

January 6, 2020

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RE: Final Report: CFH1056524-0\_F1  
Gunshot Residue Analysis  
Case Number: 1179CR00444  
Subject: KIRKLAND, Tamik  
RJ Lee Group Work Order Number: CFH1056524-0

## INTRODUCTION

One article of clothing was received on December 19, 2019 from the Springfield Police Department for gunshot residue (GSR) analysis. Particle extraction samples were collected from the item at RJ Lee Group using adhesive stubs. The samples were identified as follows:

Client Sample ID	RJLG Sample Number
Black Sweatshirt	10494026
Black Sweatshirt, Right Sleeve PE	10494026A
Black Sweatshirt, Left Sleeve PE	10494026B
Black Sweatshirt, Right Side Pocket Interior PE	10494026C
Black Sweatshirt, Left Side Pocket Interior PE	10494026D

The particle extraction (PE) samples were carbon coated and then placed directly into the PSEM (PERSONAL SEM<sup>®</sup>) for analysis.

## SEM ANALYSIS

The samples were initially examined using manual microscopy to set run parameters and sample analysis area. They were then analyzed using an automated scanning electron microscope (PERSONAL SEM<sup>®</sup>) equipped with a full gunshot residue analysis package, including automated stage, backscattered electron (BSE) detector, energy dispersive x-ray spectrometer (EDS) and automated GSR analysis software.

The SEM analysis, on a particle-by-particle basis, retains the individual feature characteristics and can relate the presence of lead (Pb), antimony (Sb) and barium (Ba) to a single particle. When the instrument detects particles with the presence of Pb, Sb and/or Ba, it flags the particles as potential GSR. The images are stored along with the composition and coordinate data for relocation and confirmation by manual microscopy after the automated analysis is completed. A summary run sheet is printed with stored images and spectral data for relocation and confirmation applications. Representative flagged particles are relocated for compositional confirmation.

A particle is confirmed as being characteristic of GSR when Pb, Sb, and Ba, condense into a single particle, exhibiting the proper morphology and chemistry. Any particle, with these features, and a combination of two of the three elements (Pb/Sb and Pb/Ba or Sb/Ba) is classified as a two component particle. Any particle with one of the three elements (Pb, Sb, or Ba) that exhibits the proper morphology and chemistry is classified as a one component particle.

## ANALYTICAL RESULTS

A list of confirmed particles detected during the analysis is as follows:

Sample ID	RJLG Sample No.	Classification and Number of Particles
<sup>2</sup> Black Sweatshirt, Right Sleeve PE	10494026A	Total Particles Characteristic of GSR – 0 Total Two Component Particles – 1
Black Sweatshirt, Left Sleeve PE	10494026B	Total Particles Characteristic of GSR – 0 Total Two Component Particles – 0
Black Sweatshirt, Right Side Pocket Interior PE	10494026C	Total Particles Characteristic of GSR – 0 Total Two Component Particles – 0
Black Sweatshirt, Left Side Pocket Interior PE	10494026D	Total Particles Characteristic of GSR – 0 Total Two Component Particles – 0

<sup>1</sup>The element tin (Sn) was found in combination with a two component particle.

## CONCLUSIONS

### Black Sweatshirt

Right Sleeve PE (RJ Lee Group Sample Number 10494026A) contained a two component particle.

Left Sleeve PE (RJ Lee Group Sample Number 10494026B) contained no particles characteristic of GSR or two component particles.



Black Sweatshirt (Continued)

Right Side Pocket Interior PE (RJ Lee Group Sample Number 10494026C) contained no particles characteristic of GSR or two component particles.

Left Side Pocket Interior PE (RJ Lee Group Sample Number 10494026D) contained no particles characteristic of GSR or two component particles.

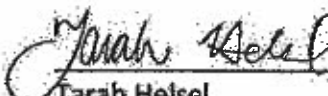
**QUALIFIERS**

GSR can be deposited by circumstances such as discharging a firearm, being in the proximity of a discharging firearm or coming into contact with a surface/object that has GSR on it.


Two component and one component particles are found in GSR but may also originate from other sources.

The absence of GSR does not eliminate the possibility that the subject handled or discharged a firearm.

*These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. The results contained in this report relate only to the items tested or to the sample(s) as received by the laboratory. The submitted items are being relinquished to Bode Technology.*

  
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