

December 7, 2021

Sergeant Stephen Yeich
Delaware State Police
Homicide Unit
P.O Box 430
Dover, DE 19903

RE: Final Report: CFH1064223-0_F1
Gunshot Residue Analysis
Case Number: 05-21-17247
Victims: JOHNSON, TFC • CANNON, TFC
Subject: ROOKS, Kelly E.
RJ Lee Group Work Order Number: CFH1064223-0

INTRODUCTION

One gunshot residue (GSR) kit containing a total of four samples was received on November 10, 2021 from the Delaware State Police for GSR analysis. The samples were identified as follows:

Client Sample ID	RJLG Sample Number
ROOKS, Right Back	10552505
ROOKS, Right Palm	10552506
ROOKS, Left Back	10552507
ROOKS, Left Palm	10552508

The samples were placed directly into the PSEM (PERSONAL SEM[®]) for analysis without any further preparation.

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[®]) 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.	Dates of Analysis	Classification and Number of Particles
ROOKS, Right Back	10552505	12/03-12/07/21	Total Particles Characteristic of GSR – 2 Total Two Component Particles – ≥ 10
ROOKS, Right Palm	10552506	12/03-12/07/21	Total Particles Characteristic of GSR – 0 Total Two Component Particles – ≥ 9
ROOKS, Left Back	10552507	12/03-12/07/21	Total Particles Characteristic of GSR – 0 Total Two Component Particles – ≥ 11
ROOKS, Left Palm	10552508	12/03-12/07/21	Total Particles Characteristic of GSR – 1 Total Two Component Particles – 7

CONCLUSIONS

ROOKS, Kelly E.

Right Back (RJ Lee Group Sample Number 10552505) contained particles characteristic of GSR and two component particles (see Figure 1).

Right Palm (RJ Lee Group Sample Number 10552506) contained two component particles.

Left Back (RJ Lee Group Sample Number 10552507) contained two component particles.

Left Palm (RJ Lee Group Sample Number 10552508) contained a particle characteristic of GSR and two component particles (see Figure 2).


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 returned to your office and are enclosed.



Jackson Dimalanta
Forensic Scientist
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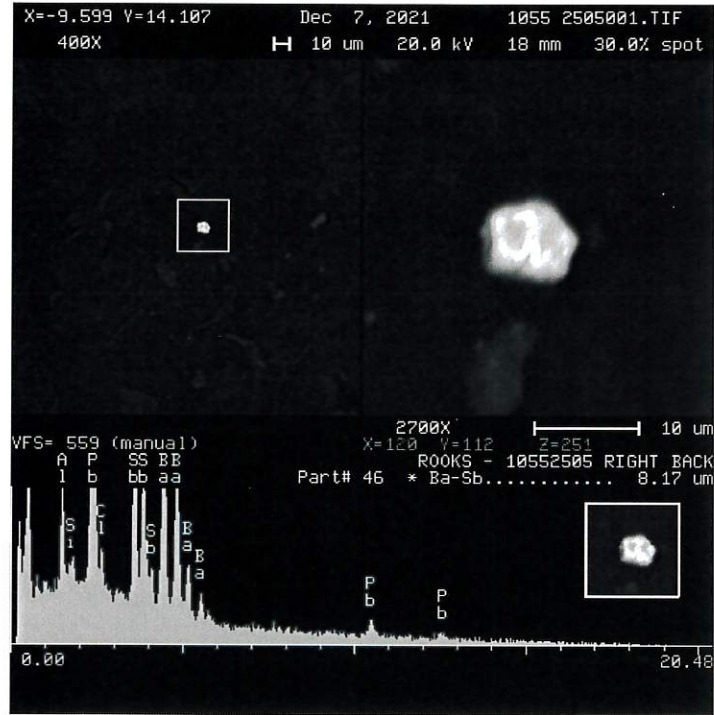
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Date



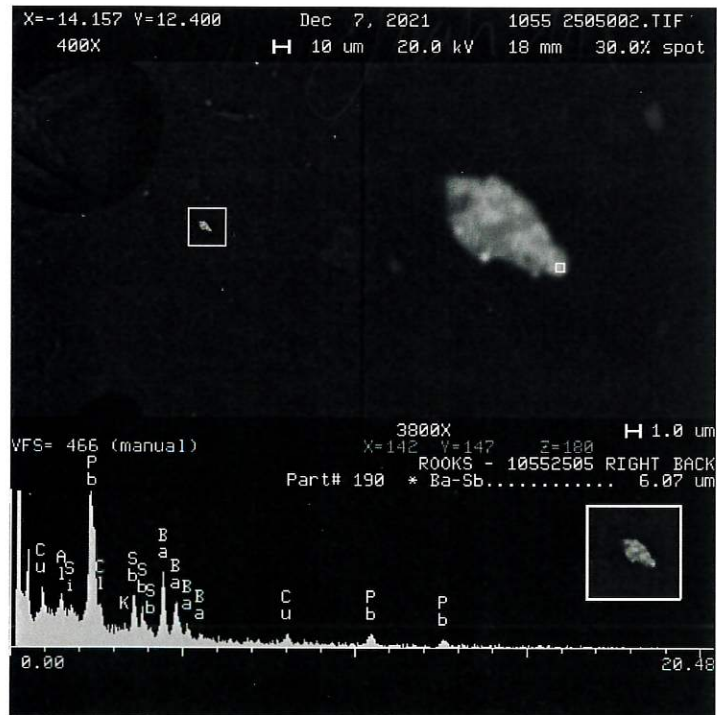
Tarah Helsel
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Technical Review

12/07/21
Date



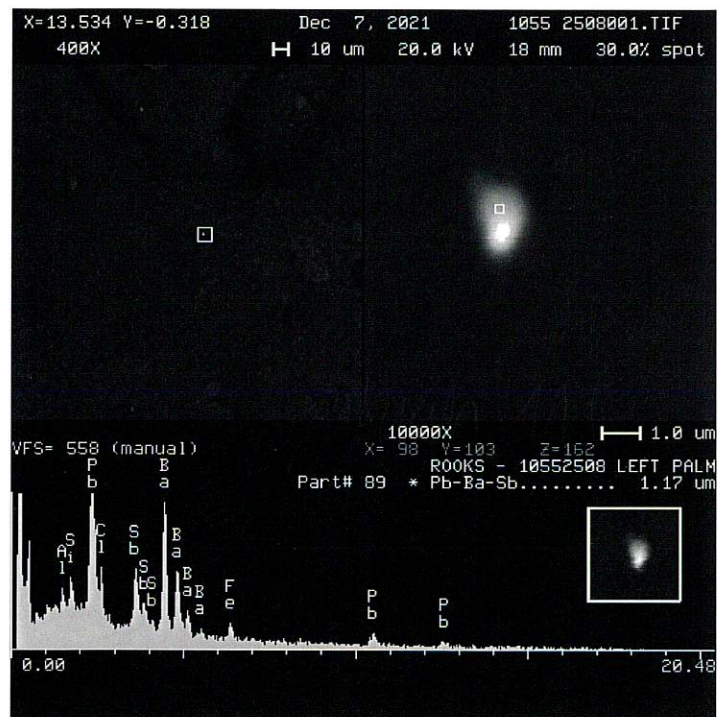


Pb-Sb-Ba Particle • TIFF Image No. 2505001



Pb-Sb-Ba Particle • TIFF Image No. 2505002

Figure 1. Backscattered electron images and elemental spectra of particles characteristic of GSR detected on ROOKS, Right Back (RJ Lee Group Sample No. 10552505).



Pb-Sb-Ba Particle • TIFF Image No. 2508001

Figure 2. Backscattered electron image and elemental spectrum of the particle characteristic of GSR detected on ROOKS, Left Palm (RJ Lee Group Sample No. 10552508).