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Identification of Fuel Oil in Absorbent Surfaces In a Site of ANFO Blasts

Dissertation submitted in partial fulfilment for the Degree of Bachelor Science Forensic Science

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ABSTRACT

ANFO was identified as one of the most common explosives found in a crime scene. They are often mixed at different ratios by a non – professional user to create an explosion. Thus, the aim of this research study is to serve as a preliminary study to investigate on how far can fuel oil travels at different ANFO mixing ratios.

Five different ANFO mixing ratios (94:6, 90:10, 80:20, 60:40, and 50:50) were used in this study. Six selected absorbent surfaces commonly found at an explosion scene were placed at the distances of 5 m, 7 m, and 9 m radius from the blasting point. The selected absorbent surfaces were collected and analyzed for the presence of fuel oil using GCMS.

The results show that fuel oil residues can travel as far as 7 m with the ideal mixture of 94:6. For the mixture of 90:10 and 50:50, the fuel oil residues can travel as far as 5 m. The fuel oil residues were detected at 7 m distance but not 5 m distance for the mixture of 80:20. When mixing at the ratios of 60:40 and 50:50, explosion did occur but the fuel oil residues were undetected at the distance farther than 5 m.

This ANFO blasting research study indicated that fuel oil could be identified and detected in the absorbent surfaces at the ANFO blasting site. After the blast, the fuel oil could travel to some distances depend upon the proportions and quantities of ANFO.