

Review of the Fundamentals of a Bomb Blast Scene Analysis

Fatima Abubakar, Abigail E. Aye, Iguniwei B. Paul*

Department of Applied Chemistry, College of Science and Technology, Kaduna Polytechnic, Kaduna, Nigeria

ABSTRACT

The Boko Haram sect has in recent times cast terror on communities in the north eastern part of the country through the persistent use of Improvised Explosives Devices (IEDs). However, it was observed that the bomb blast scene is poorly managed in terms of Forensic evidence that can be extracted from the scene. This paper outlined the fundamental scientific methodology for analysing a post bomb blast scene, with the strategic aim of averting subsequent attacks.

Keywords: Boko Haram, Terror, Explosives, Blast, Scene, Forensic, Analysis

I. INTRODUCTION

When the Boko Haram Sect began using Improvised Explosives Devices (IEDs) to attack the civilian population in the north eastern part of Nigeria, a deadly terror tool was born. Worship centres, markets, schools and Government offices have all been bombed, with a lot of deadly casualties and casting terror in the minds of the citizens from Maiduguri to Abuja. The following incidences readily come to our minds;

- i. The United Nations Building Bombing in Abuja on the 26th of August 2011
- ii. The Byan Tasha motor park Bombing in Damaturu, Yobe state on the 15th February 2015
- iii. The Ajilari Mosque bombing in Maiduguri, Borno state on the 20th September 2015



A Bombed Scene. Courtesy Google.com.ng

But it has been observed that the post bomb blast scene is not properly managed in terms of the forensic protocols, involved in extracting explosives residues, material fragments etc from the scene by the first responders and security operatives that arrive at the scene, leading to the outright contamination of the post bomb blast scene and loss of valuable indicators [1].

As part of appreciating and understanding the post bomb blast scene, there is the need to have a background understanding of the terminologies associated with such a specialized field.

According to [2]

The Bombed crime scene is the physical location where an improvised explosive device (IED) has exploded or where such a device has been recovered or dismantled by bomb technicians. The physical location where an explosion of undetermined origin or circumstances has occurred, is known as the Explosion scene. Such a scene includes the possibility of a natural gas or other fuel–air explosion, or a solid-phase explosion. Circumstances requiring investigation include the facts surrounding an explosion in an effort to determine if it was an accident or a criminal act. Not all explosions caused by explosives are criminal, just as not all fuel–air explosions are accidental.

Crime scene search: is the collection of physical evidence that will reconstruct the crime, identify and link the subject or subjects to that crime scene, or establish probable cause for the subject's arrest and ultimate conviction, while the Physical evidence is any material (however microscopic), solid, liquid, or gaseous, that may aid in the determination of truth during an investigation. Evidence is not only collected at the scene but also during the field stage of the investigation. Field investigation is the investigation conducted away from the location of the incident or crime scene. It includes witness interviews, background investigations, collection of evidence from hospitals in the event that victims were injured during the explosion, and so on.

Instrumentation: Fundamental to the bombing scene analysis is the analytical instrumentation processes involved for unraveling the mystery surrounding an IED bomb attack. The instrumentation techniques involved amongst others are Chemical analytical instrumentation in the form of; Colorimetric, Chromatographic and Mass Spectroscopy. Reliable identification of explosives in a modern forensic laboratory is based on instrumental techniques, mainly spectrometric, often in conjunction with

chromatographic methods. Gas chromatography–mass spectrometry (GC/MS) is considered to be an excellent and reliable method in forensic analysis, including the analysis of explosives. [3]

II. MATERIAL AND METHODS

The general process for a bomb scene analysis involves the following stages [2]

- ✓ Initial response
- ✓ Evaluation of the explosion scene
- ✓ Entering the scene (scene investigation)
- ✓ Documentation of the explosion scene
- ✓ Where to find evidence at the explosion or bombing scene
- ✓ How to find evidence at the explosion or bombing scene
- ✓ How to collect evidence at the explosion or bombing scene
- ✓ Final survey
- ✓ Release of scene
- ✓ The field (or outside) investigation

Initial Response: Unlike what is obtained in our own local situation, where anybody can enter the bombing scene, with the excuse of wanting to rescue the victims, but rather end up contaminating the scene in terms of collection of evidence etc. The initial response is carried out by security personnel, first aid medical emergency personnel, fire fighters, to the scene, with the security officers taken full responsibility of the bombed scene security. Ensuring that no material from the scene is tampered with. While the emergency medical personnel, begin to offer first aid to the wounded and evacuating them and the dead to the hospitals.

Evaluation of the explosion scene: It has been observed that the evaluation of bomb scenes in our local instances is very poor, to the extent that explosives ordinance technicians of our security organizations do not show up in some cases.

Evaluating the scene begins with the arrival of the lead investigator and his team on the scene, introducing himself to the security officer in charge of the scene. First, the investigator must determine what type of explosion has occurred and then document that conclusion, which is supported by what is found at the crime scene. In addition, if criminal in nature, a field investigation will be conducted in efforts to link a subject with that scene.

Entering the scene/Documentation: The lead investigator having introduce himself to the security officer in charge and having been debriefed by the officer on what they with the medical personnel have done, the Investigator begin by conducting a walkthrough of the scene, to enable him determine the type of explosion scene, the type of work and logistics team he will have to assemble. How dangerous the scene still is, if extra protection for the investigators will be necessary, determining the inner and outer perimeter and safe distances from the epicenter of the explosion.

Once all of the above is established, the documentation process begins with taking photographs, both thermal, x-ray and conventional photography. An artist sketch of the inner and outer perimeter of the whole scene is done .Written notes describing the scene from the investigators perspective is carried out. Evidence log of all debris and foreign materials found on the scene is created. Witnesses' statements and that of the first responders are also documented, all in a manner that it can be relied upon for use in further investigation.

Where and How to find evidence at the bombing scene: Basically bomb fragments, explosive residues and fuses can be found on (i) the Target (ii) the Crater (iii) on the materials that witness the explosion (iv) the Victims (v) areas outside the immediate epicenter.

The four methods of locating evidence at a bombed or explosion scene are as follows:

- ✓ Swabbing
- ✓ Organized search
- ✓ Sifting
- ✓ Vacuuming

How to collect evidence at the explosion or bombing scene:

The collection of evidence at the bomb scene is a form of scene documentation that involves the correct selection and use of containers to hold the evidence materials. The containers should be selected based on the type of evidence recovered, and they should afford sufficient protection to the materials that would permit their collection, storage, transport to the laboratory for examination, and subsequent use in any legal proceedings.

Final Survey: At the conclusion of evidence collection and documentation, one of the final requirements in the scene investigation is for the team leader to conduct a last survey of the explosion or bomb scene. The final survey is a critical review of all aspects of the search to ensure that the objectives of the scene investigation have been met. This review, with the assistance of all team members, includes, but is not limited to, the following:

- ✓ Conduct a post-investigation walk-through of the scene to assess the completeness of the scene processing as it relates to the ongoing field investigation.
- ✓ Ensure that the scene has been fully searched for the presence of evidence.
- ✓ Ensure that all identified evidence has been collected, packaged, appropriately marked, and entered into the evidence log.
- ✓ Recover and account for equipment used during the investigation and decontaminate if necessary.
- ✓ Ensure that all scene documentation is complete.
- ✓ Consider photographing or videotaping the scene prior to departure.

- ✓ Discuss post scene issues (e.g., laboratory examinations) and field investigation requirements.
- ✓ Release of the scene: The scene should be released only after the completion of the final survey to an authorized, competent authority such as the ward councillor, the local government representative, alongside the owner of the property, if the location is privately owned

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III. CONCLUSION

A clear appreciation and understanding of this specialized field of Forensic Science would go a long way in preparing our scientists, investigators and Security personnel for the challenges of managing the consequences of the terror attacks on soft targets. It will also help in mitigating against the production of IEDs, by identifying the routes of materials sourcing, and disrupting it.

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V. REFERENCES

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