What conditions are necessary to verify election outcome accuracy?

Fundamentals of Publicly-Verifiable Election Outcomes

All of the following conditions are necessary to avoid certifying incorrect election outcomes:

1. Independently-auditable voting systems, i.e. voter-marked paper ballots, not electronic ballots
2. Public observation of, and participation in (a) manual counts or audits and (b) secure handling, storage and transportation procedures for electoral records, including ballots.
3. Initially manually counting all ballots or, at a minimum, counting of adequate audit units to limit the risk of certifying any incorrect initial election outcome by detecting miscount even when the fewest audit units that could cause an incorrect outcome are miscounted. (If calculations assume maximum margin error within each audit unit is less than its upper margin error bound, then candidates may select discretionary units for manual auditing in addition to the random sample.) If not initially manually counting all ballots:
    a. Public reporting of *all* vote tallies (audit units) used to tally overall election results *prior* to randomly selecting a sample for auditing
    b. Publicly-verifiably fair random probability selection methods (Calandrino, Halderman, & Felten, *In defense of pseudorandom sample selection*, Woodrow Wilson School of Public and International Affairs. 2007), preferably weighted by within audit unit upper margin error bounds rather than by a uniform sampling distribution
    c. Prohibiting ballot and electoral record access between the time of random selections and manual audits
    d. Expansion of the sample size, perhaps to a full recount, or certification of the election using an algorithm based on the premises of the sampling method, treating any missing paper ballots as discrepancies when deciding whether to expand or certify
4. Polling place and jurisdiction-wide reconciliation of printed, used, unused, and spoiled ballots with absentee ballot, polling place and other electoral records
5. Timely public access to electoral records necessary to evaluate the accuracy and integrity of reconciliation and manual counting or auditing processes
6. Voter intent as the standard for manually counting ballots
7. Public reporting of any discrepancies found during the manual count or audit, using manual counts to correct any initial reported results
8. Completion of the manual count or audit *prior* to certifying election results

Does the state you live in follow *all* these procedures?

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An example of how elections can be stolen if each of the 12 conditions alone is missing. (Dozens of additional ways to rig elections exist when more than one condition is missing.)

1. There are at least four ways for a single insider to rig digital recording electronic (DRE) voting machines in an entire county with a few seconds access using an inexpensive memory stick, in a way that pre-election testing could not detect. (Are Your Votes *Really* Counted? Testing the Security of Real-world Electronic Voting Systems, D. Balzarotti, G. Banks, M. Cova, V. Felmetsger, R. Kemmerer, W. Robertson, F. Valeur, and G. Vigna, in Proceedings of the International Symposium on Software Testing and Analysis, Seattle, WA July 2008.) http://www.cs.ucsb.edu/~seclab/projects/voting/

2. (a) Miscount, misreport or under-report discrepancies found during manual counting
   (b) Substitute, lose, tamper with, or spoil ballots or stuff ballot boxes

3. Rig close elections by hiding miscount in the smallest number of precincts possible to avoid detection by a small fixed-rate audit, or use sham audit procedures that never check the accuracy of reported vote tallies
   a. Misreport all audit unit tallies that were not previously randomly selected for auditing
   b. Sampling can be fixed to audit only tallies that will match reported tallies (as in OH 2004)
   c. Tamper with ballots selected for auditing between the time of the random selection and the audit
   d. Failure to properly analyze the amount of errors or missing ballots can cause election certification of incorrect election outcomes despite evidence in the sample

4. Lack of polling-place reconciliation covers up polling place ballot box stuffing or ballot substitution and lack of jurisdiction-wide reconciliation covers up ballot box stuffing or ballot substitution when mail-in voting or early voting are allowed

5. Lack of public access to records permits fictitious numbers to be reported during reconciliation, covering up certain types of ballot substitution, fraudulent vote reporting and ballot box stuffing

6. If systematic errors in ballot design, or voter understanding are not identified in the audit process, it could result in certification of an incorrect result. Voter ballot marking errors or poll workers misinforming voters on how to fill out ballots may cause an outcome different than desired by voters

7. If all discrepancies are not reported and recognized as such, many may be explained away as happening as the result of a mistake or error in one place even though error in one place can be an indicator that similar mistakes or errors may exist elsewhere.

8. If the election is certified prior to completing the audit, there may be no legal recourse to remove a person from office that was not elected by voters.