

Interim Description of Bitsy Operation

By Jim August, a very concerned Boulder County Mail in Ballot Voter, 6-4-13

Preface

1. This is an in-process report on what has been discovered so far about the Bell & Howell (B&H) "Vote By Mail" (VBM) system used to process most (why not all?) Mail Ballot Envelopes (**MBE**) returned by USPS or via "Drop Boxes" for the 2012 General Election.
2. There are other issues with Boulder County Elections but this report only focuses on the many problems related to a specific Bell & Howell VBM system.
3. "Bitsy" is the nickname given by the Boulder County staff to the "Bell & Howell Criterion Elevate" system used by Boulder County to process MBEs. This nickname may be based on the perception that this B&H system had a smaller foot print than its competitors. The Bitsy name will be used throughout this report for reasons of brevity. Note that **MBEs contain live ballots** during the multiple stages of Bitsy MBE processing.
4. This small size appeared to be a major requirement for the Clerk's office when procuring this system. In my investigation I have not found one single meaningful requirement stated except that the system should have a small footprint. I would expect at least *some* form of explicit performance requirements.
5. In general the quality of Bitsy-related information provided by Boulder County was way below what I would expect for election accounting.
6. This report is based in a large part on the copies of the Bitsy Batch Reports generated by Bitsy. See Appendix information at the end of this report.
7. I requested copies of specifications and detailed process descriptions, and was told by County staff that they did not exist.
8. This model and analysis were developed based on my personal observations and limited information obtained from Boulder County with CORA requests. There are still a lot of unknowns and questions that need to be answered.

Tabulation of Batch Reports

1. As a result of 3 major CORA requests I received the following 3 sets of documents.
 - a. The first document was a 21 page "VBM Batch Tracking" manually maintained log
 - i. This log is very sloppy and incomplete and almost impossible to follow if it is all you have. See a sample copy included in the appendix.
 - ii. The basis for knowing that this document existed was that I personally observed entries being made in this log when I was a watcher. There was no information openly provided by the County that even suggested this log existed. It took two CORA requests to get a complete copy.
 - iii. See Internet links 1 & 2 near the end of this report.
 - b. The second set of documents were copies of Volume 1 of the Bitsy generated batch reports for the first part of entries in the VBM log mentioned above.
 - i. I observed this volume being used by staff in the security video for 10-26-2012. Again there was no information openly provided by the County that even suggested these reports existed.

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- ii. This volume covered from batch 1 on 10-18-2012 through batch 204 on 10-31-2012
 - iii. See this Internet link for **complete, downloadable documentation** of my efforts: <http://tinyurl.com/l4q4hbd>
 - c. The third set of documents were copies of Volume 2 of the Bitsy generated batch reports for the last part of entries in the VBM log mentioned above.
 - i. This was the result of an addition CORA request when I found that Volume 1 was incomplete.
 - ii. This covered from batch 205 on 11-1-2012 through batch 364 on 11-7-2012.
 - iii. See Internet link above.
2. I then created a spreadsheet that contains selected information on all 340 batches.
 - a. Sheet 1 of the spreadsheet summarizes key information about the “First Pass” reports.
 - b. Sheet 2 of the spreadsheet summarizes key information about the “RePass” (second pass) reports.
 - c. I did not enter any data for the 3rd pass, which is titled “Fine Sort” other than identify which batches were “FS”
 - d. See Internet link above.

Outline of Bitsy Mail Ballot Envelope Processing

1. **The general steps of processing Vote By Mail (VBM) envelopes is as follows**
 - a. Receive and prepare envelopes for Bitsy
 - b. Daily, down load voter information from Colorado SCORE database.
 - c. Perform Bitsy “First Pass” on VBMs, *containing live ballots*.
 - d. Perform manual “Signature Verification”
 - e. Perform Bitsy “Second Pass on envelopes
 - f. Perform Bitsy “Fine Sort” on envelopes
 - g. Daily, upload new ballot status information to SCORE
 - h. Manually and automatically process “Exception” envelopes
 - i. Open envelopes
 - j. Remove Ballots
 - k. Scan ballots with Hart system
 - l. Resolve Voter intent on questionable ballots
 - m. Count votes with Hart system
 - n. Tally all votes.
2. **More detailed steps of processing**
 - a. Receive and prepare envelopes for Bitsy
 - i. Receive by USPS or from drop boxes
 - ii. Manually remove tabs over signature
 - iii. Manually remove junk mail
 - iv. Manually remove “Undeliverable” envelopes

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- v. Manually arrange with all envelopes facing same direction and stack in groups of about 400 per mail tray.
- b. Daily, download voter information from SCORE
- c. Perform Bitsy "First Pass" on envelopes
 - i. Envelopes are feed into Bitsy in groups of about 800 or less
 - ii. Bitsy checks for feed of multiple envelopes. **Not sure how these are processed.**
 - iii. Bitsy checks envelope thickness for 0 or multiple ballots. **Not sure how these are processed.**
 - iv. Bitsy scans image of envelope.
 - v. Bitsy extracts bar code from image. It is assumed that barcode is for Voter ID
 - vi. Identifies voter from barcode
 - vii. Looks up voter in downloaded SCORE database
 - viii. Bitsy extracts signature image
 - ix. Performs Automatic Signature Verification (ASV)
 - x. Bitsy prints processed date on envelope
 - xi. Bitsy sorts and counts envelopes on First pass as follows
 - a) Bin 1, rejects, may be those that barcode could not be read correctly
 - b) Bin 2, appears not to be used
 - c) Bin 3, accumulates those in the following categories
 - 1. Administrative action
 - 2. ID required
 - 3. ID Flagged
 - 4. No Signature
 - 5. No Affidavit Signature
 - d) Bin 4, **VIP. Not sure what this means but there were 190 of them.** Are these "Confidential Voters"?
 - e) Bin 5, No Signature Match by ASV system (**about 60% go here**)
 - f) Bin 6, ASV pass for Districts 1 – 12. Called group 6
 - g) Bin 7, ASV pass for Districts 13 – 24 Called group 7
 - h) Bin 8, ASV pass for Districts 25 - 35 Called group 8
 - i) Bin 9, ASV pass for Districts 36 – 46 Called group 9
 - j) "Oops bin", for "Out of Scheme". Not sure what these are
 - k) Bins 10-16 not used on first pass?
- d. Perform manual "Signature Verification" using Bell & Howell software
 - a. Perform manual "Signature Verification" by team of two judges using Bell & Howell's "Side by Side" (SBS) system with signature pairs for 4 voters on screen at a time. All envelopes from First Pass are checked except the "Rejected" and "Out of Scope"
 - b. Manually verify by a team of two higher-level (?) judges those signatures that were flagged in previous step.
- e. Perform Bitsy "Second Pass" on envelopes

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- i. Basically same as First Pass except the ASV seems to be turned off and those signatures that were manually rejected should now be sorted to bin 5. (About 4% go here)
- ii. **Only about 44% of first pass envelopes are reported as being fed into second pass.**
- iii. Letters are generated and sent to all voters that had envelopes that were not successfully sorted into bins 6-9

- f. Perform Bitsy “Fine Sort” on envelopes
 - i. Sorts each group from second pass into 16 districts.
 - ii. No report of any that are rejected or sent to Oops bin

- g. Daily, upload new ballot status information to SCORE

- h. Manually and automatically process “Exception” envelopes
 - i. The steps performed here are varied based on reason for exception

- i. Open envelopes
 - i. A machine is used to slit open the bottom of each envelope

- j. Remove Ballots
 - i. Manually performed by 2 people.
 - ii. Set aside those that are wrong ballot style or have different ballot style on envelope and ballot

- k. Scan ballots with Hart system

- l. Interpret votes with Hart system

- m. Resolve vote intent as needed with Hart system

- n. Tally all votes.

Questions

1. When Bitsy scans envelope, does it scan only one or both sides?
2. What are the processing steps for the “Rejected” envelopes?
3. What are the processing steps for the “Out of Scheme” envelopes?
4. What are the processing steps for the questionable and other flagged envelopes?
5. How is threshold or sensitivity set for Automatic Signature Verification?
6. How is ASV flag overridden for SBS manual Signature Verification?
7. In “Fine Sort” pass, what goes into bins 1-5 and where is that reported?
8. How are the cured envelopes processed? Do they get mixed back in with new envelopes or are they processed as a separate batch or manually?

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9. Are there daily Bitsy tracking logs?

Points of interest

1. There doesn't seem to be any accountability of mail ballot envelopes throughout the system.
 - a. How many were received each day from USPS. Did USPS have a count?
 - b. How many were in each drop box?
 - c. Was the correct number of drop box processed?
 - d. What was the chain of custody?
 - e. Was there any daily or activity log?
 - f. Did Bitsy make the first count of those received? But Bitsy has been proven not able to provide an accurate count? **This is the first thing I observed as a watcher that got me started in this investigation.**
2. There were 364 batches processed by Bitsy per the logs
 - a. **44 (12%) Batches were VOID.** Most without any report or reason given. I tried to get copies of some of the void reports and was told "No such document exists" (I think the information should still be in Bitsy's database). **Or have election records been destroyed which I believe is against the law?**
 - b. 194 of the batches were First Pass
 - c. 84 of the batches were Repass (the second pass) but 22 (26%) had no reports or data.
 - d. 38 batches were Fine Sort
 - e. 4 Batches were other types or unknown
3. Of those that were able to be read on first pass, **over 64% were flagged as "No Signature Match" by the ASV software.** If ASV was inactive I would expect either 0% or 100% to have been flagged. **This is proof that the ASV was active during the First Pass. This is contrary to what we were told by the Clerk.**
4. In the Repass phase the manual signature reject rate was about 4.3%. But in the "Real Time Ballot Return Report", Report #BP-009, has a total Signature Discrepancy reject rate of 0.26% (344 total rejected out of 130,094) for all returned by mail ballots.
5. **So is the signature discrepancy reject rate 64%, or 4.3%, or 0.26%?**
6. The BP-009 report states that **130,094 ballots were returned but 131,559 were fed into Bitsy in the First Pass". Why were more processed by Bitsy than were received? Or is that just more Bitsy counting errors?**
7. The First Pass reports have the following forms of rejects
 - a. 2,353 "Rejects" that the bar code could not be read or some other reason of not locating the voter in SCORE.
 - b. 167 envelopes with no signatures
 - c. 1,550 ballots that needed ID to be provided

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- d. 190 VIP flagged envelopes. **What are VIP envelopes anyway?**
 - e. 685 envelopes that were out of scheme such as “Primary” ballots being return for the General Election and who knows what else.
 - f. That’s a total of 4,945 rejected for one reason or another in the First Pass alone.
 - g. **Yet the bottom line was that only 875 out of 130,094 were rejected for the entire election**
8. Of the 131,559 submitted to first pass 128,521 were passed onto “Side by Side” manual signature verification using Bitsy software. Only those “rejected” or “Out of Scheme” were not passed on to manual signature verification.
9. The RePass (Second Pass) reports have the following forms of rejects
- a. **Remember that 44% of the envelopes bypassed this pass.**
 - b. 413 “Rejects” that the bar code could not be read or some other reason of not locating the voter in SCORE. **Why were there any that were not caught in first pass?**
 - c. 158 envelopes with no signatures. **Were these the uncured ones?**
 - d. 302 ballots that needed ID to be provided. **Were these the uncured ones?**
 - e. 14 VIP flagged envelopes. **Why were there any that were not caught in first pass?**
 - f. 16 envelopes that were out of scheme such as “Primary” ballots being return for the General Election. **Why were there any that were not caught in first pass?**
 - g. 2,515 were rejected in the Repass that had a manual signature rejection. **That’s about 4% of those processed, which sounds about right.**
 - h. That’s a total of 3,418 rejected for one reason or another in the RePass.
 - i. Yet the bottom line was that only 875 out of 130,094 were reported by the Clerk rejected for the entire election
10. The Fine Sort pass (third pass) generates a report
- a. This report only has the batch ID number, the report time and the accumulated totals for each district. However checking the accumulated number by district can not be verified at this time since there is: (1) No report of how many were fed into the Fine Sort pass, nor (2) How many were rejected at this pass. **This report is grossly incomplete.**
11. Comparison of data from other reports
- a. Report “BP-009” titled “Real Time Ballot Return Report” dated 11/20/2012 at 07:22 PM
 - i. Shows 130,094 were returned with 129,219 accepted, 875 were rejected and 3,275 were undeliverable. **This is significantly different from Bitsy reports.**
 - b. Report “BP-012B” titled “Ballot Reconciliation Report” dated 11/20/2013 @ 07:24 PM” reported 876 rejected for the following reasons for “Absentee / Mail Ballots”
 - i. 6 - Rejected-Voted more than one ballot

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- ii. 1 - Rejected-Voided / Not Voted
 - iii. 1 - Rejected-Other
 - iv. 3 - Rejected-Empty Envelope
 - v. 3 - Rejected-Administrative Action
 - vi. 70 - Rejected-No Signature
 - vii. 73 - Rejected-Verification Affidavit not complete
 - viii. 344 - Rejected-Signature Discrepancy
 - ix. 349 - Rejected-ID required - Not provided
12. There seems to be an outstanding cure rate for the various rejects throughout the process.
- a. In the first pass there were 4,945 rejects not counting the 65 % flagged by automatic signature discrepancy. However it appears that 2,007 of these rejects were fed to manual signature verification followed by Bitsy second pass. **Why?**
 - b. In the second pass (RePass) there were 3,418 rejects which now includes those manually flagged for signature discrepancies. **Yet 44% did not go through the second pass**
 - c. It appears that 6,356 rejects were pulled out on first and second pass with problems that needed to be cured.
 - d. However the final total rejected was 875 or 876 depending on which report is used. That means that over 86% were cured but I have been told in the past that only about half were cured. So was this much higher cure rate reliable?

Suggestions:

- 1. There should be a 100% audit of the entire “cure” process.
- 2. There should be an in depth audit of the Mail Ballot Envelope processing.
- 3. There should be a great improvement in the creditability of all reports
- 4. Accurate data should be collected and reports should be generated for every step in the process
- 5. The Automatic Signature Verification (ASV) system should NOT be used until it can be certified by an independent agency to have an error rate of less than 1 per 500,000 as required by HAVA.
- 6. There should be detailed procedures for each step in the processing
- 7. All procedures should be available to be review by the public.
- 8. A detailed flow diagram should be developed and provided to the public. For example diagram provide by the Clerk for mail in ballot processing only had the following blocks.
 - i. Receive, track and Stage
 - ii. Sort (**Bitsy involved**)
 - iii. Verify Signatures (**Bitsy involved**)
 - iv. Open and Separate
 - v. Scan
 - vi. Resolve for Voter Intent
 - vii. Record CVR

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Summary

There were about 130,000 mail ballot envelopes received by the County during the 2012 General Election and then processed with Bitsy.

Based on the findings in my investigation about 70,000 Ballot envelopes were not searched and removed for signature discrepancies. **If the real signature reject rate is about 4% then does it mean that about 2,800 envelopes were falsely accepted by not being sorted out in the second pass? That is Fraud!**

There are a lot of holes and major discrepancies in the accounting of envelopes as they move through the process. These gaps and discrepancies leave open to question the integrity of the entire Election. It is believed that it may be next to impossible to provide traceability of all envelopes through the entire Bitsy process.

There is no visible evidence that the Boulder County Clerk's office has made any effort to correct any of these problems even after multiple formal complaints. The only apparent action has been various official statements given over the last 6 months *'that they were investigating the performance.'* So what can we expect for our next election?

The following is based on my analysis using various reports provided by the Clerk's office.

131,517 entered the First Pass

128,493 entered Manual Signature Verification

58,226 entered the Second Pass, **Why so few here?**

54,778 came out Second Pass,

Yet 125,106 came out of Fine Sort to be opened. **Where did 70,328 MBEs reappear from?**

But 130,252 were counted. **Why were 5,146 more counted than came out of "Fine Sort"?**

Is it really "Election Fraud" or is it just "Incompetency" or was it the defective Bitsy? If it is all blamed on Bitsy problems, then it would be Fraud to ever use that system again.

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Links to various data and other documents

Links to the complete, *downloadable documentation* of Bitsy Report and Appendix files mentioned in the pages above are at: <http://tinyurl.com/l4q4hbd>

See separate PDF file for the following Appendices

1. Top View diagram of envelope flow through Bitsy,
2. Flow diagram of mail ballot envelope processing using Bitsy
3. Sample page of Vote By Mail manual Log
4. Sample "First Pass" report
5. Sample of "Repass" report
6. Copy of final "Fine Sort" report
7. Copy of page 1 of "Cumulative Report"
8. Report BP-009, Real Time Ballot Return Report
9. Report BP-012B, Ballot Reconciliation Report

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BELL & HOWELL "BITSY"

Bitsy Picture for those that may not have seen the beast:

