



February 14, 2023

Michelle Fajman and LeAnn Angerman
Lake County Director and Assistant Director of Elections
2293 N Main Street
Crown Point, IN 46307

Dear Directors Fajman and Angerman,

On February 1st and 2nd, 2023, the VSTOP team successfully completed a post-election audit in Lake County, Indiana, for the 2022 General Election. The VSTOP Team members who participated in person included Dr. Chad Kinsella, Co-Director; Liz Beatrice, Program Manager; Rachael Alaniz, Project Specialist; and Marc Chatot, Certification Specialist. This activity was carried out by the VSTOP Team in collaboration with the Lake County Audit Team. The Lake County Team members included Michelle Fajman, Director of Elections; LeAnn Angerman, Assistant Director of Elections; Genny Gasparovic, Assistant Election Administrator; James Oliver, Assistant Chief Programmer Supervisor; Andre Manzo, Supervisor Mechanic; Brenda Weatherspoon, Voter Registration Clerk 2; Luis Aguilar, Voter Registration Clerk 4; RuthAnn Hoagland Assistance Registration Director; Lori O'Dea, Election Office Clerk 1; Kimberly Warner, Election Office Clerk 3; Kelley DiPirro, Election Office Clerk 3, Kimberly White, Election Office Clerk 3; and Elizabeth Moreno, Election Office Clerk 3. Vendor representative Steve Shamo, MicroVote General Manager, was present and assisted throughout the audit. Also present was Michelle Quinn, Reporter with the Northwest Indiana Post-Tribune.

The VSTOP Team would like to thank Directors Fajman and Angerman, the Lake County Audit Team, and the Lake County Election Board for hosting this post-election audit. Several preparatory meetings were conducted with the county in the weeks leading up to the post-election audit and Directors Fajman and Angerman provided valuable information and data that was used to conduct the audit.

The post-election audit began with an introductory presentation to the county participants on the morning of the audit. This presentation included the generation of a 20-digit seed number, in collaboration with all county participants. The seed number produced is as follows: 58950000439080771548.

The VSTOP team would also like to take this opportunity to provide a brief description of the post-election audit conducted and the contests that were audited. **Lake County uses the MicroVote EMS 4.4 direct record electronic voting system.** The post-election audit included the total number of Absentee Mail-In ballots cast on paper and all Absentee Walk-In and Election Day ballots cast on voter-verifiable paper audit trails (VVPATs) during the Pulaski County 2022 General Election.

In consultation with Lake County, the following three races were audited with an initial risk limit set at 9% (as the attached report shows, the actual risk limits attained were lower):

- County Sheriff
- United States Representative District 1
- Treasurer of State

There was a total of 46,224 Absentee Mail-In and Absentee Walk-In ballots. 183 Absentee ballots were sampled to reach the risk limit and verify the outcomes. Of this total, the audit team was required to sample 59 ballots for County Sheriff, 57 ballots for United States Representative District 1, and 67 ballots for Treasurer of State to meet the risk limit. Specifics regarding each race's outcomes are displayed by images provided by Dr. Philip Stark's Audit Tool used to conduct the post-election audit and can be found in Appendix A.

VSTOP

VSTOP acknowledges the Indiana Secretary of State and his office staff for their full support. At the end of all post-election audits for the 2022 General Election, a full report of the audit results will be prepared and submitted to the Indiana Secretary of State and each participating county.

Jay Bagga

Dr. Jay Bagga, VSTOP Co-Director

Chad Kinsella

Dr. Chad Kinsella, VSTOP Co-Director

Lake County Post-Election Audit Procedure

Election: 2022 General Election

Date(s) of Audit: February 1-2, 2023

Number of Registered Voters: 369,255

Total Number of Ballots Cast: 136,315

Total Paper Absentee Ballots Cast: 8,766

Total Walk-in Absentee Ballots Cast: 37,458

Stark's Risk-Limit: Initially set at 9%
(See below for the actual risk limit achieved)

Seed Number: 58950000439080771548

Post-Election Audit Method(s):

- Ballot Polling Post-Election Audit (Paper Absentee Ballots)
- Ballot Comparison Post-Election Audit (Walk-in Absentee Ballots)

Post-Election Audit Tools used:

The post-election audit tools have been designed by Dr. Philip Stark.

The ballot polling tool is available at:

<https://www.stat.berkeley.edu/~stark/Vote/ballotPollTools.htm>

The ballot comparison tool is available at:

<https://www.stat.berkeley.edu/~stark/Vote/auditTools.htm>

Audited Races Details

Races Audited – Ballot Polling Method:

Lake County Ballot Polling Audit (ABS Mail-In)						
Race/Question	Outcome		Smallest Margin	Diluted Margi	Initial Sample Size	Total Ballots Sampled
County Sheriff	(D) Oscar Martinez Jr*	6122	3849	43.91%	25 ¹	24
	(R) David K Crane Jr	2273				
	Undervotes	371				
	Total Ballots Cast					
United States Representative District 1	(D) Frank J Mrvan*	6210	4016	45.81%	23	23
	(R) Jennifer-Ruth Green	2194				
	Undervotes	362				
	Total Ballots Cast					
Treasurer of State	(D) Jessica McClellan*	6123	3838	43.78%	26 ²	25
	(R) Daniel Elliot	2285				
	Undervotes	358				
	Total Ballots Cast					

Asterisk (*) denotes the winner of each contest

¹The initial sample included 25 ballots. Once duplicates were removed, the sample size was 24, which met the risk limit and did not require further ballots to be sampled.

²The initial sample included 26 ballots. Once duplicates were removed, the sample size was 25, which met the risk limit and did not require further ballots to be sampled.

Note: The Stark Audit Tool's algorithm provided a randomized list of ballots to review in the total sequence of ballots. Due to the randomization, the audit tool may require that the audit team review the same ballot twice. The risk of auditing the same ballot twice is eliminated by utilizing the "remove duplicates" feature within the auditing tool. This ensures that the 6-cut method can be conducted accurately and ensures each ballot audited represents a unique data point.

Races Audited – Ballot Comparison Method:

Lake County Ballot Comparison Audit (ABS Walk-In ONLY)						
Race/Question	Outcome		Smallest Margin	Diluted Margi	Initial Sample Size	Total Ballots Sampled
County Sheriff	(D) Oscar Martinez Jr*	21234	6098	16.28%	35	35
	(R) David K Crane Jr	15136				
	Write-Ins	24				
	Undervotes	1064				
	Total Ballots Cast	37458				
United States Representative District 1	(D) Frank J Mrvan*	21469	6223	16.61%	34	34
	(R) Jennifer-Ruth Green	15246				
	Write-Ins	16				
	Undervotes	727				
	Total Ballots Cast	37458				
Treasurer of State	(D) Jessica McClellan*	20693	5049	13.48%	42	42
	(R) Daniel Elliot	15644				
	Undervotes	1121				
	Total Ballots Cast	37458				
Asterisk (*) denotes the winner of each contest						

Lake County Sheriff (Absentee Mail-In)

Sample Size:

With the selected risk limit of 9%, the initial sample size for this contest was 25 ballots. Once duplicates were removed, the sample size was 24.

Initial sample size

Contest information

Ballots cast in all contests: 8766 Smallest margin (votes): 3,849. Diluted margin: 43.91%.

Contest 1. Contest name:
County Sheriff

Winners: 1 ▾

Reported votes:

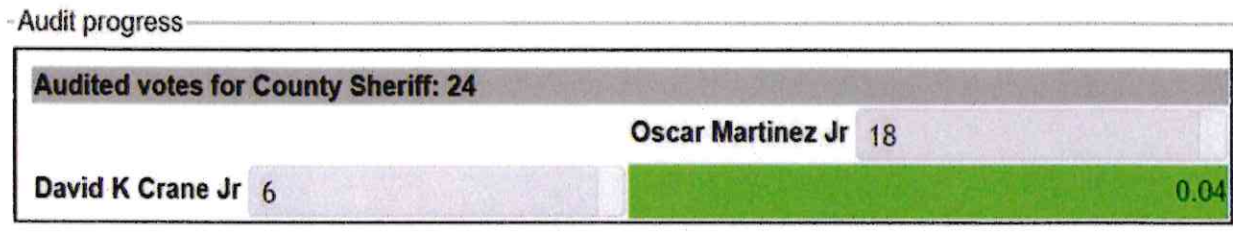
Candidate 1 Name:	Oscar Martinez Jr	Votes:	6122
Candidate 2 Name:	David K Crane Jr	Votes:	2273

Audit parameters

Risk limit: 9% Expected sample size: 25.

Final Outcome:

With a sample size of 24 ballots, the final outcome resulted in a 4% risk limit, which indicates 96% confidence that the audit confirmed the results of this contest. Further sampled ballots were not required for this audit.



Lake County Sheriff (Absentee Walk-In)

Sample Size:

With the selected risk limit of 9%, the sample size for this contest was 35 ballots.

Initial sample size

Contest information

Ballot cards cast in all contests: 37458 Smallest margin (votes) 6,098 Diluted margin: 16.26%

Contest 1. Contest name: County Sheriff

Contest type: plurality super-majority

Winners: 1

Reported votes:

Candidate 1 Name: Oscar Martinez, Jr.	Votes: 21234
Candidate 2 Name: David K Crane, Jr.	Votes: 15136
Candidate 3 Name: Write-Ins	Votes: 24

Audit parameters

Risk limit: 9%

Expected rates of differences (as decimal numbers):

Overstatements. 1-vote: 0.001 2-vote: 0.0001

Understatements. 1-vote: 0.001 2-vote: 0.0001

Starting size

Round up 1-vote differences. Round up 2-vote differences. 35.

Final Outcome:

With a sample size of 35 ballots, the final outcome resulted in a 0% risk limit, which indicates 100% confidence that the audit confirmed the results of this contest. Further sampled ballots were not required for this audit.

Stopping sample size and escalation

Ballots audited so far: 35

1-vote overstatements:	0	Rate:	0
2-vote overstatements:	0	Rate:	0
1-vote understatements:	0	Rate:	0
2-vote understatements:	0	Rate:	0

Estimated stopping size

Audit complete

If no more differences are observed: 31.

If differences continue at the same rates: 31.

Estimated additional ballots if difference rates stay the same: 0.

United States Representative District 1 (Absentee Mail-In)

Sample Size:

With the selected risk limit of 9%, the sample size for this contest was 23 ballots.

Initial sample size

Contest information

Ballots cast in all contests: 8766 Smallest margin (votes): 4,016. Diluted margin: 45.81%.

Contest 1. Contest name:
United States Representative District 1

Winners: 1

Reported votes:

Candidate 1 Name:	Frank J Mrvan	Votes:	6210
Candidate 2 Name:	Jennifer-Ruth Green	Votes:	2194

Add candidate to contest 1 Remove last candidate from contest 1

Add contest Remove last contest

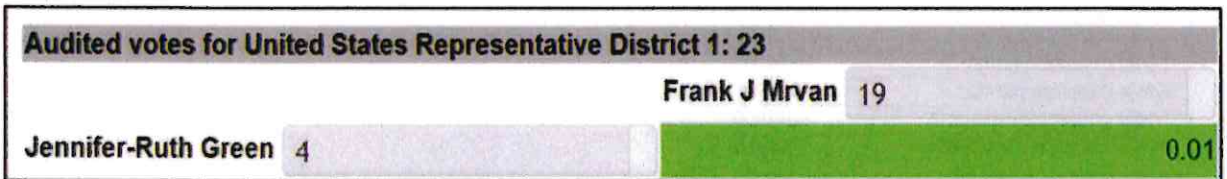
Audit parameters

Risk limit: 9% Expected sample size: 23.

Final Outcome:

With the sample size of 23 ballots, the final outcome resulted in a 1% risk limit, which indicates 99% confidence that the audit confirmed the results of this contest. Further sampled ballots were not required for this audit.

Audit progress



United States Representative District 1 (Absentee Walk-In)

Sample Size:

With the selected risk limit of 9%, the sample size for this contest was 34 ballots.

Initial sample size

Contest information

Ballot cards cast in all contests: 37458 Smallest margin (votes): 6,223. Diluted margin: 16.61%.

Contest 1. Contest name: United States Representative District 1

Contest type: plurality super-majority

Winners: 1

Reported votes:

Candidate 1 Name:	Frank J Mivan	Votes:	21469
Candidate 2 Name:	Jennifer-Ruth Green	Votes:	15246
Candidate 3 Name:	Write-Ins	Votes:	16

Audit parameters

Risk limit: 9%

Expected rates of differences (as decimal numbers):

Overstatements. 1-vote:	0.001	2-vote:	0.0001
Understatements. 1-vote:	0.001	2-vote:	0.0001

Starting size

Round up 1-vote differences. Round up 2-vote differences. 34

Final Outcome:

With the sample size of 34 ballots, the final outcome resulted in a 0% risk limit, which indicates 100% confidence that the audit confirmed the results of this contest. Further sampled ballots were not required for this audit.

Stopping sample size and escalation

Ballots audited so far: 34

1-vote overstatements:	0	Rate:	0
2-vote overstatements:	0	Rate:	0
1-vote understatements:	0	Rate:	0
2-vote understatements:	0	Rate:	0

Estimated stopping size

If no more differences are observed: 31.

If differences continue at the same rates: 31.

Estimated additional ballots if difference rates stay the same: 0.

Treasurer of State (Absentee Mail-In)

Sample Size:

With the selected risk limit of 9%, the initial sample size for this contest was 26. Once duplicates were removed, the sample size was 25 ballots.

Initial sample size

Contest information	
Ballots cast in all contests: <input type="text" value="8766"/>	Smallest margin (votes): 3,838. Diluted margin: 43.78%.
Contest 1. Contest name: <input type="text" value="Treasurer of State"/>	
Winners: <input type="text" value="1"/>	
Reported votes:	
Candidate 1 Name: <input type="text" value="Jessica McClellan"/>	Votes: <input type="text" value="6123"/>
Candidate 2 Name: <input type="text" value="Daniel Elliot"/>	Votes: <input type="text" value="2285"/>
<input type="button" value="Add candidate to contest 1"/>	<input type="button" value="Remove last candidate from contest 1"/>
<input type="button" value="Add contest"/>	<input type="button" value="Remove last contest"/>
Audit parameters	
Risk limit: <input type="text" value="9%"/>	Expected sample size: 26.

Final Outcome:

With a sample size of 25 ballots, the final outcome resulted in a 3% risk limit, which indicates 97% confidence that the audit confirmed the results of this contest. Further sampled ballots were not required for this audit.

Audit progress



Treasurer of State (Absentee Walk-In)

Sample Size:

With the selected risk limit of 9%, the sample size for this contest was 42 ballots.

Initial sample size

Contest information

Ballot cards cast in all contests: 37458 Smallest margin (votes): 5,049. Diluted margin: 13.48%.

Contest 1. Contest name: Treasurer of State

Contest type: plurality super-majority

Winners: 1

Reported votes:

Candidate 1 Name: Jessica McClellan	Votes: 20693
Candidate 2 Name: Daniel Elliot	Votes: 15644

Add candidate to contest 1 Remove last candidate from contest 1

Add contest Remove last contest

Audit parameters

Risk limit: 9%

Expected rates of differences (as decimal numbers):

Overstatements. 1-vote: 0.001	2-vote: 0.0001
Understatements. 1-vote: 0.001	2-vote: 0.0001

Starting size

Round up 1-vote differences. Round up 2-vote differences. Calculate size: 42.

Final Outcome:

With the sample size of 42 ballots, the final outcome resulted in a 0% risk limit, which indicates 100% confidence that the audit confirmed the results of this contest. Further sampled ballots were not required for this audit.

Stopping sample size and escalation

Ballots audited so far: 42

1-vote overstatements: 0	Rate: 0
2-vote overstatements: 0	Rate: 0
1-vote understatements: 0	Rate: 0
2-vote understatements: 0	Rate: 0

Estimated stopping size

Calculate Audit complete

If no more differences are observed: 38.
If differences continue at the same rates: 38.
Estimated additional ballots if difference rates stay the same: 0.

