

Date of Hearing: May 24, 2018

ASSEMBLY COMMITTEE ON ELECTIONS AND REDISTRICTING

Marc Berman, Chair

AB 2125 (Quirk) – As Amended May 21, 2018

RE-REFERRED TO COMMITTEE PURSUANT TO ASSEMBLY RULE 77.2

PRIOR COMMITTEE CONSIDERATION:

Committee	Votes	Ayes	Noes
Elections	7-0	Berman, Harper, Calderon, Low, Mullin, Obernolte, Weber	
Appropriations	17-0	Gonzalez Fletcher, Bigelow, Bloom, Bonta, Brough, Calderon, Carrillo, Chau, Eggman, Fong, Friedman, Gallagher, Eduardo Garcia, Nazarian, Obernolte, Quirk, Reyes	

SUBJECT: Election results: risk-limiting audits.

SUMMARY: Requires certain county elections officials to conduct risk-limiting audits in lieu of conducting a one percent manual tally beginning March 8, 2022, as specified. Specifically, **this bill:**

- 1) Defines the following terms for the purposes of this bill:
 - a) "Risk-limiting audit" to mean a post-election process that involves hand-to-eye, human inspection of ballots and ensures that there is no more than a five percent chance that a full manual tally of all the ballots cast in the contest would show a different winner or winners than the winner or winners reported by the voting system. Provides that if this post-election process does lead to a full manual tally, the winner or winners according to the full manual tally replace the winner or winners as reported by the voting system if they differ.
 - b) "Ballot-level comparison audit" to mean a type of risk-limiting audit that involves both of the following steps:
 - i) An elections official uses an independent system to verify that the cast vote records created by the voting system or ballots created independent from the tally or ballot marking system yield the same election results as those reported by the voting system; and,
 - ii) An elections official compares some or all of the cast vote records to a hand-to-eye, human interpretation of voter markings from the corresponding ballot marked by the

voter or the voter verified paper audit trail, as defined under current law.

- c) "Cast vote record" to mean an auditable document or electronic record that purports to reflect the selections a voter made on a ballot. Provides that it lists the contests on the ballot and the voter's selections in each of those contests.
- 2) Permits an elections official conducting an election, commencing with the statewide primary election held on March 3, 2020, to conduct a risk-limiting audit in place of the one percent manual tally required under current law during the official canvass of any election in accordance with the provisions of this bill.
- 3) Requires an elections official conducting an election using a voting system that is purchased or partially purchased using state or federal funds on or after January 1, 2019, commencing with the statewide primary election held on March 8, 2022 and each election thereafter, to conduct a risk-limiting audit in place of the one percent manual tally.
- 4) Requires a risk-limiting audit to include all contests and measures on the ballot. Prohibits selections of ballots for the audit from occurring before the reporting of the results for the contests being audited. Requires the Secretary of State (SOS) to define in regulations the vote totals to be used in the comparison audit.
- 5) Provides that an elections official is in compliance with the provisions of this bill if the elections official conducts a ballot-level comparison audit with a five percent risk limit or a risk-limiting audit with a five percent risk limit using another method for conducting risk-limiting audits as approved by the SOS.
- 6) Requires the SOS, in consultation with recognized statistical experts, election verification and integrity stakeholders, voting system manufacturers, and local elections officials, to adopt regulations to implement and administer the provisions of this bill. Requires the regulations to do all of the following:
 - a) Require elections officials to establish appropriate audit boards to conduct the risk-limiting audits;
 - b) Establish criteria for public education on risk-limiting audits;
 - c) Establish procedures to ensure the security of the ballots, the selections of ballots to be inspected during each audit, and the rules governing cast vote records and other data involved in risk-limiting audits;
 - d) Establish the calculations and other methods to be used in the audit to determine whether or when the audit of any contest is required to include the examination of more ballots, and to establish calculations and methods to be used in such as escalation, and to determine whether and when the audit of each contest is complete; and,
 - e) Establish procedures and requirements for testing and disclosing the algorithms and source code of any software used by the SOS for the selection of ballots to be included when elections officials conduct risk-limiting audits under the provisions of this bill.

- 7) Requires a risk-limiting audit to be a public and observable process and requires an elections official conducting the election to provide at least a five-day public notice of the time and place of both the risk-limiting audit and the selection of ballots to be used when conducting the risk-limiting audit.
- 8) Requires an official conducting the risk-limiting audit to include a report on the results of the risk-limiting audit in the certification of the official canvass of the vote.
- 9) Makes the following findings and declarations:
 - a) Transparent, publicly observable auditing of election results is necessary to ensure effective election administration and justifiable public confidence in elections.
 - b) Risk-limiting audits provide efficient and cost-effective scientific quality verification of election results.
 - c) By definition, a risk-limiting audit strictly limits the probability that an incorrect electoral outcome will pass the audit without being corrected.

EXISTING LAW:

- 1) Requires an elections official to prepare a certified statement of the results of the election and submit it to the governing body within 30 days of the election.
- 2) Requires an elections official, during the official canvass of every election in which a voting system is used, to conduct a public manual tally of the ballots tabulated by those devices, including vote by mail (VBM) ballots, using either of the following methods:
 - a) A public manual tally of the ballots canvassed in the semifinal official canvass, including VBM ballots but not including provisional ballots, cast in one percent of the precincts chosen at random by the elections official, as specified; or,
 - b) A two-part public manual tally, which includes both of the following:
 - i) A public manual tally of the ballots canvassed in the semifinal official canvass, not including VBM or provisional ballots, cast in one percent of the precincts chosen at random by the elections official, as specified; and,
 - ii) A public manual tally of not less than one percent of the VBM ballots canvassed in the semifinal official canvass, as specified.
- 3) Requires an elections official to use either a random number generator or other method specified in regulations that shall be adopted by the SOS to randomly choose the initial precincts, batches of VBM ballots, or direct recording electronic voting machines subject to the public manual tally.
- 4) Prohibits an elections official from randomly choosing the initial precincts or selecting an additional precinct for the manual tally until after the close of the polls on election day.

- 5) Requires the manual tally to be a public process and requires an elections official conducting the election to provide at least a five-day public notice of the time and place of the manual tally and of the time and place of the selection of the precincts, batches, or direct recording electronic voting machines subject to the public manual tally before conducting the selection and tally.
- 6) Requires an elections official conducting the election to include a report on the results of the one percent manual tally in the certification of the official canvass of the vote. Requires the report to identify any discrepancies between the machine count and the manual tally and a description of how each of these discrepancies was resolved, as specified.
- 7) Requires the SOS to adopt and publish voting system standards and regulations governing the use of voting systems, as specified. Requires the standards to meet or exceed federal voluntary voting system guidelines set forth by the United States Election Assistance Commission (EAC) or its successor agency, as specified.
- 8) Authorizes a governing board, without formally adopting a voting system, to provide for the experimental use of a voting system in a pilot program, as specified, if the voting system complies with either of the following:
 - a) The voting system is certified or conditionally approved prior to its experimental use; or,
 - b) The voting system meets all of the following requirements:
 - i) Uses only software and firmware with disclosed source code, except for unmodified commercial off-the-shelf software and firmware;
 - ii) Meets the requirements set forth in the SOS's voting system standards and regulations governing the use of a voting system, as specified;
 - iii) Meets the requirements set forth in pilot program regulations adopted by the SOS pursuant to existing law; and,
 - iv) Implements risk-limiting audits, as specified.
- 9) Defines a "partial risk-limiting audit" to mean a procedure that guarantees a large minimum chance of a full manual tally of the votes cast on the pilot system if the electoral outcome is incorrect in part.
- 10) Defines a "risk-limiting audit" to mean a procedure that ensures a large, predetermined minimum chance of requiring a full manual tally whenever a full manual tally would show an electoral outcome that differs from the outcome reported by the voting system for the audited contest.
- 11) Prohibits the SOS from certifying or conditionally approving a voting system that cannot facilitate the conduct of a ballot level comparison risk-limiting audit. Provides that a voting system that is "noncompliant" is a voting system that cannot facilitate the conduct of a ballot level comparison risk-limiting audit. Authorizes the SOS, until January 1, 2021, to approve a proposed change or modification to a noncompliant voting system even if the voting system

will remain noncompliant after the change or modification. Provides that this provision shall become inoperative on January 1, 2021.

FISCAL EFFECT: Unknown

COMMENTS:

- 1) **Prior Committee Consideration of This Bill:** A related version of this bill was considered by this committee previously and approved on a 7-0 vote. Subsequent to the committee's approval of this bill, it was amended on the Assembly Floor to remove provisions that would have authorized counties to use ballot images, as defined, in place of ballots for risk-limiting audits and in the one percent manual tally, and would have repealed the one percent manual tally on March 5, 2024. Additionally the amendments change the date at which elections officials are required to conduct risk-limiting audits, as specified, and provide that an elections official is in compliance with the provisions of this bill if the elections official conducts a risk-limiting audit with a five percent risk limit, as specified. After the adoption of those amendments, this bill was re-referred to this committee for further consideration pursuant to Assembly Rule 77.2.
- 2) **Purpose of the Bill:** According to the author:

New voting systems and technologies are being developed to make it easier for voters to engage in the electoral process. As exciting as these developments are, we need to be sure we continue to protect against election fraud and prevent any potential hacking of our voting systems. It is important for California to update and modernize its election audit process. Risk limiting audits allow election officials to do their jobs more efficiency and transparently, allowing for voters to feel truly confident their vote was accounted for.
- 3) **One Percent Manual Tally:** After an election, election officials are required to complete the official canvass and certify election results to the SOS's office no later than 30 days after an election. As part of the official canvass, existing law requires elections officials to conduct a public manual tally of ballots cast in one percent of the precincts chosen at random in order to ensure that vote tabulation equipment is operating correctly before the final official canvass is completed. The Legislature established this process, also known as the one percent manual tally, in 1965, over 50 years ago. In California, in order to overturn official election results, existing law requires a recount of the ballots cast in the contest.
- 4) **What is a Risk-Limiting Audit?** According to risk-limiting audit experts, a risk-limiting audit is a method to ensure that at the end of the canvass, the hardware, software, and procedures used to tally votes found the real winners. Specifically, a risk-limiting audit involves a manual tally of randomly selected ballots that stops as soon as it is implausible that a full recount would alter the result. As long as it is statistically plausible that a full recount would overturn the result, the risk-limiting audit continues to examine more ballots. Risk-limiting audits determine precisely how much hand counting is necessary to confirm election results to a given level of confidence. The closer the contest, the more ballots one must examine to have strong evidence – because fewer errors can change the outcome. The higher the desired confidence the more ballots one must examine – because higher confidence requires more evidence. Risk-limiting audits, however, do not guarantee that the

electoral outcome is right, but they have a large chance of correcting the outcome if it is wrong.

Risk-limiting audits are highly adaptable. Experts state that risk-limiting audits can check simple plurality contests, multi-winner contests, measures requiring a super-majority, among others and can be conducted for any number of contests in a single election, often using a single sample for greater efficiency. Additionally, risk limiting audits can begin very soon after the election or later in the process, as long as time remains to correct any incorrect outcomes.

There are several varieties of risk-limiting audits and each has various benefits and requirements. Alternative methods of conducting a risk-limiting audit include comparison audits (such as a ballot-level audit) and ballot-polling audits. Ballot-polling audits examine randomly selected ballots until the human eye interpretation of the votes on those ballots gives sufficiently high statistical confidence that a full hand count would confirm the machine results. A ballot-polling audit only requires knowing the overall official result. It does not require precinct level results or more detailed results, which comparison audits require.

In contrast, a comparison audit, such as a ballot-level audit, compares a human interpretation of the votes on randomly selected ballots to the voting system's interpretation of the votes on those ballots. A ballot-level comparison audit entails matching a physical ballot with the voting system interpretation of that ballot (typically known as a cast vote record). A comparison audit continues until there is sufficiently high statistical confidence that a full hand count would agree with the machine results, despite any differences between the audit's manual interpretation of the ballots and the voting system's interpretation of those ballots.

Comparison audits require detailed information from the voting system. They require the voting system to report how it interpreted each physical ballot, in a way that allows the interpretation of any particular ballot to be checked. In other words, it offers a way to trace a cast vote record back to the corresponding ballot. Some voting systems however, can only report tallies for large groups of ballots, such as precincts, and are unable to record cast vote records. When a comparison audit is feasible, a comparison audit generally requires examining fewer ballots than a ballot-polling audit. Both ballot-polling and comparison audits require a ballot manifest that says how many ballots there are in all and how they are stored, e.g., that lists identifiable groups of ballots and says how many there are in each group.

This bill provides that an elections official is in compliance with the provisions of this bill if the elections official conducts a ballot-level comparison audit with a five percent risk limit or a risk-limiting audit with a five percent risk limit using another method for conducting risk-limiting audits that has been approved by the SOS.

- 5) **Timing of the Risk-Limiting Audit:** As mentioned above, this bill requires a risk-limiting audit to include all contests and measures on the ballot, prohibits selections of the ballots for the audit from occurring before the reporting of the results for the contests being audited, and requires the SOS to define in regulations the vote totals to be used in the comparison audit. It is unclear, however, when a risk-limiting audit will begin. Will the risk-limiting audit begin after *all* vote totals have been reported, including VBM ballot challenges, provisional ballots,

and adjudicated ballots or will the risk-limiting audit begin after *most* ballots are reported as long as it includes a substantive number of ballots from all ballot categories?

Under current law, elections officials have 30 days to process, count, and report election results. Some counties are able to finish this task before the 30 days run out however, other larger counties usually use all 30 days to finish processing and counting ballots. Consequently, it may not be operationally feasible for a county to be required to conduct a risk-limiting audit after *all* ballots have been reported.

- 6) **Risk-Limiting Audit Report & Suggested Amendment:** This bill requires an elections official conducting a risk-limiting audit to include a report on the results of the risk-limiting audit in the certification of the official canvass of the vote. This bill does not, however, provide any detail as to what is required to be reported. The committee may wish to consider an amendment to require the regulations adopted by the SOS pursuant to this bill to include requirements for the information to be contained in the report.
- 7) **Risk-Limiting Audit Pilot Program and Previous Legislation:** As mentioned above, California's one percent manual tally law requires all county elections officials to randomly select one percent of all precincts after each election and hand count all of the votes on all of the ballots from those precincts. In a regular election year, counties hand count tens of thousands of ballots as part of the one percent manual tally, yet doing so provides little or no statistical evidence that the machine tally found the true winner for each contest on the ballot – and does nothing to correct any erroneous electoral outcomes.

The SOS received a \$230,000 grant from the EAC under Section 271 of the federal Help America Vote Act to conduct a two-year election audit pilot program during 2011-2012 to test new, statistically sound, risk-limiting election audit methods.

The SOS partnered with the University of California for the pilot program to allow Berkeley Statistics Professor Philip B. Stark (Stark) – who originally developed the audit methods to be used in the pilot program – to serve as lead researcher. The EAC grant helped fund the following:

- 1) A contract with the University of California (UC) to allow Stark to serve as lead researcher for the pilot program;
- 2) Partnerships with a mix of thirteen urban and rural counties to participate in the program, which included reimbursement of county elections office costs of up to \$5,000 per county for conducting the audits with the help of county staff and facilities;
- 3) Development and testing of risk-limiting audit methods following elections in 2011 and 2012, by which fourteen audits were undertaken, eleven audits were completed successfully, and three audits following the June 2012 election were not completed due to time constraints between the primary and general elections in 2012;
- 4) Development of web-based tools and procedures for elections officials to use in conducting future audits and refinement of Stark's statistical methods for conducting risk-limiting audits based on the experiences gained in the pilots. The web-based

- tools allow elections officials to determine initial sample size, select ballots at random in a transparent and reproducible way, determine whether escalation of the audit is necessary based on initial audit results, and report final audit results to the public;
- 5) Reporting and analysis of the cost and effectiveness of risk-limiting post-election audits compared to the current statutory one percent manual tally law; and,
 - 6) Development of recommendations for modifications to current voting systems to make voting systems more readily auditable and recommendations for legislation to reform current election audit law.

Additionally, in 2010, the Legislature passed and the Governor signed AB 2023 (Saldaña), Chapter 122, Statutes of 2010, which authorized the SOS to conduct the Post-Election Risk-Limiting Audit Pilot Program.

According to the 2012 final report to the EAC, twenty counties initially volunteered to participate in the program. Ultimately, 14 pilot audits were undertaken in 13 counties and successfully completed in 11 California counties following elections held during 2011–2012. Eight of the audits were conducted following small local elections held in 2011. Two audits were conducted in small counties, Madera and Napa, following the June 2012 Statewide Presidential Primary Election. Four multi-contest audits were started in Marin, Orange, Santa Cruz, and Yolo counties in July 2012 but had to be terminated before completion due to technical difficulties and time constraints between the primary and general election. The multi-contest audit attempted in Orange County faced an additional challenge: a voter-requested recount in one of the contests on the June 2012 ballot which took precedence over the pilot audit. The Marin County audit was ultimately successfully completed in February 2013.

The 11 counties that successfully completed their audits were able to confirm the official election results by reviewing a relatively small number of individual ballots (e.g., a few dozen to a few hundred ballots). By contrast, the statutorily-mandated one percent manual tally conducted in the same elections provided little statistical evidence that the election outcomes were correctly tallied by the voting system, despite requiring substantially more ballots to be hand-counted and examined.

- 8) **Voting System Pilot Projects and Risk-Limiting Audits:** In 2013, the Legislature passed and the Governor signed SB 360 (Padilla), Chapter 602, Statutes of 2013, which significantly overhauled and reorganized procedures and criteria for the certification and approval of a voting system for use in California elections. One of major policy changes in SB 360 was that it changed California's voting system review process and removed the federal pre-certification or qualification requirement. Specifically, SB 360 allowed a person, corporation or county owning or having interest in the sale or acquisition of a voting system to bypass federal review and approval and instead only seek certification or conditional approval from the SOS.

Additionally, SB 360 established a pilot process that authorizes a governing board, without formally adopting a voting system, to provide for the experimental use of a voting system in a pilot program, as specified, if the voting system complies with certain conditions. One of those conditions required the voting system to have the capability to implement risk-limiting

audits, as specified. SB 360 defined “partial risk-limiting audit” to mean a procedure that guarantees a large minimum chance of a full manual tally of the votes cast on the pilot system if the electoral outcome is incorrect in part and defined “risk-limiting audit” to mean a procedure that ensures a large, predetermined minimum chance of requiring a full manual tally whenever a full manual tally would show an electoral outcome that differs from the outcome reported by the voting system for the audited contest.

- 9) **Colorado Statewide Risk-Limiting Audit:** In 2009, the Colorado General Assembly approved the use of risk-limiting audits and required a statewide risk-limiting audit by the 2014 general election. Following the legislature’s mandate, in 2010 the SOS tested some elements of a risk-limiting audit in Douglas County with the assistance of Colorado State University. In addition to the SOS’s efforts, the Clerk and Recorder of Boulder County began independently implementing risk-limiting audit procedures for its post-election audit.

In 2011, the SOS applied for and received a grant from the EAC to conduct a two-year post-election audit pilot program. The need for a pilot program in Colorado was demonstrated by the challenge of moving from the traditional post-election audit to a risk-limiting audit that could be implemented in large or small jurisdictions.

In May of 2013, the Colorado General Assembly passed additional legislation that extended the deadline to implement a statewide risk-limiting audit from the 2014 General Election to the 2017 Coordinated Election.

Last November, Colorado became the first state in the nation to conduct a statewide risk-limiting audit.

- 10) **Governor's Budget and New Voting Machines:** The Governor's 2018-2019 budget proposes \$134 million in one-time General Fund spending to purchase new equipment for county voting systems. This equipment includes hardware, software, and initial licensing to replace existing systems and technology. Under the proposal, counties would provide a dollar-for-dollar match to receive the state funding.
- 11) **Federal Election Security Funding:** On March 23, 2018, President Trump signed the Consolidated Appropriations Act of 2018 (Act)—the omnibus spending bill for the federal fiscal year ending on September 30, 2018. Among other provisions, the Act provided \$380 million in HAVA funding to the EAC to make payments to states for activities to improve the administration of elections for Federal office, including to enhance election technology and make election security improvements. States that receive federal funds are required to provide a match of five percent of the funds received within two years of receiving the federal funds.

According to information from the EAC, California’s share of the federal funding is \$34,558,876, and the state’s required five percent match totals \$1,727,944. The EAC notes that a joint explanatory statement prepared by Congress to indicate congressional intent on how the funds may be spent specifies that states may use the funds to replace electronic voting equipment that does not have a paper trail; to implement a post-election audit system; to upgrade election-related computer systems to address cyber vulnerabilities; to facilitate cybersecurity training for state and local election officials; to implement established cybersecurity best practices; and to fund other activities that will improve the security of

elections for federal office.

- 12) **Related Legislation:** AB 668 (Gonzalez-Fletcher), would place a \$450 million bond act on the June 5, 2018, statewide primary election ballot and authorizes the use of those bond funds for the purchase of specified voting equipment and related technology. AB 668 is pending on the inactive file on the Senate Floor.
- 13) **Previous Legislation:** AB 840 (Quirk), Chapter 820, Statutes of 2017, specified that the one percent manual tally of ballots cast are those canvassed during the semifinal official canvass and does not include provisional ballots. Additionally, AB 840 permitted an elections official, when conducting the one percent manual tally, to select additional precincts, which may include VBM and provisional ballots.

AB 1154 (Nazarian), Chapter 88, Statutes of 2017, prohibits elections officials from randomly choosing the initial precincts or selecting an additional precinct for the one percent manual tally until after the close of the polls on election day.

REGISTERED SUPPORT / OPPOSITION:

Support

California Association of Clerks and Election Officials (sponsor)
League of Women Voters of California (prior version)
Secretary of State Alex Padilla (prior version)

Opposition

None on file.

Analysis Prepared by: Nichole Becker / E. & R. / (916) 319-2094