited 19 randomly selected batches of ballot
- 137,627 ballots reviewed in a single day
 - 28% of total ballots cast
- Discrepancies – Found within 14 of audited ballots
 - Total 80 ballots or .0167%
 - Would not have affected the outcome
- The risk limit of 10% set by the State Board of Elections was successfully met

Communication

- Key to success is communication...Coordinate!
 - Circuit Court Clerk
- There are several localities which have been involved in the process at this point.
- The individuals involved are willing partners in the process.

Strategy

- Plan well ahead
- Engage all participants.
 - Clerk's office
 - Officers of Election who will aid in the effort
 - Choose wisely!
- Confidence comes from preparedness!

Execution

- Anticipate success.
- The first to go through a process has the most difficult task!
 - Those who follow will have an easier path.
 - Reach out to others for help and advice.