

**From:** Neal McBurnett  
**To:** [SoS Rulemaking](#)  
**Cc:** [Dwight Shellman](#)  
**Subject:** McBurnett comments with paper references for 2018-03-09 on election rulemaking  
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As promised in my oral testimony at last week's hearing, here are some references.

There are two recent papers describing important new methods that are necessary for a variety of multi-county risk-limiting audits, which should be referenced in 25.2.2(j):

(4) Mark Lindeman, Neal McBurnett, Kellie Ottoboni, and Philip B. Stark, "Next Steps for the Colorado Risk-Limiting Audit (CORLA) Program", (March 1, 2018), at <https://arxiv.org/abs/1803.00698>

(5) Ronald L. Rivest, "Bayesian Tabulation Audits: Explained and Extended", (Feb. 11, 2018), at <https://arxiv.org/abs/1801.00528>

The former covers multi-county auditing in a variety of ways, including hybrids of comparison and ballot-polling audits, and variable-size batch auditing.

Since the Bayesian methods described in the latter are less well understood, they should probably only be used to deal with the stickiest, most challenging, difficult and potentially expensive of multi-county auditing situations. E.g. if based on the secretary's discretion a Bayes approach could be used as an alternative for those difficult situations rather than bailing to the old, highly dysfunctional and ineffective "Random audit", it would be a big win overall. They would also be especially valuable for additional efficiency and flexibility when the available samples are unevenly distributed across the counties.

Thank you,

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