



Virginia Elections Conference

ANNUAL TRAINING EVENT



Virginia
Elections
Conference

ANNUAL TRAINING EVENT

LOGIC AND ACCURACY TESTING

Gary Fox

Former - Assistant Registrar, Chesterfield County

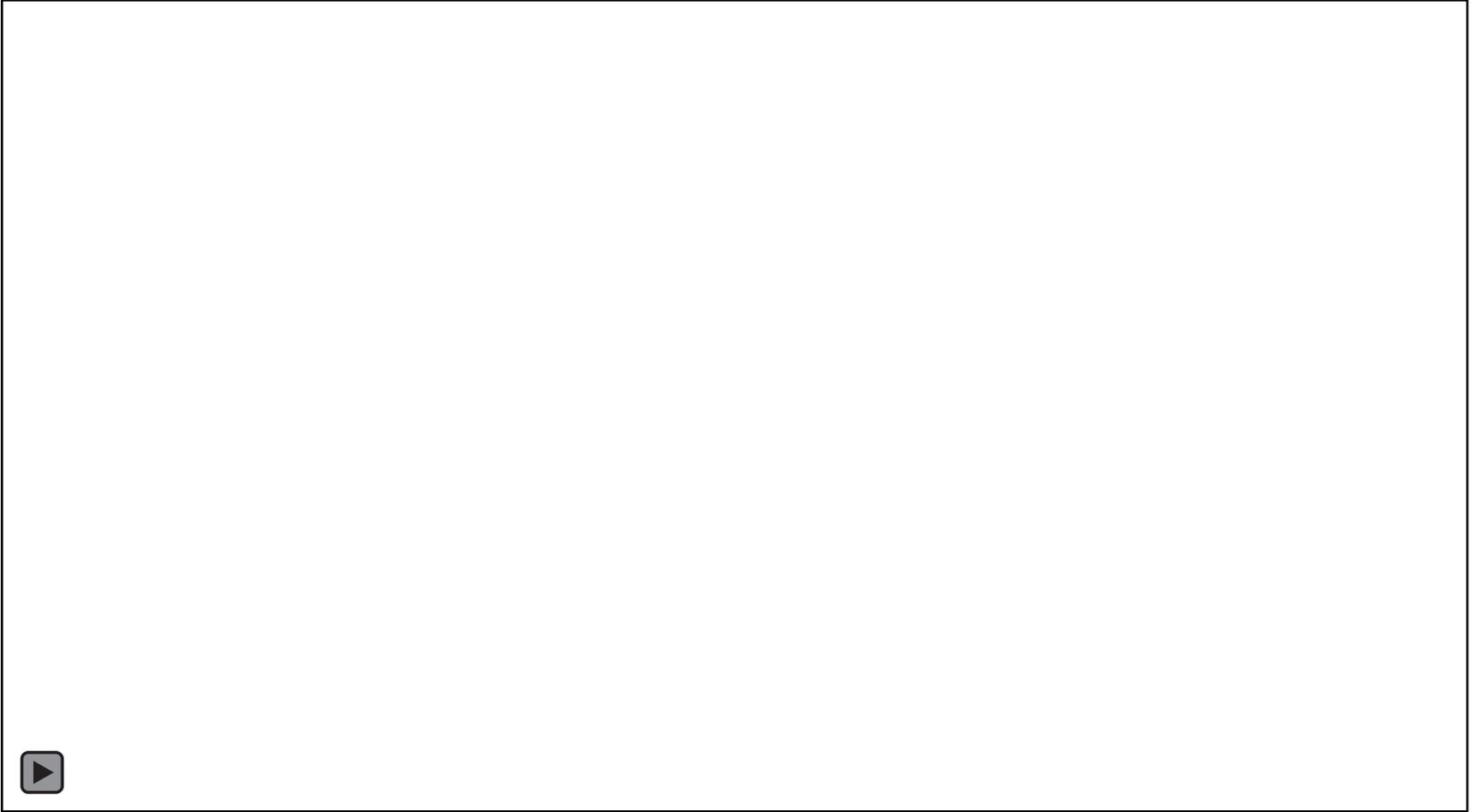
Former - Elections Administration Supervisor, Department of Elections

VA Customer Service Manager, Printelect

WHY DO WE PERFORM
LOGIC & ACCURACY TESTING?



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It is enough that the people know there was an election. The people who cast the votes decide nothing. The people who count the votes decide everything.

– Joseph Stalin

www.vtliberty.com



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§ 24.2-633. Notice of final testing of voting system; sealing equipment.

[Bills amending this Section >](#)

Before the final testing of voting or counting machines for any election, the electoral board shall mail written notice (i) to the chairman of the local committee of each political party, or (ii) in a primary election, to the chairman of the local committee of the political party holding the primary, or (iii) in a city or town council election in which no candidate is a party nominee and which is held when no other election having party nominees is being conducted, to the candidates.

The notice shall state the time and place where the machine will be tested and state that the political party or candidate receiving the notice may have one representative present while the equipment is tested.

At the time stated in the notice, the representatives, if present, shall be afforded an opportunity to see that the equipment is in proper condition for use at the election. When a machine has been so examined by the representatives, it shall be sealed with a numbered seal in their presence, or if the machine cannot be sealed with a numbered seal, it shall be locked with a key. The representatives shall certify for each machine the number registered on the protective counter and the number on the seal. When no party or candidate representative is present, the custodian shall seal the machine as prescribed in this section in the presence of a member of the electoral board or its representative.

Code 1950, § 24-300; 1962, c. 260; 1970, c. 462, § 24.1-210; 1981, c. 425; 1985, c. 458; 1993, c. 641; 1998, c. 264; 2004, cc. 993, 1010; 2014, cc. 540, 576.



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CODE SUMMARY

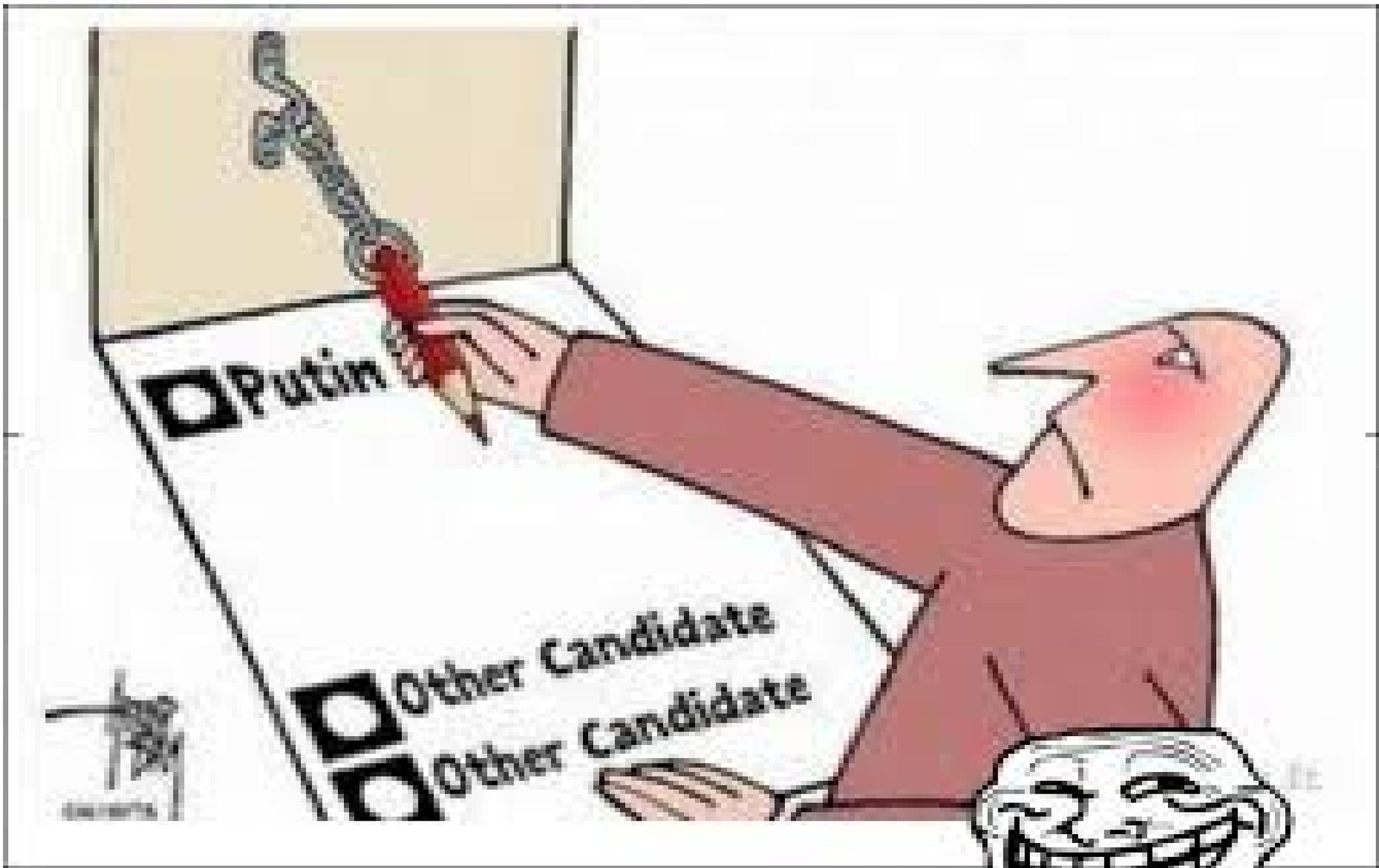
- Provide written notice
- State time and place for testing
- Electoral board or representative present
- 1 representative may be present (party)
- Representative has opportunity to see the equipment is in proper condition to conduct election
- Equipment to be sealed



L&A OPPORTUNITIES

- Identify machine issues
- Mitigate risks
- Review ballot layout
- Results reporting
- Ensures accuracy
- Refresher for techs/users
- Provides documentation
- Keeps you out of the newspaper





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WHO SHOULD PERFORM THE TEST?



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TESTERS

- Electoral Board
- Director of Election/General Registrar
- Staff
- Equipment custodians/technicians
- Vendors
- Contractors
- Officers of elections
- Others



DRE MACHINE L&A



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DRE MACHINES

- Load media
- Check election information
- Check/reset date and time on machine
- Calibrate screen
- Check battery
- Check results tape roll
- Headset
- Contrast/Zoom



DRE MACHINES

- Open polls and print zero tape
- Vote test pattern (undervote, blank ballot, write ins)
- Verify summary screens
- Close election and print results
- Compare results tape to test pattern (expected results)
- Clear election and zero machine
- Turn off
- Seal machine
- Document – serial number, protected count, seal number



DRE TEST PATTERN

- 1-2-3 test pattern
- Random test pattern



1 – 2 – 3 – 4 - 5 PATTERN

Member City Council	
Number to Vote For: 3	
Linda D. Curtis	1
Shree K. Green	2
W. W. "Billy" Hobbs, Jr.	3
James A. Nixlar	4
Chris Oaty Sneed	5
Write-in	1
Write-in	2
Write-in	3
Overvotes	3
Undervotes	12
<hr/>	
Total Votes	30



RANDOM PATTERN

Voting Equipment Guidelines

Clarke County Virginia

Pre-Election Testing Form

Election Date: _____ Test Date: _____
 Precinct: _____ Tester: _____
 Equip. SN: _____ Open Polls Close Polls Print Zero
 Public Count: Before Voting _____ Clear & Test Seal # _____
 After Voting _____

(OFFICE/QUESTION)

	Ballot 1	Ballot 2	Ballot 3	Ballot 4	Ballot 5	Ballot 6	Ballot 7	Total Votes	Votes for Office
Governor									
McAuliffe									
Cuccinelli									
Sarvis									
Write In									
Lt. Governor									
Northam									
Jackson									
Write In									
Attorney General									
Herring									
Obenshain									
Write In									
HOD 33									
Daniel									
LaRock									
Hagerty									
Write In									
HOD10									
Johnson									
Minchew									
Write In									
School BD									
Archibald									
Lasiter									
Write In									
Verify Summary									
Boyce-Town Council									
Everly									
Kalble									
Write-In									
Write In									
Boyce Recorder									
Myer									
Write In									

Comments on Reverse Side



DRE MACHINES

FOLLOW ELECT GUIDANCE FOR NOTIFICATION
OF SUCCESSFUL TESTING



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OPTICAL/DIGITAL SCANNER L&A



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OPTICAL/DIGITAL SCANNERS

- Clean out ballot box
- Check results tape roll
- Calibrate scanner if necessary
- Verify time and date
- Check battery status
- Load media
- Check election information
- Open polls and print zero tape



OPTICAL/DIGITAL SCANNERS

- Run test deck (all candidates, overvote, undervote, blank ballot, write ins, ADA ballots)
- Close polls and print results
- Compare printed results with expected results
- Clear election, zero machine and print
- Turn off and seal machine
- Document – serial number, protected count, seal number



OPTICAL/DIGITAL SCANNERS

- Vendor can provide test decks with expected results or you can create your own
- 1-2-3 test pattern
- Random test pattern



1 – 2 – 3 – 4 - 5 PATTERN

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Write-in	2
Write-in	3
Overvotes	3
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<hr/>	
Total Votes	30



COMMONWEALTH OF VIRGINIA
DEMONSTRATION BALLOT
County of Demonstration
GENERAL ELECTION
Tuesday, November 4, 2025

TO VOTE:

1. USE A BLACK BALL POINT PEN TO MARK THE BALLOT
2. COMPLETELY FILL IN THE OVAL TO THE LEFT OF YOUR CHOICE LIKE THIS ●
3. TO VOTE FOR A PERSON NOT ON THE BALLOT FOR AN OFFICE, WRITE THE NAME ON THE LINE PROVIDED AND COMPLETELY FILL IN THE OVAL TO THE LEFT OF THAT NAME.

Favorite City (Vote for only one)	Favorite Sports Team (Vote for only one)	Favorite Festival (Vote for not more than two)
<p><input type="radio"/> Richmond</p> <p><input type="radio"/> Virginia Beach</p> <p><input type="radio"/> Hampton</p> <p><input checked="" type="radio"/> Berryville</p> <p><input type="radio"/> Wytheville</p> <p><input type="radio"/></p>	<p><input type="radio"/> Liberty Flames</p> <p><input type="radio"/> Radford Highlanders</p> <p><input type="radio"/> Richmond Spiders</p> <p><input checked="" type="radio"/> <u>VCU RAMS</u></p>	<p><input type="radio"/> Home & Garden Show</p> <p><input type="radio"/> Roanoke St. Patricks Day</p> <p><input type="radio"/> Bluegrass Festival</p> <p><input type="radio"/> Easter Decoy & Art</p> <p><input checked="" type="radio"/> Daffodil Festival</p> <p><input checked="" type="radio"/> Arts & Crafts</p>
<p>Write-in</p>	<p>Write-in</p>	<p>Write-in</p> <p>Write-in</p>

Ballot Style # 1
Typ:01 Seq:0001 Spl:01



ADA DEVICE

- Power on/keypad/check battery/date and time
- Load election
- Verify screen calibration
- Insert ballot
- Verify audio/zoom/contrast/keypad
- Test all screen functions
- Vote each candidate/write ins
- Print ballot and insert in scanner
- Seal and record seal number



OPTICAL/DIGITAL SCANNERS

FOLLOW ELECT GUIDANCE FOR NOTIFICATION
OF SUCCESSFUL TESTING



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WHAT IF L&A TESTING IS NOT
PERFORMED ON EVERY MACHINE
INCLUDING SPARES?



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FROM THE CREATORS OF BREAKING BAD



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GOAL

RESULTS TAPE = BALLOTS VOTED



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QUESTIONS?



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