The Facts

- PW and her two sons were asleep in PW's bed
- PW woke up to someone rubbing her hip/buttocks
- PW followed person out of her home
- Purse/wallet and Xbox were missing
- Front window was slightly open – suspected point of entry
- No eyewitness ID made

Forensic Evidence

- DNA swabs collected from:
  - Suspected point of entry—under the bottom sash
  - Front door interior door knob and deadbolt lock
  - PW's boxer shorts

- Finger and palm prints collected from:
  - Glass from suspected point of entry

Forensic “Results”

- Finger and palm prints – excluded client
- Y-STR – “Due to the complexity of the Y-STR results, this data is not interpretable.”
- DNA – “A male partial DNA profile was obtained from the swabs from underneath the POE window bottom sash at all loci except 3”
- Other DNA samples were considered mixtures; “no conclusions can be made”

I needed an expert.

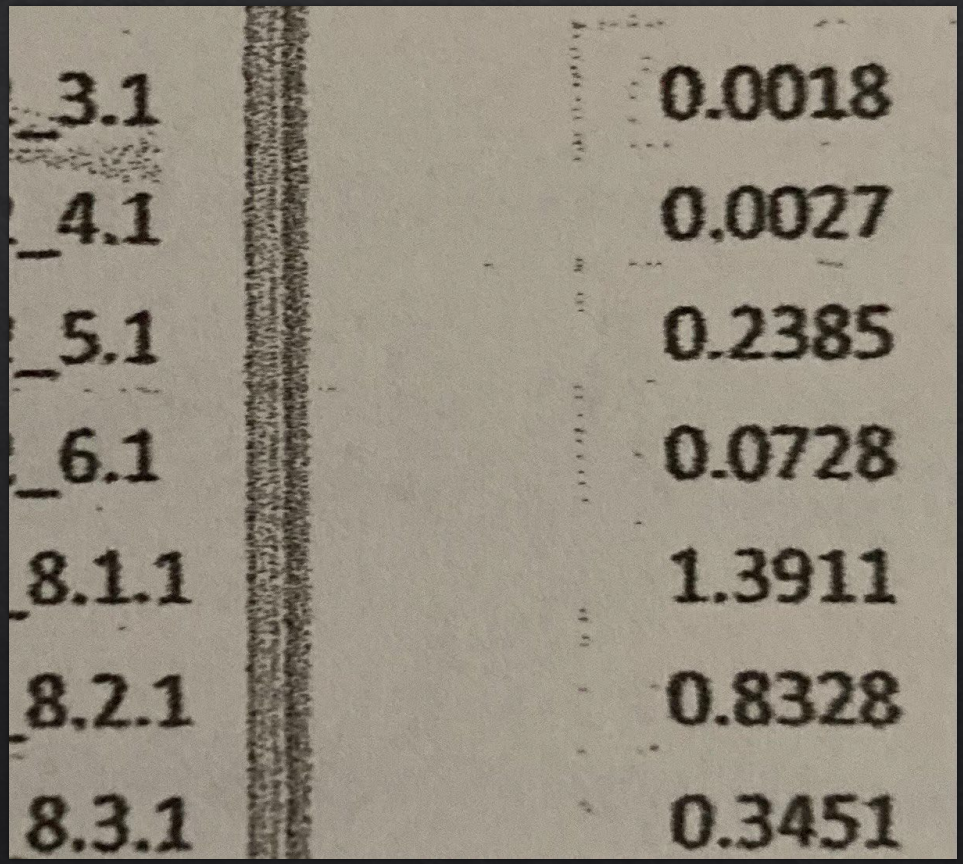
DNA Issues

Only focused on excluding the POE sample:

- Small Sample Size
- Thresholds (for amount of data that is present at each loci/location lab looks at—the size of the peaks)
- Partial Profile
- Possibly a Mixture

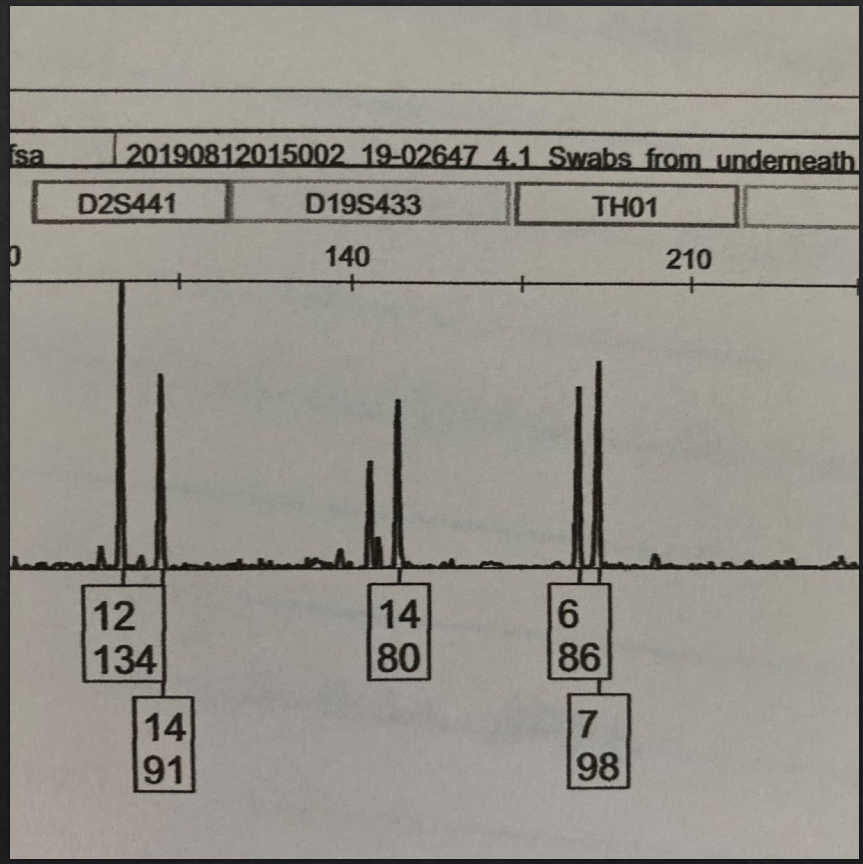
Small Sample Size

- 2.7 picograms per microliter
- CMPD Crime Lab Biology Dept SOP: “extreme caution should be taken if a partial profile is recovered from a sample with a concentration of less than 250 picograms per microliter”



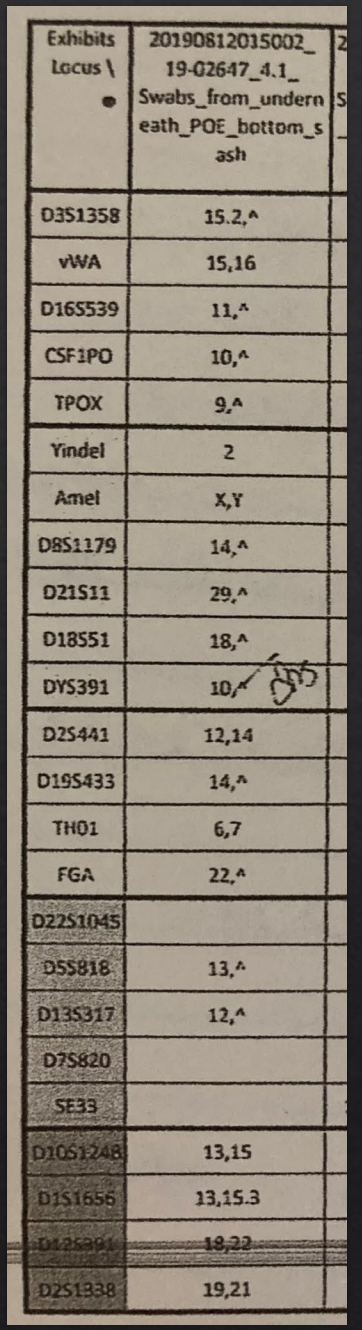
Thresholds

- Stochastic threshold was 350 RFU – the level below which there may not be enough info to reliably tell what was present at a particular locus/location; level where you may not be able to tell if an allele is present or not due to "stochastic effects" (missing info, etc.)
- Maximum RFU for swabs from POE window bottom sash was 297 (and many were well below that)
- A lot of info was missing = stochastic effects present



Partial Profile

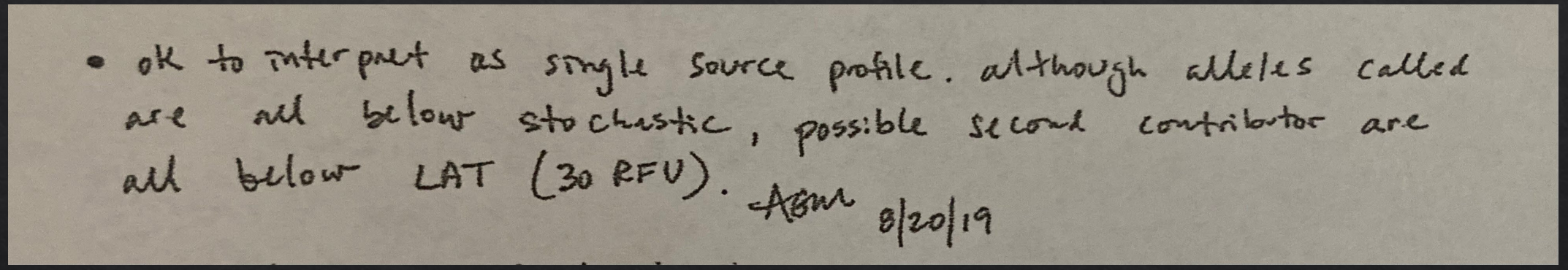
- Three alleles were completely missing
- 11 of the 21 loci looked at (the loci that are not sex-determinative) were missing information, and the info present was all below the stochastic threshold



Exhibits Locus \	20190812015002_19-02647_4.1_Swabs_from_underneath_POE_bottom_sash
D3S1358	15.2,^
vWA	15,16
D16S539	11,^
CSF1PO	10,^
TPOX	9,^
Yindel	2
Amel	X,Y
D8S1179	14,^
D21S11	29,^
D18S51	18,^
DYS391	10,^
D2S441	12,14
D19S433	14,^
TH01	6,7
FGA	22,^
D22S1045	
D5S818	13,^
D13S317	12,^
D7S820	
SE33	
D10S1248	13,15
D1S1656	13,15.3
D12S391	18,22
D2S1338	19,21

Possibly a Mixture

- Handwritten note on bench notes – technical leader made the call to consider it a single source profile even though there was a “possible second contributor”



Lower Analytical Threshold/LAT = RFU where allelic peaks can be reliably distinguished from non-allelic peak/stochastic effects

“If all the called alleles are below the stochastic threshold, and there are indications of a second contributor below the analytical threshold then the profile **will be uninterpretable and reported out as a minimal profile due to a lack of sufficient genetic data**. This is due to the knowledge of stochastic effects and the uncertainty of the peaks above the analytical threshold being from a single contributor.”

When to challenge?

- Pretrial
  - DA is on alert
  - Risk of Y-STR being reexamined
  - Have a better idea of what the jury will hear in trial
- Midtrial
  - Surprise the DA
  - Risk not being permitted a hearing
  - Unknowns in trial up to that point

- Denied a hearing mid-trial
- Denied an opportunity to make a proffer for the record
- Limited to cross examination of analyst and arguing to the jury in closing

Cross Examination and Closing

- DNA basics
- The relevant issues with the POE sample
  - Sample size compared to others that were collected
  - Went through each locus that was missing information
  - Went through the RFU value for each locus that had information
- Questioned the analyst on SOPs
- Highlighted how she deviated from the SOPs

Hindsight isn’t always 20/20