October 26, 2015

Det. M/Sgt. Barry Mullins
City of Wilmington Police Department
300 North Walnut Street
Wilmington, DE 19801
302-576-3633

RE: Final Report (CFH1038481-0_F1)
Gunshot Residue Analysis
Case Number: 30-15-72585
Subject: MCDOLE, Jeremy
RJ Lee Group Work Order Number: CFH1038481-0

INTRODUCTION

One gunshot residue (GSR) kit containing a total of five samples and one item of clothing were received on October 7, 2015 from Det. M/Sgt. Barry Mullins of the City of Wilmington Police Department for GSR analysis. A particle extraction sample was collected from the item of clothing at RJ Lee Group using an adhesive stub. The samples were identified as follows:

Client Sample ID	RJLG Sample Number
BG-3 McDole Right Back	10343991
BG-3 McDole Right Palm	10343992
BG-3 McDole Left Back	10343993
BG-3 McDole Left Palm	10343994
BG-3 McDole Control	10343995
GN-7 Black Long Sleeve Shirt	10343996
GN-7 Black Long Sleeve Shirt Right Sleeve PE	10343996A

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

The particle extraction sample from the item of clothing was carbon coated and then placed directly into the PSEM (PERSONAL SEM®) 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®) 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
BG-3 McDole Right Back	10343991	Total Particles Characteristic of GSR– 0 Total Two Component Particles – 2
BG-3 McDole Right Palm	10343992	Total Particles Characteristic of GSR– 2 Total Two Component Particles – 4
BG-3 McDole Left Back	10343993	Total Particles Characteristic of GSR– 0 Total Two Component Particles – 4
BG-3 McDole Left Palm	10343994	Total Particles Characteristic of GSR– 0 Total Two Component Particles – 4
BG-3 McDole Control	10343995	No GSR related particles
GN-7 Black Long Sleeve Shirt Right Sleeve PE	10343996A	Total Particles Characteristic of GSR– 6 Total Two Component Particles – ≥ 27

CONCLUSIONS

BG-3 Jeremy McDole

Right Back (RJLG sample number 10343991) contained two component particles. One component particles were also detected.

Right Palm (RJLG sample number 10343992) contained particles characteristic of GSR and two component particles (see Figure 1). One component particles were also detected.

Left Back (RJLG sample number 10343993) contained two component particles. One component particles were also detected.

Left Palm (RJLG sample number 10343994) contained two component particles. One component particles were also detected.

Control (RJLG sample number 10343995) contained no GSR related particles.

GN-7 Black Long Sleeve Shirt

Right Sleeve PE (RJLG sample number 10343996A) contained particles characteristic of GSR and two component particles (see Figure 2). One component particles were also detected.

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 submitted items are being returned to your office and are enclosed.

10/26/15

Michael Gorski
Forensic Scientist
Forensic Science Department

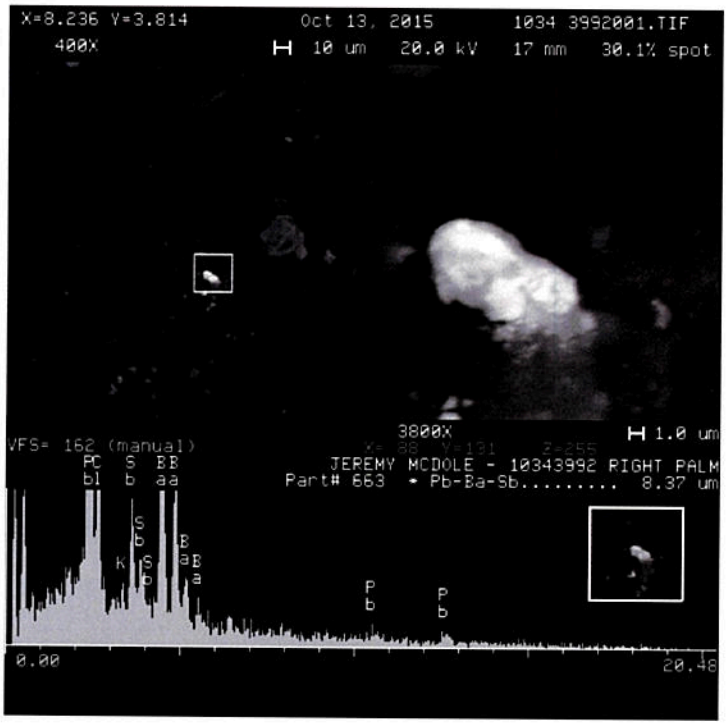
Date

10/26/15

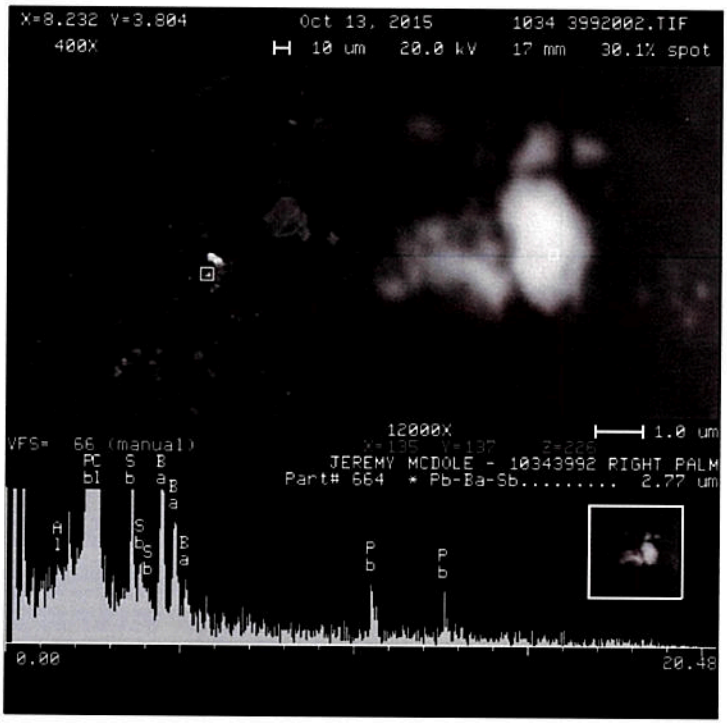
Allison C. Murtha
Manager and Forensic Scientist
Forensic Science Department
Technical Review

Date

AN ASCLD/LAB-*International* ACCREDITED TESTING LABORATORY SINCE March 19, 2013

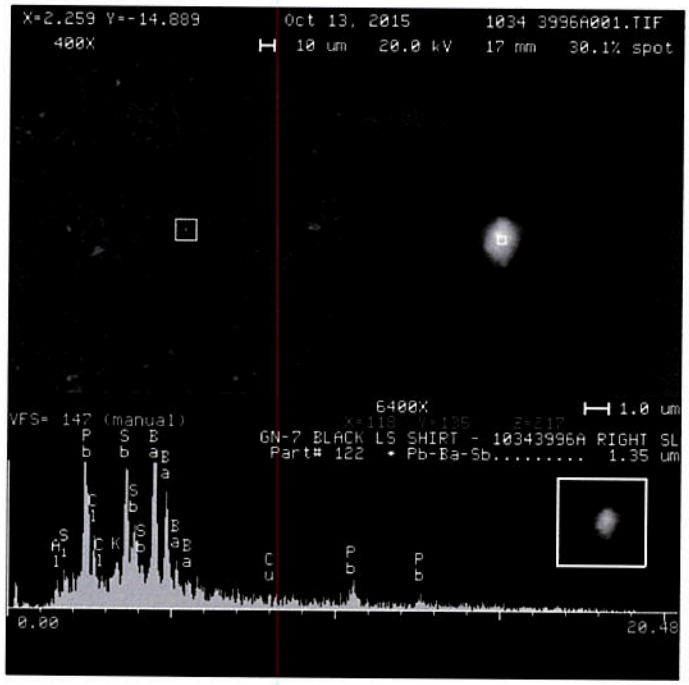


Pb-Sb-Ba Particle • TIFF Image No. 3992001



Pb-Sb-Ba Particle • TIFF Image No. 3992002

Figure 1. Backscattered electron images and elemental spectra of particles characteristic of GSR detected on BG-3 McDole Right Palm (RJ Lee Group Sample No. 10343992).



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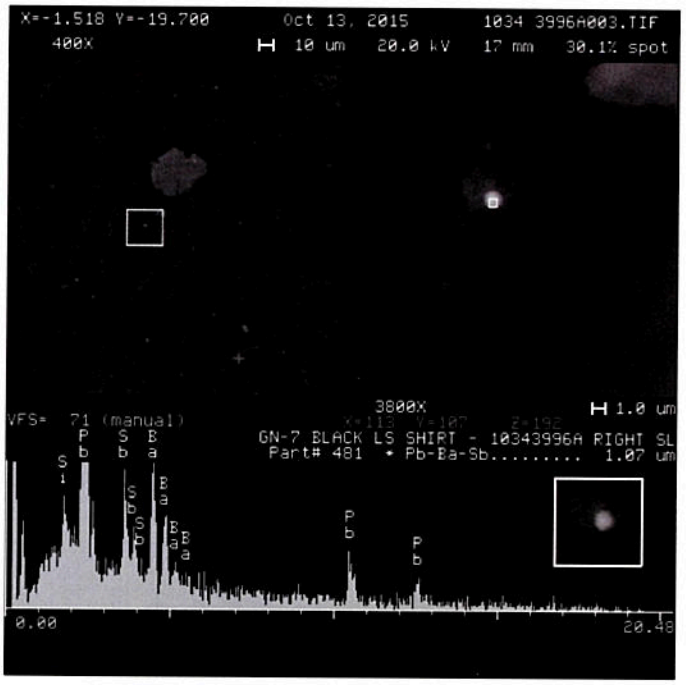

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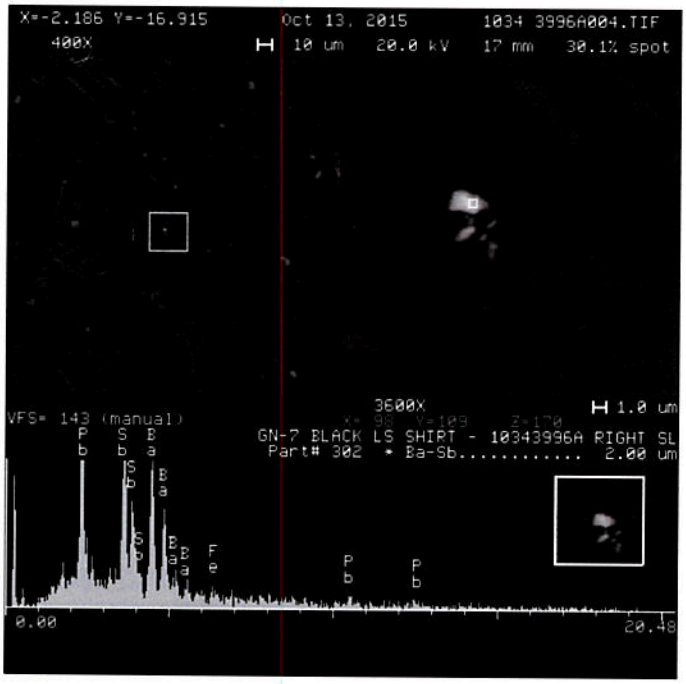

Pb-Sb-Ba Particle • TIFF Image No. 3996A004

Pb-Sb-Ba Particle • TIFF Image No. 3996A006

Figure 2. Backscattered electron images and elemental spectra of particles characteristic of GSR detected on GN-7 Black Long Sleeve Shirt Right Shirt PE (RJ Lee Group Sample No. 10343996A).