

**THE PROCESSING OF FIREARMS DURING INVESTIGATION OF A CRIME
SCENE**

by

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PREFACE

The study was conducted with the intention of identifying the current procedure employed by investigators for processing firearms evidence at a crime scene. The researcher identified shortcomings which prevent firearm evidence being found to be inadmissible in criminal proceedings. The researcher also analysed other aspects relating to the processing of firearm evidence at a crime scene, namely: Locard principle, identification, individualisation and physical integrity.

In order for investigators to be successful in their investigation of cases involving firearms, it is imperative for investigators to have a clear understanding of the basic concepts surrounding firearm evidence processing. It is the strong belief of the researcher that because of improper handling, contamination and lack of integrity pertaining to firearm evidence, such evidence is being found to be inadmissible in criminal proceedings. This negative impact has a roll over effect on the conviction rate for serious crime.

VOORWOORD

Die studie is uitgevoer met die bedoeling om die huidige prosedure wat gebruik word deur ondersoekers ten opsigte van die verwerking van vuurwapen getuienis by 'n misdaadtoneel te identifiseer. Die navorser het tekortkominge wat vuurwapen getuienis, asook dit wat as ontoelaatbaar in die misdaadsgeding bestempel word, geïdentifiseer. Ander aspekte wat in verband staan met die prosedure ten opsigte van vuurwapen getuienis by 'n misdaads toneel soos die Locard beginsel, indentifisering, individualisasie en fisiese integriteit word nagevors.

Ondersoekers wat vuurwapens sake behandel kan suksesvol wees as hulle 'n noodsaaklike basiese begrip het wat van sekere konsepte met betrekking tot vuurwapen getuienis. Volgens die navorser het die verkeerde hantering van vuurwapens kontaminasie tot gevolg en kan sulke getuienis lei tot 'n negatiewe inslag.

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CHAPTER 1

GENERAL ORIENTATION

1.1 INTRODUCTION

As indicated in the South African Law Commission (SALC) report (2000:26), there are numerous problems in the South African criminal justice system which would account for low conviction rates. Such problems include the under-trained and overworked investigators. The SALC report also mentions that the results suggest potentially inadequate police investigation of violent crimes. From the researcher's many years of police experience in crime scene investigations, it most certainly can be said that a problem exists when it comes to the procedure that should be followed when processing firearms during the investigation of a crime scene.

In crimes involving the use of firearms, it is very necessary to obtain a conviction. However, it occurs on an unfortunately frequent basis that the court declares such firearm evidence inadmissible. There are no exact statistics to prove this however, according to the SALC report (2000:26) for every 100 violent crimes reported to police, the perpetrators in only six cases have been convicted. Marais (1992:48) mentions that a crime scene is the primary source of physical evidence and preliminary investigations involve the collection and thorough analysis of evidence before a theory is formulated. Despite the increased attention given to firearm control and the impending legislation regulating this sphere, there remains a need for a proper and more thorough manner of processing firearms at a crime scene. It is due to this problem, that investigators are not acquiring the desired convictions. Firearm evidence that is incorrectly gathered loses its integrity and or evidential value, causing this type of physical evidence to be declared inadmissible in criminal proceedings.

1.2 AIMS OF RESEARCH

According to Mouton (1996:103), the aims of research are to establish facts, gather new data and to determine whether there are interesting patterns contained in the data. The aims of this research are to analyse the procedure currently employed by investigators when processing firearms at a crime scene and to establish whether this procedure employed assures the admissibility of the evidence in criminal proceedings.

1.3 PURPOSE OF RESEARCH

According to Denscombe (2002:26-28), there are various purposes for research. This research study has focused on the following purposes as described by Denscombe (2002:26-28).

The researcher has felt the need to:

- evaluate the existing procedures that investigators use when processing a firearm at a crime scene, with the intention of determining its strengths and weaknesses and of considering how this procedure can be improved
- explore how investigators internationally process a firearm at a crime scene - in order to accomplish this, the researcher has read extensively in an attempt to explore the field
- apply the new knowledge of international practice to develop good practice in South Africa
- to empower investigators with new information, the researcher intends to present lectures, to write an article and to make the information available to training

1.4 RESEARCH QUESTIONS

Research questions were formulated from the problem or sub-problem. The research questions provide guidance for the kinds of data that the researcher collected and offers suggestions as to how the researcher analysed and interpreted the data collected (Leedy & Ormrod, 2001:60). The research questions posed in this dissertation are:

- What is investigation of a crime scene?
- How should firearm evidence be processed during investigation of a crime scene, in order to be admissible in court?

1.5 KEY THEORETICAL CONCEPTS

Mouton (1996:114) is of the opinion that familiarity with the most important theories relating to the research problem is an essential precondition for an adequate conceptualisation. The concepts discussed below are vital in the understanding of the research, which is to follow:

- **Firearm:** A firearm is any device, manufactured or designed to propel a bullet or projectile through a barrel or cylinder by means of burning propellant, at a

muzzle energy exceeding 8 joules (6 ft-lbs), Firearms Control Act, 2000 (Act No. 60 of 2000)

- **Crime scene:** According to Gilbert (1993:490), a crime scene is a location at which a suspected criminal offence has occurred
- **Investigation:** Van Rooyen (2007:5) defines “investigation” as “the medium through which facts that are necessary for successful criminal prosecution or civil action are discovered, identified, gathered, and prepared as evidence in legal proceedings”
- **Physical integrity:** Marais and Van Rooyen (1994:59) explain physical integrity as being evidence that reaches the laboratory is more or less in the same condition as it was found at a crime scene
- **Admissible:** Joubert (1999:332), explains this concept to be relevant evidence that is accepted by the courts

1.6 RESEARCH APPROACH AND DESIGN

The researcher used the empirical design as design for this research. According to Maxfield and Babbie (1995:4) an empirical research is the production of knowledge based on experience or observation. The researcher conducted studies of police in which conclusions are based on experience (Maxfield & Babbie 1995:4). The researcher produced new information because of the shortage of literature related to this topic. For this reason, the researcher followed the suggestion made by Denscombe (1998:6) of “getting out of the chair, going out of the office and purposefully seeking the necessary information out there”. The researcher conducted extensive examination of documents, which are essential whenever previous research and theories yield scant information about the topic and when the researcher wanted to enhance the validity of their interpretations by drawing on the experiences of those most involved in the research arena itself (Pope, Lovell & Brandl, 2001:369).

In addition to the empirical design, the researcher decided to apply the qualitative research approach. In the words of Leedy and Ormrod (2005:95) the qualitative approach, entails conducting interviews and using focus group. In order to gather relevant information, the researcher needed to involve experienced persons. As stated by Taylor (1994:208) qualitative research refers to techniques which the researcher employs to sustain interaction with respondents in a particular setting.

Taylor (1994:208) adds that this approach allows respondents to tell their stories in their own words and the procedures used provides outsiders with maximum insight into the situation.

1.7 TARGET POPULATION AND SAMPLING

Babbie and Mouton (2001:174) state that a population is that aggregation of elements from which the sample is actually selected. The population chosen in this research is the Investigators of the South African Police Service (SAPS) who investigate crimes and the Prosecutors of the National Prosecuting Authority (NPA) who prosecute crimes. Written permission was obtained from both the SAPS and the NPA. The population of Investigators within the SAPS and Prosecutors within the NPA are too large a group to be considered as the sample. The researcher therefore decided to use a target population.

Welman and Kruger (1994:119) explain a target population as the population to which the researcher ideally would like to generalise their results. In this research, the target population is the Police Investigators of the five police stations of the Durban South Policing area, namely, Mayville, Sydenham, Cato Manor, Umbilo and Berea, which entails up to 112 investigators. These police stations were randomly selected from 25 police stations, which form the Durban South Policing area, by using the simple random selection technique (Leedy & Ormrod, 2005:201).

The names of the police stations were each written on quadrates of paper, placed in a hat and the first five names which were drawn were used as target population. The Durban South Policing area was the first chosen area because it is the area in which the researcher was stationed at the beginning of this research. From a target population of 112 investigators, 25 investigators were randomly selected as a sample by using the systematic sampling (Leedy & Ormrod, 2005:203). The police stations were in separate vicinities and the selection was done for each station. An alphabetic name list of all the investigators at the selected stations was compiled and numbered. Starting with the third name on the list the researcher selected every fourth name. According to Leedy and Ormrod (2001:214), random sampling is a sampling method whereby every member of the population has an equal chance of being selected.

The target population of prosecutors is the Durban Regional Courts, of which there were 17 prosecutors; deals with all firearm related matters for the five police stations. In selecting the sample of five prosecutors, all 17 names were written on a piece of paper, put in a hat and the first five names selected were taken as the sample to be interviewed. The simple random sampling method was chosen as the sampling method in this case. Leedy and Ormrod (2005:201) state that simple random sampling is easy when the population is small and all of its members are known. The samples selected are representative of the population because every member of the population had an equal chance of being chosen.

The researcher also chose another sampling method, the one of purposive sampling. According to Leedy and Ormrod (2005:206) purposive sampling is meant for a particular purpose, where people or other units are chosen who are "typical" of a group or those that represent a diverse perspective on an issue. They further elucidate that purposive sampling be very appropriate for certain research problems and that the researcher always provide a rational explanation for choosing this sampling. The researcher included one Ballistic expert and one Local Criminal Record Centre (LCRC) Crime Scene Manager for the purpose of this research. The said persons were responsible for servicing the Durban South police stations. The reason for their inclusion is their expertise, qualifications, training and experience in the field of firearm evidence collection and processing.

The Ballistic expert chosen is a Sergeant in the South African Police Service, based at the Amanzimtoti Forensic Science Laboratory. He holds the following qualifications: BA Criminology and Psychology, Honours in Criminology, MBA (final phase), A three year internal ballistic training course, EDTP Trainers course and courses in Forensic Pathology and Criminal Law (UDW). He has seven years experience in his field and services the Durban South Policing area in ballistic examinations and evidence collection. The LCRC crime scene manager chosen is a Superintendent in the South African Police Service and the Unit Commander of the LCRC Durban branch. She has twenty-three years of police experience and holds the following qualifications: A National Policing Diploma and courses in Police Administration, Forensics, Crime Scene Management and Cult related crimes. She manages LCRC members that service the Durban South Policing area in firearm evidence collection, fingerprint lifting and crime scene management.

1.8 DATA COLLECTION

Data collection forms part of the qualitative approach that was decided upon for this research. Leedy and Ormrod (2005:96), propose that qualitative research is often described as being the research instrument, because the bulk of the data collection is dependent on their personal endorsements (interviews & observation) in the settings.

1.8.1 Literature study

Mouton (2001:88) states that the purpose of a literature study is to establish what has been done in your field of study. In this study, the researcher collected data from existing literature, journal articles and the internet, which fell into the field of law, criminal, forensic science. There was no literature that dealt directly with the very same topic. Therefore, the researcher divided the topic into different concepts in order to expand on the sources. The researcher identified the following concepts as concepts with which the researcher was successful in gathering data:

- crime scene investigation
- Locard principle
- identification
- individualisation
- firearms
- admissibility of evidence

The research and the reading were done to find answers to the research questions. The identified literature was then analysed and all relevant information relating to the topic and the above-mentioned concepts were extracted.

1.8.2 Interviews

The researcher conducted 32, one on one semi-structured interviews using an interview schedule with open-ended questions. According to Welman and Kruger (1994:159), in semi-structured interviews, unclear questions can be explained and incomplete and vague responses can be followed up. The questions in the interview schedule were formulated from the topic and the research problem. Once the interview schedule was set up, the interviews were personally arranged. The

researcher arranged a quiet place at the interviewee's place of employment to conduct the interviews. Written permission was obtained from all respondents.

A few minutes of each interview was set aside to establish rapport with the interviewees. The same interview schedule was used in all interviews. The interviews were focused on factual rather than hypothetical situations. During the interviews, the researcher kept his reactions to himself. All responses to the interviews were recorded in writing as answered and interviewees were allowed to express their opinions. Research documents were labelled with a code instead of the interviewee's name, as confidentiality is imperative in qualitative interviews.

The same interview schedule was used for all the three types of samples. The researcher conducted the interviews within the stipulated guidelines in Leedy and Ormrod (2005:147-149). These guidelines were to identify the questions in advance, to ensure that the interviewees were representative of the group, to find a suitable location, to obtain written permission, to establish rapport with the interviewees and to record the responses verbatim.

1.8.3 Case study

Leedy and Ormrod (2001:149) describe a case study as a type of qualitative research in which in-depth data is gathered which is relative to an individual, programme or event, for the purpose of learning more about an unknown or poorly understood situation. The target population of dockets from the five police stations was 55. The target population is drawn from the criminal administrative system (CAS) for the five police stations. The cases drawn are cases in which firearms were used in criminal offences and where the accused in each case appeared in the Durban Regional Magistrate Courts in the year 2005 (31 January to 31 December).

A systematic sampling method of selection was used to select the 25 sample dockets from the 55 dockets. The researcher divided 55 by 25 and got two. It is for this reason; the researcher after listing all 55 case numbers, started at the third case number and selected every second case number. The researcher used a sample of 25 dockets. The researcher studied the dockets for specific information. This was done by using a list of no less than eight questions to extract information relevant to

the research questions. The questions used to extract the information from the case dockets were:

- From which criminal acts did the cases arise?
- Was a firearm used in the commission of the offence?
- Was there any firearm evidence found at the scene of the crime?
- In which period of time did these crimes take place?
- Were suspects or was a suspect arrested for the offence?
- Were suspects or was a suspect charged?
- Did the accused appear in the Durban Magistrates' court?
- What was the outcome of the case?

1.9 DATA ANALYSIS

The researcher adopted the data analysis method for qualitative studies suggested by Leedy and Ormrod (2005:150-151), which is known as the data analysis spiral. Using this method:

- The researcher organised the data collected from the different data collection techniques (literature, interviews and case study) using index cards and individual words
- The researcher perused the entire data several times and obtained an understanding of its content
- The researcher identified general categories with sub-categories and each piece of data was filed accordingly - during this step the researcher obtained a better sense of what the data conveys and means
- Useless information was eliminated
- Finally, the data was integrated and summarised

1.10 VALIDITY

According to Denscombe (2002:100), validity concerns the accuracy of questions asked, the data collected and explanations offered. Generally, it relates to data and the analysis used in this research. The questions were valid because questions used in the interview schedule were developed from the research questions and these research questions were based on the identified problems in this research. In this research the same interview schedule was used for all respondents and the answers recorded were from the respondent's personal experience. The interviews

were conducted within strict guidelines of the ethical considerations, stipulated by Leedy and Ormrod (2005:101-102).

The analysis of data in this research was based on the spiral technique suggested for qualitative studies by Leedy and Ormrod (2005:150-151). This data analysis technique is an approved and tested technique. Data was collected from specific subject related literature, published (books, articles and journals). The literature sources were written and compiled by experienced, learned, accomplished authors, who are also regarded as experts in their field of study. To ensure validity in the case study the researcher drew the case study from the SAPS criminal administrative system (CAS). This system is a SAPS approved and monitored system. The same questions were asked when information was collected during the docket analysis. The cases drawn were cases in which firearms were used in criminal offences and where the accused appeared in the Durban Magistrates' court in the year 2005.

1.11 RELIABILITY

According to Mouton and Marais (1990:79) and De Vos (2003:168), the requirement for reliability is the application of a valid measuring instrument to different set of circumstances that should lead to the same observation. Mouton and Marais (1990:79) also ask whether the same method that is used by different researchers and/or different times would produce the same results. The researcher has described how the data was collected, how it was analysed, how the sampling was done and how the conclusions were reached (Mouton, 2001:100).

The researcher interviewed respondents who were from the SAPS and the NPA, as, under the circumstances they were the most experienced persons from whom to obtain information in this research. The researcher ensured that the same measuring instrument was used in all interviews and that the research context (the year 2005 and the demarcation) was the same through this research. Information obtained was categorised and documented in such a manner that should another researcher use these notes they would be able to replica the study (Bauer & Gaskell, 2000:363).

1.12 ETHICAL CONSIDERATION

Ethical consideration was maintained throughout this research. Objectivity and integrity was maintained when conducting this research. All data collected was

reflected in this research without any changes. The sources of the data have been appropriately referenced both in the research and in the list of references. Methods and techniques of analysis have been clearly set out in this research. This research has not been submitted to any other academic institution. The researcher has strictly adhered to the ethical issues stipulated in Leedy and Ormrod (2005:101-102):

- **Protection from harm:** The researcher ensured that no respondent were subjected to any form of physical or physiological harm during this research. This was done by ensuring that the risk involved in participating in this research was not greater than the normal risks of day-to-day living
- **Informed consent:** The researcher ensured that the respondents were informed of the nature of the research and were given a choice to participate or not. The respondents were also informed that if they agreed to participate, they had the right to withdraw from the study at any time. Written consent was obtained from all respondents
- **Right to privacy:** The researcher endeavoured to ensure that all respondent's right to privacy of was maintained throughout this research, the researcher intends to keep the respondent's performance strictly confidential by presenting the research report in such a way that others do not become aware of how a particular respondent responded
- **Honesty with professional colleagues:** The researcher ensured that all literature sources were acknowledged. This the researcher did by acknowledging the authors of the sourced literature in both the text and in the list of references

1.13 CHAPTER OUTLAY

This research is divided into the following chapters in which the research questions are discussed.

- **Chapter 2: Investigation of a crime scene**

In this chapter, the main focus was the crime scene and its importance when conducting investigations. The researcher also looked at the objectives of investigations and vital concepts, such as identification, individualisation and the Locard principle.

- **Chapter 3: The processing of firearm evidence**

In this chapter, guidelines for processing firearm evidence at a crime scene were set out. The other focus area in this chapter is the admissibility of firearm evidence in criminal proceedings.

- **Chapter 4: Findings and Conclusions**

In this chapter the final findings, conclusions and recommendations are discussed.

CHAPTER: 2

INVESTIGATION OF A CRIME SCENE

2.1 INTRODUCTION

When watching a television crime series, one often observes how an investigator is abruptly awoken from sleep in order to attend a crime scene. Even in reality, an investigating officer and the necessary crime scene experts need to immediately be notified of their very essential attendance of the crime scene notwithstanding their prevailing situation or circumstances. A crime scene investigation is the most vital and crucial part of any criminal investigation. It is for this reason that the urgent attendance of investigators and crime scene experts are required.

In a subtle warning Gardner (2005:1) expresses that whatever action taken by crime investigators at a crime scene, they need to ultimately defend those actions in court. Blount (ed.) (2003:11) cautions that without observing the basic evidence-handling precautions at a crime scene, investigations are fatally compromised and flawed before they can even begin. It can therefore be said that there are many procedures, processes and guidelines, which need to be followed when investigating a crime scene, consequently understanding the same is essential to any investigator's success of a crime scene. In the discussion which follows, the researcher will take an in-depth look at and closely examine the different concepts dealing with the investigation of a crime scene.

2.2 FORENSIC INVESTIGATION

Horswell (2004:3-4) breaks down the concept of forensic investigation by firstly defining the term "forensic" as "pertaining to, connected with, or used in courts of law or public discussion". Secondly, the writer defines the term "investigation" as "an act or process of investigating, a searching inquiry in order to ascertain facts and also being a detailed or careful examination". Bell (2004:141) explains forensics in relation to public debate. It is noted that both Bell (2004:141) and Horswell (2004:3-4) explain forensics in relation to public debate or public discussion. In light of this topic, these explanations are not fitting.

Jackson and Jackson (2004:1) defines the term "forensic investigation" as the use of any scientific method for the resolution of criminal cases, which mainly includes the recovery and analysis of physical evidence that is crucial to the success of the

subsequent inquiry. Van Heerden (1991:8) concurs with Jackson and Jackson (2004:1) that the term “forensic” relates to an activity directed at serving justice through means of scientific knowledge. In the words of the Ballistic Expert (2007), the term “forensic investigation” is scientific driven investigations. He expresses his understanding of this concept in terms of ballistics and says it is the processing and analysis of all firearm related evidence in order to scientifically conclude the evidence. The conclusions he says are used as expert evidence in court.

Horswell (2004:3-4) informs that forensic investigation is when attempting to identify an individual, crime scene investigators work with the idea that no two individuals are identical. He further states that their fingerprints determine a person’s individuality. Gardner (2005:25) adds to the individualisation concept and its relation to forensic investigation when stating that the primary goal of forensics is the examination of an individual’s characteristics, which is powerful evidence in concluding, for example that certain blood, certain fingerprints and certain hair samples came from a certain individual.

According to Genge (2002:247&277), forensic investigation has many faces. Here Genge expresses that there are many fields of forensic investigation, these are Photo Technicians, Criminalists, Crime Scene Analysts, Document Examiners, Firearm Examiners, etc. On the other hand, Van Rooyen (2004:7) suggests that the meaning of the term “forensics” is twofold. Firstly, it relates to science, justice and court decisions. Secondly, it is an examination or an analysis of something. He goes on to say that, forensic investigation is usually connected with computer related crimes such, as corruption, fraud, embezzlement and white collar crimes. This opinion is also expressed by Bell (2004:73) when she states that there is a field of computer forensics, which include data recovery from disks or other storage media that has been erased, formatted or damaged.

In relation to this topic (Investigation of a Crime Scene), Lee, Palmbach and Miller (2001:17), clearly break down the term “forensic investigation” as a process being the recognition, documentation, identification, comparison individualisation, evaluation interpretation, reconstruction, reporting and presentation of evidence before court. Jackson and Jackson (2004:1) strongly suggest that forensic investigation is the key to resolving criminal acts and that forensic investigation begins at a crime scene.

It is the view of the sample that the term “forensic investigation” means:

- the gathering of physical evidence (blood, fingerprints, DNA) (21 of 30)
- a specialised field of investigation (5 of 30)
- use by specialised investigators to link suspects to crimes (2 of 30)
- involving financial investigations & auditing of fraudulent transactions (2 of 30)

The sample has a general idea on the meaning of this term forensic investigation; however, none of the respondents said that forensic investigation involves scientific investigation. It is the view of the researcher that investigators need to be enlightened on this concept of forensic investigation.

2.3 INVESTIGATION OF CRIME

Van Rooyen (2004:6) explains the term “investigation of crime” as being a systematic or an organised search for the truth. Van Rooyen (2004:16) warns that if a search or gathering of information is done haphazardly, it will only lead to embarrassment and failure. Marais and Van Rooyen (1994:17) also contend that the term “investigation of crime” is the systematised search for the truth. They further elucidate that investigation of crime is primarily aimed at the positive clarification of the crime at hand and that this is carried out by employing both an objective and subjective trace. Van der Westhuizen (1996:1) also talks about the objective and subjective clues, when he states that investigation of crime is a systematic search for the truth with the primary purpose of finding a positive solution to the crime with the help of objective and subjective clues.

The concepts of objective and subjective traces is emphasised by Van Rooyen (2004:6), who suggests that the investigation of crime entails an observation and enquiry which serves the purpose of gathering objective and subjective evidence about a criminal offence. According to Marais and Van Rooyen (1994:17), an objective trace is material proof and a subjective trace is evidence of persons (victims, complainants, eyewitnesses and perpetrators), who are directly or indirectly involved in the commission of the crime. These authors explain that an objective trace is possible, due to the Locard principle (contact theory). The concept of Locard principle will be discussed under section 2.6.3.

According to Horswell (2004:3-4), the term “investigation of crime” is the act or process of searching inquiry in order to ascertain facts or careful examination of an act committed or an omission of duty which is punishable by law. In his explanation Van Heerden (1991:8-9) informs that criminal investigation is a matter of the assembling of facts that may act as *prima facie* evidence. He further suggests that criminal tactics, such as interrogation, pursuit, observation, personal identification, photography and plan drawing can be used by investigators and that criminal techniques, such as modern technological aids, including microscopes, gas chromatographers and spectrometers can be used by experts to investigate.

According to Van Rooyen (2004:13), investigation of crime is a process of the identification of people and physical objects from the time a crime was committed until the guilt of the perpetrator is either proved or disproved in court.

The sample, believes that the term “investigation of crime” is the:

- gathering of evidence to solve a crime (12 of 30)
- systematic search for the truth (11 of 30)
- involvement of procedures, methods and analysis of information (5 of 30) and
- linking and arresting of suspects responsible for the crimes (2 of 30)

From the discussions, it can be concluded that there is a difference between the term “forensic investigation” and the term “investigation of crime”. Forensic investigation involves the use of any scientific method to resolve crime that involves the indept examination and analysis of physical evidence, (example: the examination of firearm evidence by ballistic experts). Investigation of crime is the systematic or organised search for the truth. Investigation of crime involves the use of objective clues (material proof) through scientific methods and subjective clues (evidence of person). However, both these terms have the same purpose and the same objectives.

The researcher is of the opinion that the concept forensic investigation has become the new term “buzzword” to refer to any kind of investigation. This is as a result of greater participation of the private and corporate sectors, in the field of investigation, as well as the role of the media in using this term.

2.4 PURPOSE OF INVESTIGATION

According to Van Rooyen (2004:94), the purpose of investigation is to establish what happened and to identify the person responsible for the crime committed. Lyman (1999:169) suggests that investigation of crime serves three purposes:

- firstly, as a reactive measure, this is the follow up on crimes that have occurred
- secondly as proactive measures, to monitor crime as they occur
- thirdly as a preventative measure, to ensure that certain crimes will not be committed e.g. when perpetrators are arrested it prevents them from committing other crimes

Van der Westhuizen (1996:1) expresses that the primary purpose of criminal investigation is to find a positive solution to crime. From the above explanations, it can be said that the purpose of investigation is the reactive way to prevent crime.

Van Rooyen (2004:94) also sets out a guideline in which the purpose of investigation can be achieved when he states that the purpose of investigation is achieved by carefully documenting the conditions of the crime scene and recognising all relevant physical and other evidence. He further adds that this guideline is crucial in both solving and prosecuting crimes. Lee et al. (2001:1-2) are in agreement with Van Rooyen (2004:94) when stating that, in order to achieve the purpose of investigation, there should be careful processing, documentation and collection of physical evidence which is an integral part of investigation. Van Rooyen (2004:94) urges that investigations start at a crime scene.

According to the sample, the purpose of investigation is to:

- gather evidence for the crime to be solved (15 of 30)
- establish the truth (3 of 30)
- arrest and charge the right person (2 of 30)
- place the accused before court (2 of 30)
- present a case to the courts (1 of 30)
- reconstruct the crime scene (1 of 30)
- recover property (1 of 30)
- reduce crime in the country (5 of 30)

The explanation contained in the sample is not the same as that of the authors (Van Rooyen (2004:94), Van der Westhuizen (1996:1) and Lyman (1999:169)). The sample is more practical in their views of the purpose of investigation. The sample, expresses some of the objectives of investigation rather than the purpose of the investigation. The authors are correct in stating that the purpose of investigation is the reactive way of preventing crime.

2.5 OBJECTIVES OF INVESTIGATION

According to Becker (2005:11-12), the objectives of criminal investigation are crime detection, locating and identifying the suspect, locating, recording and processing evidence, recovering property, preparing for trial and convicting the defendants. In their explanation, Marais and Van Rooyen (1994:19), suggest that the objectives of investigation are broken down into two main aspects, namely, situation identification and the gathering of evidence. In situation identification, the crime committed is identified not only in terms of the jurisdictional requirements but also in terms of making an observation at a crime scene and that gathering of evidence should begin at a crime scene. Marais and Van Rooyen (1994:19) mentioned two objectives of investigation, however they fail to mention the other vital objectives stipulated by Becker (2005:11-12).

In a well-explained break down, Van der Westhuizen (1996:4-7) lays out the objectives of criminal investigation as follows:

- **Identification of the crime:** this concerns situation identification, in which the crime is identified by both judicial elements and observation of the crime scene
- **Gathering of evidence:** this is the gathering of information that is presented to court to make a finding. It includes direct information (people's sensory experience) and indirect information (physical clues)
- **Individualisation of the crime:** this objective involves the establishment of the perpetrator or alleged criminal in the act committed based on probability. This is derived from information collected and links the crime to a specific person
- **Arresting the criminal:** once the investigation confirms the identity of the criminal, this criminal is arrested

- **Recovery of stolen property:** this objective is twofold, firstly to reduce the victim's losses to a minimum and to present the recovered property as evidence in court
- **Involvement in the prosecution process:** this is to assist the prosecutor in the prosecution process

Lyman (1999:169) sets out the objectives discussed above, which he believes can be achieved through investigation, these being to:

- ascertain if a crime has been committed
- determine the jurisdiction of the crime
- process evidence in a legal fashion
- identify and arrest the suspect
- recover the stolen property
- to identify associates in large criminal organisations' and present evidence to prosecution in an orderly manner
- testify in court proceedings

Lyman's explanation of the objectives of investigation although worded differently, is in line with that of Van der Westhuizen (1996: 4-7).

From the view of the sample, the objectives of criminal investigations are:

- to solve a crime (11 of 30)
- to identify and arrest the perpetrator (9 of 30)
- to place the perpetrator before court (8 of 30)
- to reduce and prevent crime (2 of 30)
- to collect evidence of a crime (10 of 30)
- to link a suspect to a crime (7 of 30)

The sample has a general understanding of the objectives of investigation. Two of the respondents mentioned the reduction and prevention of crime as an objective, however, it was pointed out that the prevention of crime is the purpose of investigation and not an objective of investigation.

2.6 CRIME SCENE

Lee et al. (2001:1) state that an investigation of a crime scene is much more than the documentation, processing and packaging of physical evidence. It is the first and most crucial step of any investigation of a possible criminal act. Pepper (2005:13) concurs that thorough and conscientious examination and recording of the crime scene is paramount. Pepper (2005:13) further signals a warning that a crime scene investigator has only one opportunity: to recover the evidence that will prove the case, meaning that the evidence if not recovered may be destroyed or contaminated.

2.6.1 Defining a crime scene

According to the Policy on Crime Scene Management (2005:2), a “crime scene” means a place, including the surrounding area, where an alleged offence was committed or where items with potential evidential value may be collected. In his definition, Van Rooyen (2004:94) states, “a crime scene is the actual site, area or location in which an incident took place”. Lyman (1999:176) suggests that a “crime scene” is the area in which the suspect(s) and victim(s) manoeuvre during the investigation. The LCRC Manager (2007) defines a “crime scene” as a physical place or area in which a crime has been committed.

Blount (ed.) (2003:11) affirm that a crime scene can be as small as a computer or as large as a plane crash site. They further explain that a crime scene is the largest area that may contain valuable evidence for investigation. In another well-articulated explanation, Horswell (2004:3) asserts that a “crime scene” is any place in which a crime or incident that may have occurred could end in legal proceedings. Horswell (2004:3) also puts forward that this area in question will have a high concentration of physical evidence.

Genge (2002:105) brings to our attention a vital aspect namely, that a person’s body could be a crime scene. This vital aspect is clearly illustrated in that the recovery of bullets involves locating them in objects at the scene, which include persons, both living and deceased. This point is further illustrated by the fact that medical staff comprehend the importance of retrieving “slugs” or their fragments without doing further damage to them. This retrieval is done with rubber-tipped forceps whilst bearing in mind that a body is a crime scene. This concept of a person’s body being a crime scene is also expressed by James and Nordby (2005:168), who state that a

second classification of a crime scene is based on size under the classification, a single macroscopic crime scene is composed of many crime scenes. For example, a gunshot victim's body dumped in the field represents a crime scene, with the overall crime scene being the field.

The body is regarded as a crime scene because it may contain trace evidence. In another explanation Dodd and Byrne (2005:153) comment that a gunshot victim's hands should not be pried open, as this in theory will aid in the loss of vital evidential material, such as hair and the redistribution of gunshot residue (GSR). These authors comment that a clean sheet of paper be placed under the victim's hands to identify and capture evidential material.

The sample expresses their explanation and understanding of a "crime scene" as a:

- geographical area, site, or location in which a crime has been committed (12 of 30)
- place in which physical evidence is found (9 of 30)
- place in which an unlawful act has occurred (7 of 30)
- vital start to an investigation (1 of 30)
- place which is as small as a key board or as large as a plane crash (1 of 30) and
- deceased body (this was mentioned in paragraph three of this summary)

The break down of this sample's summary of the definition of a crime scene is in line with the literature study.

2.6.2 Value of a crime scene

Nickell and Fischer (1999:23) state emphatically that a crime scene may be the most important aspect of investigation. What they are in fact expressing, is that a crime scene bears potential evidence, be it physical or other (statements, eyewitnesses). Gilbert (1993:103) points out that traditionally a crime scene provides an investigator with numerous opportunities for solving a crime. Van Heerden (1991:12) suggests that at a crime scene the objects (physical evidence) and persons involved constitute the source of hidden clues that may lead to the revelation of the crime.

According to Van der Westhuizen (1996:30), the value and importance of the crime scene as a source of information for the entire criminal process must and cannot be ignored by investigators. He warns that although a crime scene may yield potential information, the manner in which and how this information is exploited and utilised depends on the knowledge, ability and skills of investigators. According to Blount (ed.) (2003:18), in the famous OJ Simpson case (*California v O J Simpson* BA097211), Mr Orenthal James Simpson was not guilty for the murders of Nicole Brown Simpson and Ronald Lyle Goldman. However, a civil court found him guilty and awarded 33 million dollars in damages to the plaintiff.

Blount (ed.) (2003:18) also inform that during the investigation of this crime scene potential evidence was destroyed. This is clearly illustrated in Blount (ed.) (2003:18), who state that uniformed officers used Nicole's telephone to report the murders, thereby possibly destroying potential fingerprint evidence. When investigators arrived, one covered Nicole's body with a blanket, thus potentially compromising fibre evidence and there were other blunders caused by investigators, which could have destroyed other potential evidence.

Bell (2004:77) says that a crime scene is the starting point for physical evidence. Bell also warns that care should be taken to process a crime scene and that crime scenes deteriorate rapidly, so the primary goal of investigators is to protect and preserve potential and valuable information. In their understanding, which is similar to that of Bell (2004:77), Lee et al. (2001:1) assert that investigators should recognise the potential of physical evidence at a crime scene and ensure that it be preserved. Marais and Van Rooyen (1994:23) summarise by adding that a crime scene is also the source of latent (not visible to the naked eye) clues, which can lead to the clarification or exposure of a crime.

2.6.3 Locard principle and its effect on a crime scene

The Locard principle is the brainchild of a French Scientist Dr Edward Locard (1877-1966). According to Jackson and Jackson (2004:378), the Locard principle is based on the notion that 'every contact leaves a trace' - in other words, any contact between individuals or between an individual and a physical location, leads to the transfer of trace evidence. According to both Bell (2004:302) and Jackson and Jackson (2004:380), trace evidence is minute amounts of material that are

transferred from one person or place to another person or place. These authors also mention some examples of trace evidence, such as blood, hair, glass, fibres, fingerprints and gunshot residue.

Ogle (2004:3) propounds that this transfer of evidence assists in linking individuals to individuals or individuals with a crime scene. He goes on to say virtually every type of physical evidence may fall into this category of trace evidence, since any object left at the crime scene may link the perpetrator to the crime scene or to the victim, and any object transferred from the victim or the crime scene to the perpetrator links the perpetrator to the crime.

Jackson and Jackson (2004:11) state that, not only does a perpetrator remove traces of the crime scene, but that the perpetrator leaves traces behind at the crime scene. They further elucidate that it is for this reason that all forensic investigations starts at a crime scene. Van Rooyen (2004:11) contends that because of the Locard principle, investigators can confidently assume that there will always be clues at the crime scene and if an investigator cannot find any clues, it is not because there are none, but rather because the technique which requires identifying, result in the unavailability of clues.

2.6.4 Stages of investigating a crime scene

In the words of Van Rooyen (2004:95), “crime scene investigation is basically and simply just three (3) stages in the proper processing of a crime scene”. These stages are scene recognition, scene documenting and evidence collection. Van Rooyen (2004:95) also adds that these stages are to be carried out in an organised approach and defines an organised approach “being one in sequence”. Gilbert (1993:103) agrees that crime scene investigation must be a sequential process, explaining that this process involves carefully thought-out actions that follow each other in a logical order.

Van der Westhuizen (1996:21) points out and explains the different stages as being:

- **A pre-investigation phase:** in this phase he talks about arriving at the scene, taking over and securing the scene. In this phase arrangements are made for a detailed, systematic and careful search

- **An investigative phase:** during this phase, the scene is searched and recordings of the crime scene are made. Attention is paid to the location of crime information which can serve as crucial evidence and which is vital in individualising the perpetrator
- **A post-investigation phase:** this phase rounds off the search at the scene as well as a primary probe. This phase entails gathering information and its use during further investigations and the co-ordination, control and integration of information for the purpose of individualisation

Compared to Van Rooyen (2004:95), Van der Westhuizen (1996:21) clearly breaks down the stages. The phases discussed by Van der Westhuizen comprise of steps which need to be followed in order to complete phases, whilst on the other hand the stages mentioned by Van Rooyen are the actual steps involved in crime scene investigation. In Gardner (2005:79), the basic steps of crime scene investigation are outlined as assessment, observation, documentation, searching, collection and processing. These steps mentioned by Gardner (2005:79) involve arriving at the crime scene, walking through the crime scene, making notes and recording the crime scene, then searching the crime scene for physical evidence. This is followed by the collection of physical evidence and finally forwarding the evidence to the forensic science laboratory (FSL) for analysis.

According to Carrier and Spafford (2003:8-10), there are six phases of crime scene investigation, these are:

- **Preservation phase:** which includes securing the crime scene, helping the wounded, detaining the suspects and identifying the witnesses
- **Survey phase:** this is a walk through by investigators to identify physical evidence and develop a theory
- **Documentation phase:** involves taking photographs, sketches and videos of the crime scene
- **Search and collection phase:** involves an in-depth search and collection of physical evidence
- **Reconstruction phase:** this phase involves organising the analysis results from collected physical evidence
- **Presentation phase:** this encompasses presenting evidence to court

The phases mentioned by Carrier and Spafford (2003:8-10) coincide with the phases stipulated by Van der Westhuizen (1996:21). However, Carrier and Spafford (2003:8-10) mentioned placing evidence and placing the case before court as a phase/stage of crime scene investigation. From the above discussion, it is evident that the placing of evidence or the placing of a case before court is not a stage of crime scene investigation.

The researcher has identified that “stages of crime scene investigation” is the same as “processing a crime scene”. Therefore the inclusion of Bennett and Hess (1996:134-138), who inform that processing a crime scene is the following:

- **Discovering, recognising, and examination it:** this step involves determining what evidence is. This is done by looking for objects that are unrelated or foreign to the scene. By determining the crime committed, assists in discovering, recognising and examining the evidence
- **Collecting, recording, and identifying it:** this involves collection and identification of all objects that are or might be evidence then leaving the issue of relevance to the prosecuting staff. Photographs and sketches must be done before the evidence is collected. The chain of custody must start here
- **Packaging and preserving evidence:** this step involves packaging of evidence in its original state, preventing damage or contamination. Each type of evidence has its own requirements, such as maintaining integrity concerning evidence
- **Conveying, storing and exhibiting it in court:** the evidence collected must be transported with care and destruction of it prevented. The evidence must then log-booked for police safe-keeping and subsequently forwarded for analysis whilst being safe-guarded until required by the courts

These steps mentioned by Bennett and Hess (1996:134-138) are in line with other literature, however, the last step of conveying, storing and exhibiting evidence in court, clearly excludes the stages of investigating a crime scene because this step is not completed at the crime scene but rather away from the crime scene.

The sample expresses understanding of the stages of crime scene investigation as follows:

- preliminary investigation (cordoning off the scene) (1 of 30)

- secondary investigation (collecting the evidence) (1 of 30)
- securing the crime scene (20 of 30)
- identifying the crime and the evidence (8 of 30)
- summoning the experts to take photographs and lift fingerprints (10 of 30)
- collecting the evidence (21 of 30)
- arresting the suspect (7 of 30)
- obtaining statements from victims and witnesses (11 of 30) and
- placing the case before court (1 of 30)

The sample group in general showed an understanding of the different stages of crime scene investigation, however they did not identify them in phases and they repeated some of the criminal investigation objectives. One respondent in the sample mentioned the placing of the case before court, as a stage of investigating a crime scene. It is evident from the discussion of the other authors that placing a case before court is not a stage of investigating a crime scene, it can however be regarded as part of the whole investigation process.

2.7 EVIDENCE

According to Schmidt and Zeffertt (1996:311), evidence is all information that is given in a legal investigation to establish the matter in question. The meaning of the term “evidence” was adopted in the case (*Starr v Ramnath* 1954 2 SA 249 (N)) as the “ordinary meaning of the word”. The learned authors propound that there is difficulty in defining the term “evidence”, as judicial notices, formal admissions and presumptions establish facts but do not take the form of information presented at court by the parties. This was affirmed in the cases mentioned in Schmidt and Zeffertt (1996:311).

Schmidt and Zeffertt (1996:311) further elucidate that ‘evidence’ is a flexible term that may bear different meanings for different purposes. This difficulty in defining the term ‘evidence’ is also expressed by Zeffertt, Paizes and Skeen (2003:5), when they say that there is probably no satisfactory definition for the word which would enable one in all cases to make a distinction concerning validity and accuracy. These authors comment that rules of evidence are best to be considered when the rules themselves are being discussed.

The LCRC Manager (2007) defines evidence as “oral or physical information that is placed before a court and upon which a decision is made based on the presented information”. Van Rooyen (2004:244) gives a sharp analysis on the concept of evidence. He contends that from the point of view of the courts, evidence is all relevant information that exists and presented to the courts. Van Rooyen (2004:244) adds that evidence may be given in a verbal form or a document form, which are both admissible in court.

Van Heerden (1991:8-9) mentions an important aspect of investigation of a crime which is that an investigator should follow and identify the *modus operandi* (suspects method of operation, abbreviated as ‘MO’) of a criminal. In a clear explanation, Van Rooyen (2004:10) describes *modus operandi* as an offender’s pattern of operation. He also urges investigators to collect, classify and store sufficient information about a criminal’s *modus operandi*, as this information can assist in the identification of the perpetrator.

In the words of the sample, the term “evidence” is explained as:

- information that is used to prove the elements of a crime (8 of 30)
- information which shows that that a crime occurred (3 of 30)
- information that is collected from the crime scene (8 of 30)
- factual information that can link a suspect to a crime (1 of 30)
- information presented to courts to make a finding (4 of 30)
- physical clues or oral statements that describes the crime scene or crime (6 of 30)

The explanations given for the definition of the term “evidence” by the sample is in line with the literature study. It is also noted that even the learned authors propound that there is difficulty in defining the term “evidence”.

2.7.1 Different types of evidence

According to Fisher (2004:1), evidence can be divided into two broad types, one being testimonial evidence (*viva voce*) and the other, real evidence. Although in different words, yet having the same meaning as to what Fisher (2004:1) states, Van der Westhuizen (1996:5) and Marais and Van Rooyen (1994:19) postulate that evidence is divided into two sources, namely:

- **Direct information** or original evidence: is an actual sensory observation or experience, direct sources of information include:
 - victims and complaints
 - witnesses directly involved in the event
 - persons involved in the event, but not present (informers)
 - accomplices and suspects
- **Indirect information:** this is so-called dumb evidence of physical clues, which are solid or liquid material

Schwikkard and Van der Merwe (2002:18-19) also discuss the two types of evidence, namely:

- **Oral evidence:** these are oral statements made under oath or affirmation or warning. Oral evidence also includes documents (documentary evidence)
- **Real evidence:** these are objects produced or received in court

From the above discussion, it can be concluded that oral evidence is called direct information and real evidence is indirect information.

2.7.2 Physical evidence

Ogle (2004:2) defines the term 'physical evidence' as "physical objects that are associated with a crime". In Lyman (1999:177) the make up of the physical evidence is demonstrated as having physical properties such as shape, seize or dimension. Lyman also mentions that physical evidence may be brought to or removed from a crime scene. According to Marais (1992:6), 'physical evidence' is also referred to as 'real evidence'. This is pointed out by Marais (1992:6) when he states that physical evidence is real evidence, which is visible and recognisable as a liquid, object, print or an instrument.

This reference of 'physical evidence' as 'real evidence' is highlighted in Zeffertt et al. (2003:703), who state that real evidence are things, when examined by the courts as means of proof through proper identification, it becomes itself evidence. They give us an example of real evidence, which is a weapon that is generally produced in a case against an accused. Schwikkard and Van der Merwe (2002:366) also explain that the term real evidence is a term that is used by courts in the inspection of material objects or articles and that a weapon is an example of real evidence.

Both Van Rooyen (2004:8) and Lyman (1999:177) give us examples of physical evidence, these are:

- impression evidence (finger- and other prints, tyre marks)
- weapons (firearms, knives)
- blood, semen, hair
- fabrics and cigarette butts

Van Rooyen (2004:8) cautions that in order for modern investigators to be successful in investigations, they need to have a thorough knowledge of physical evidence. As expressed in Horswell (2004:4), physical evidence and its usefulness are measured in:

- verifying that a crime has been committed
- identifying the person or persons responsible or
- exonerating anyone who comes under suspicion

Apart from the points expressed by Horswell (2004:4), Ogle (2004:2) mentions that physical evidence may serve as a major purpose of crime scene reconstruction.

According to the sample, “physical evidence” is described as:

- objects that have physical properties (9 of 30)
- indirect evidence that is used against an accused (3 of 30)
- something tangible, examples (firearm, blood, semen) (6 of 30)
- evidence that can link a suspect to a crime or a crime scene (11 of 30)
- the strength of a criminal case (1 of 30)

When comparing the viewpoints of the sample to that of the literature study, it becomes apparent that none of the respondents of the sample described “physical evidence” as “real evidence”. This reference of physical evidence as real evidence is one that is acknowledged by the courts. In summary, Gardner (2005:7) reminds us that physical evidence “never lies, it is what it is”. It is also pointed out in this discussion that misinterpretation of physical evidence is that of human nature in origin and the fault does not lie with physical evidence.

2.7.3 Forms of evidence found at a crime scene

Bennet and Hess (1996:177) comment that physical evidence is usually found at a crime scene. Gilbert (1993:98) also supports the view that physical evidence is found at a crime scene. Bennet and Hess (1996:177) point out that the type of physical evidence found at the crime scene depends on the type of criminal offence that has been committed. They further warn that investigators should bear in mind the crime, which was committed while searching a crime scene.

According to Fisher (2004:257), in crime scenes such as murder, attempted murder, rape or assault, firearm evidence, may be present at the crime scene. In discussing crime scene and firearm evidence, Lee et al. (2001:156) inform that firearm evidence such as spent cartridges and fired projectiles, are found at a crime scene that involve shooting incidents. Horswell (2004:184) further breaks down firearm evidence and informs that different categories of firearm evidence can be found at a crime scene namely:

- the bullet or projectile that may be present in a human or deflected into something
- a fired cartridge case
- propellant powder and
- the pistol and ammunition still in the magazine

Blount (ed.) (2003:100), (apart from mentioning spent cartridges, bullets), also discuss powder spraying, which is referred to as primer residue (PR), as evidence which can be found at a crime scene.

The case study conducted, reaffirmed that all the above-mentioned forms of firearm evidence could be found at a crime scene. The analysis of the case dockets illustrates the different types of evidence that can be found at a crime scene. The case study consists of the following investigated crimes:

- murder and attempted murder (firearms used) (5 cases), cartridge cases, spent bullets, live ammunition, gunshot residue (GSR) and firearms were found
- armed robbery (24 cases), firearms, cartridge cases, spent bullets, live ammunition and magazines were found
- hijacking (firearms used) (2 cases), firearms and live ammunition were found

- assault with intent to do grievous bodily harm (GBH) (firearm used) (1 case), a firearm and live ammunition was found
- unlawful possession of a firearm (3 cases), firearms, live ammunition and magazines were found

Van Rooyen (2004:95) and Bennet and Hess (1996:177) give a sharp analysis of the indirect information that can be found at a crime scene:

- **Impressions:** include fingerprints, tool marks, footwear, fabric impressions, tyre marks, and bite marks
- **Forensic biology:** includes blood, semen, body fluids, hair, nail scrapings, blood stains patterns
- **Trace evidence:** includes gun shot residue, arson accelerant, paint, glass and fibres
- **Firearms:** include weapons, gun powder patterns, casings, projectiles, fragments, pellets wadding and cartridges
- **Questioned documents:** include forged documents, disputed contracts and fake signature documents

In view of the sample the different forms of evidence which can be found at a crime scene are:

- physical evidence (20 of 30)
- forensic evidence (5 of 30)
- circumstantial evidence (2 of 30) and
- physical evidence depending on the crime committed (3 of 30)

The samples' view is in line with the literature study, however the group did not furnish details of the forms of evidence that can be found at a crime scene as mentioned by both Van Rooyen (2004:95) and Bennet and Hess (1996:177).

2.8 CRIME SCENE RESPONSIBILITIES

In the view of the Ballistic Expert (2007), the member from the LCRC is responsible to conduct investigations of a crime scene. Blount (ed.) (2003:13) state that a senior investigating officer should be present at a crime scene and direct the investigation. When looking at the discussion in Lee et al. (2001:67), the authors suggest that

during the investigation of a crime scene, one investigator is assigned as the physical evidence collector and that this individual has the responsibility of collecting, marking, preserving and packaging the evidence at a crime scene. According to Blount (ed.) (2003:13), it is usual for an investigator to be assigned the task of being the physical evidence collector and to be delegated the duty by a senior investigating officer.

In contrast to the above authors, Fisher (2004:52, 57) asserts that uniformed officers and investigators do not possess the full range of special skills and expertise needed to process an entire crime scene. Fisher (2004:52, 57) also suggests that an investigation of a crime scene should not start if the necessary specialised personnel are not present, as the crime specialist's task is complicated enough and it does not need to be made more difficult by completing what someone else started. In well-explained terms, Bell (2004:77) states that at a crime scene, apart from a forensic scientist, evidence collection specialist or crime scene technicians even an investigator (a police officer) have a goal and task to perform at a crime scene.

According to Pepper (2005:8-9), there are now modern crime scene investigators. These modern crime scene investigators are specially trained in the core elements of fingerprints, forensic evidence recovery and basic photographing. Pepper (2005:8-9) also identifies the roles that these modern investigators perform, which are:

- photographing or videoing crime scene victims and property
- searching for and recovery of physical evidence
- detection and recovering fingerprints and palm prints at a crime scene
- packaging and storage of physical evidence, preventing contamination
- maintenance of intelligence indices on *modus operandi*
- provision of advice on scientific matters
- preparation of statements and giving evidence in court

Van Rooyen (2004:95) also comments on crime scene investigators who undergo extensive study, training and experience in crime scene investigations. He asserts that these crime scene investigators are well versed in all areas of recognition, documentation and recovery of physical evidence of a crime scene. He contends that in the scientific community, these investigators are accepted as forensic specialists, as they bear general knowledge of what analysis needs to be preformed in a laboratory, as well as the procedures in handling, collecting and packaging of items

of evidence that are needed to assure those recovered items arrive safely at a laboratory.

From the interviews conducted, 90% (27 of 30) of the respondents have conducted an investigation of a crime scene. When simplified, the percentage reflects that all twenty-five (25) investigators have conducted investigations of a crime scene and two (2) of the five (5) prosecutors have conducted crime scene investigations as a result of previous experience. The duties which they performed included the cordoning, preservation, protection, evidence collection and evidence packaging at a crime scene. The study also reveals that only 74% (20 of 27) of the respondents who have conducted investigations at a crime scene have received some sort of specialised training (59%) (16 of 27) or have theoretical knowledge (15%) (4 of 27). It is the opinion of the researcher that the percentage of 74 needs to be drastically increased as it is vital to have specialised training when investigating a crime scene.

Horswell (2004:79) contributes a vital aspect when stating that some countries employ bench scientist as crime scene examiners - some countries employ uniformed or plain-clothed police, who have little training and some countries employ professional scientist as crime scene investigators. The latter part of Horswell's statement (2004:79) points out that certain countries employ professional scientists as crime scene investigators. This point is supported by both Genge (2002:12) and Jackson and Jackson (2004:1), when they state that civilians who have been highly trained are employed as crime scene investigators.

It is the complete view of the sample group that responsibilities for conducting investigation of a crime scene lie with:

- the investigating officer (12 of 30)
- the investigating officer on call at the crime scene (8 of 30)
- the Local Criminal Record Centre (LCRC) member (5 of 30)
- a crime scene manager (3 of 30) and
- the first police officer (2 of 30)

A majority of the sample are in line with the literature, however, (2 of 30) respondents in the sample spoke about the First Police Officer as having the responsibility of conducting investigation of a crime scene. From the above discussion it is

established that a crime scene investigator is specially trained in crime scene investigations and First Officers are not. First Police Officers are not trained because they are mostly from the uniform branch and do not attend detective training courses.

2.9 IDENTIFICATION AND INDIVIDUALISATION

Van Rooyen (2004:11), emphasises that identification and individualisation are concepts that are inseparable or inalienable, they mainly compliment each other.

2.9.1 Identification

Lee et al. (2001:274) define the term “identification” as a process, which utilises the class characteristics of an object or known substances to compare with evidence collected from a crime scene. According to Horswell (2004:6), identification of an object is to establish that the object belongs to a large group or class. In his explanation, Fisher (2004:5) informs that identification of an item is simply that the items share a common source and that the item can be placed or classified in groups with other items having the same properties.

It is the view of the sample group the term “identification” is:

- based on the probability theory (1 of 30)
- the isolation of essential evidence, for arrest and prosecution (4 of 30)
- to identify physical evidence, that can link a suspect to a crime (12 of 30)
- to identify property of a complainant (5 of 30)
- pointing out (identification parade) (5 of 30)
- to find out what something is; and to establish and know the facts (3 of 30)

The sample does understand the concept of identification. However, the samples explanation is not as specific as that of the literature.

2.9.2 Categories of identification

Marais (1992:3-5) sets out the different categories as situation identification, victim identification and perpetrator identification. He also explains that situation identification is when the crime is identified, victim identification is when the person who suffered from the crime is identified and perpetrator identification is when the person who causes the crime is identified. According to Van Heerden (1991:13-15),

identification categories will depend on the crime being investigated. Lee et al. (2001:1), break down the identification of physical evidence into having different properties, such as physical, biological and chemical properties. They state that these properties lead to individualisation through comparison.

In addition to the above discussion, Van der Westhuizen (1996:6-7) comments that there are eight (8) categories of identification:

- **Situation identification:** this relates to the crime situation and individualises the unlawful nature of the situation
- **Witness identification:** this relates to the linking of the perpetrator by means of accounts of events from statements of witnesses and complainants
- **Victim identification:** this is the identification of the dead victim
- **Imprint identification:** relates to achieving individualisation by comparing a disputed imprint with a control imprint of the alleged object
- **Origin identification:** is mainly concerned with the analysis of organic and inorganic solids and fluids to determine if they have a common origin
- **Action identification:** this refers to the identification of human acts that are directly related to the crime and constitutes elements of the crime
- **Culprit identification:** this relates to the identification of the perpetrator
- **Cumulative identification:** refers to the collective contribution of different specialist on the crime situation as a whole

The sample points out their understanding of the different categories of identification as follows:

- crime identification (8 of 30)
- perpetrator identification (8 of 30)
- victim identification (12 of 30)
- evidence identification (DNA, fingerprints) (6 of 30)
- situation identification (4 of 30)
- identification of *modus operandi* (5 of 30)
- identification parades (5 of 30)
- identification of informers (1 of 30)

The sample only identified (4 of 8) categories as stipulated by Van der Westhuizen (1996: 6-7). The majority of the samples view is in line with the literature. The sample

understands the categories of identification. As mentioned by the sample identification parades and identification of informers although not specified in Van Der Westhuizen (1996: 6-7) does form part of the identification process.

2.9.3 Individualisation

According to Bell (2004:180), the term “individualisation” is the process of linking physical evidence to a common source. She goes on to say that individualisation is a process which starts with identification progresses to classification and leads, if possible, to assigning a unique source to a given piece of physical evidence. Van der Westhuizen (1996:6) states that a process of individualisation takes place to determine individuality. He adds that it usually consists of a series of identifications and comparisons.

According to the sample, the term “individualisation” is:

- linking a suspect to a crime or a bullet to a weapon (7 of 30)
- to prove that a piece of evidence came from some where (8 of 30)
- the undisputable evidence that convict an accused for a crime (5 of 30)
- is a process that the laboratory follow (7 of 30)
- an example if fingerprints are found at a scene, and if there is an alleged suspect, that suspect can be linked if the fingerprints match (1 of 30)

The samples’ understanding of this concept of individualisation is limited. From the interviews conducted it must be noted that (2 of 30) respondents could not answer the question put to them.

2.9.4 Differences between Identification and Individualisation

Van der Westhuizen (1996:6) suggests that there is a difference between identification and individualisation. He says that this distinction is of great importance to criminal investigation. Bell (2004:180) warns that the term individualisation is often mistaken for identification. The researcher is now going to identify said differences.

2.9.4.1 Table of differences

| Identification | Individualisation |
|--|---|
| 1. According to Bell (2004:8) identification does not need a comparison, example: a fingerprint is simply a fingerprint, no comparisons are drawn | 1. According to Bell (2004:8), individualisation requires a comparison, example: a fingerprint identified needs to be compared to the alleged suspect's print to make a comparison. |
| 2. In the words of Van der Westhuizen (1996:6), "the aim of identification is merely concerned with the identification of something or somebody belonging to a specific category". | 2. In the words of Van der Westhuizen (1996:6), "the aim of individualisation is to individualise the crime as the act of a particular person or persons". |
| 3. Bell (2004:64) informs that identification is the class characteristics of evidence which is assigned to a group or category. | 3. Bell (2004:64), informs that individualisation of evidence possess characteristics that make it unique. |
| 4. Identification requires visual examination and chemical tests (Bell, 2004:8). | 4. Individualisation requires analysis (Bell, 2004:8). |

It is evident from the literature of Van der Westhuizen (1996:6) and Bell (2004:8, 64), that there are differences between identification and individualisation.

2.10 GUIDELINES FOR CRIME SCENE INVESTIGATIONS

Burns (2000:11) brings to our attention, what is referred to "as a cardinal rule for investigators who attend a crime scene". The cardinal rule is "eyes open, mouth shut, hands in the pocket". This rule means that investigators should be aware of every detail, the investigator should not make any comment which could affect the testimony of anyone nearby and finally, the investigator should not touch anything until the search team arrives. It is for this reason that crime scene investigation is divided into different phases.

When asked, how she would conduct investigations at a crime scene? The LCRC Manager (2007) replied that she would:

- wear personal protective equipment (PPE)
- interview the first officer at the scene and base her investigations on his/her postulations
- walk through the crime scene and plan investigations
- photograph and sketch the crime scene before collecting evidence
- collect evidence, whilst maintaining integrity of the evidence

Erzinclioglu (2000:41) informs that every care should be taken not to disturb or contaminate evidence. As well as the latter, there must be a written and photographic account of the crime scene. Erzinclioglu (2000:41) also says that a crime scene must be recorded from outside inwards. Here Erzinclioglu suggests that a crime scene must be recorded from the outer perimeter to the actual point of incident. Burns (2000:11) strongly warns that if a firearm is found on a crime scene it must never be touched until experts arrive.

Van Rooyen (2004:94) talks about the setting up of perimeters at a crime scene. He suggests three perimeters namely:

- **Inner perimeter:** allowing for a command post to be set up
- **Outer perimeter:** established as a boarder larger than the actual scene, to keep onlookers and non essential personal safe and
- **Comfort area:** is the area between the scene and the inner perimeter

The perimeters, according to Van Rooyen (2004:94), will restrict access and prevent evidence destruction. The author also suggests that an investigator should not jump to conclusions as to what happened, but rather generate several different theories of the crime. These theories will assist the investigator to document specific conditions and recognise valuable evidence.

According to the Policy on Crime Scene Management (2005:9-16), there are guidelines for the different members and personnel who attend the crime scene.

When summarised, these are:

- Upon arrival at the crime scene the First officer must
 - take control, protect and evaluate the crime scene

- establish a command centre
- identify witnesses and gather information on the suspects

- The Crime Scene Manager must
 - assume complete control of the scene from the first officer
 - obtain a comprehensive situation report (SITREP) from the first officer
 - evaluate the crime scene by a walk through of the crime scene
 - determine the investigation goals, resources and role players needed
 - keep the crime scene manager's report updated

- The Crime Scene Technician must
 - identify, note and protect the possible physical evidence
 - establish and activate a crime scene processing team
 - ensure that the scene is recorded before it is altered in any way
 - coordinate the processing of the scene for physical evidence
 - in a death investigation, authorise the removal of the corpse

- The Crime Scene Processing Team must
 - record all physical evidence before it is collected
 - take the necessary safety precaution when collecting evidence
 - process all physical evidence and ensure that the integrity of all physical evidence is maintained
 - log and handle all evidence according to the directives for the collection of exhibits

- The Investigating Officer must
 - complete all necessary documentation for opening a case
 - manage the investigation team to gather information and
 - maintain the investigation diary of the case docket

Jackson and Jackson (2004:12) suggest that questions be asked by an investigator when at a crime scene. These questions may provide pivotal information about the crime committed the perpetrator, the witnesses, the victim and the motive for the crime. The questions are what; when; who; where; why; and how. Both Blount (ed.) (2003:12), and Genge (2002:5-10), agree that after the first officer has completed

his/her responsibilities at a crime scene, the crime scene should be handed over to a crime scene investigator or crime scene technician.

The sample, suggests a guideline when investigating a crime scene:

- determine the extent of the crime scene and identify the crime
- cordon the crime scene and protect the evidence
- identify witnesses, suspect and the complainant
- call in the crime scene experts to lift fingerprints and take photographs
- record the crime scene and collect the evidence
- arrest the suspect if present at the scene

From the sample (25 of 30) respondents had the general idea on guidelines which need to be followed at a crime scene, as stipulated by the literature study. However, the sample group did not divide these guidelines into various categories for the different personnel attending the crime scene. The guidelines extracted from the literature study and the SAPS are adequate for investigations to follow in order to successfully investigate a crime scene and obtain the necessary evidence to help solve a crime.

2.11 SUMMARY

Gardner (2005:1) maintains that crime scene processing is not something that technicians carry out because they are told to, but because of their responsibility to do so. If investigators fail to recognise their duty, many of the procedures applied will be meaningless and objectives will not be reached. "There is no single right way for crime scene technicians to conduct themselves at a crime scene, but there are certainly a number of wrong ways," warns Gardner (2005:1). When investigating a crime scene, investigators need to follow procedures and must do so maintaining the integrity of the evidence at that crime scene. All crime scene investigators, whether they are experts or uniformed officers, have the responsibility to carry out the investigation of that crime in a procedurally correct manner. It is this procedure that will be explored and interrogated in chapter 3.

CHAPTER: 3

THE PROCESSING OF FIREARM EVIDENCE

3.1 INTRODUCTION

The mere identification of a firearm or the obtaining of firearm evidence and the subsequent arrest of a suspect at a crime scene, is no indication of a solved case. A vital aspect of successfully solving any case involving a firearm is the processing of that particular firearm or firearm-related evidence, so as to ensure its admissibility as evidence in court. According to Van Rooyen (2004:244), there are two important aspects to bear in mind regarding evidence and its admissibility. Firstly, it may take months or even years of hard work to present available evidence to court and secondly, the manner in which evidence is presented in the court depends on the quality and quantity of evidence obtained by investigators.

Van der Westhuizen (1996:29) states that the handling of physical or material crime information determines its physical integrity. Simply stated, Van der Westhuizen informs that proper processing techniques must be adhered to, in order to ensure the integrity of physical evidence. Firearm evidence collected at crime scenes must reach the laboratory in an unchanged and uncontaminated manner. This is paramount for the examination or analysis to follow. Jackson and Jackson (2004:239) cite “the examination of any recovered firearm and related evidence is extremely important in the forensic investigation process and it is crucial in establishing that a crime was committed”.

In this chapter, the researcher intensely interrogates the aspects which are related to the processing of firearm evidence at a crime scene so that this evidence is admissible in court.

3.2 PROCESSING

Through literature study, the researcher concludes that the concept “processing a crime scene” means the same as the concept “stages of investigating a crime scene”, which was discussed in detail in chapter 2. In addition to the discussion in chapter 2, Gardner (2005:1) states that crime scene processing is an inherent task and duty that it is associated with criminal investigation. Gardner (2005:1) describes the purpose of crime scene processing as the express recovery of physical evidence and documenting at the scene.

Both Fisher (2004:75) and Gardner (2005:1) warn that crime scene processing should be approached in a systematic and methodical manner. Fisher (2004:75) adds that during crime scene processing, due consideration must be granted for both the legal and scientific aspects of the investigation. Gilbert (1993:101) adds an important aspect of crime scene processing, which is equipment. He also states that investigators will experience a predicament, should they arrive at a scene without equipment. In summary, Jackson and Jackson (2004:12-13) point out that crime scene processing is the sum total of activities performed at a crime scene.

3.3 DEFINING A FIREARM

According to Firearms Control Act, 2000 (Act No. 60 of 2000) a “firearm” means any:

- (a) device manufactured or designed to propel a bullet or projectile through a barrel or cylinder by means of burning propellant at a muzzle energy exceeding 8 joules (6 ft-lbs);
- (b) device manufactured or designed to discharge rim-fire, centre-fire or pin-fire ammunition;
- (c) device which is not at the time capable of discharging any bullet or projectile, but which can be readily altered to be a firearm within the meaning of the paragraph (a) or
- (d) device manufactured to discharge a bullet or any other projectile of .22 calibre or higher at a muzzle energy of more than 8 joules (6 ft-lbs), by means of compressed gas and not by means of burning propellant; or
- (e) barrel, frame or receiver of a device referred to in paragraphs (a), (b), (c) or (d)

According to regulation 1, in terms of the Firearm Control Act, the “main firearm components” means the barrel, frame, receiver, slide, bolt, and breech- block of a firearm. Genge (2002:103) emphasises that all firearms have something in common, - referred to as a barrel. He further adds that it is through this barrel that projectiles are forcefully projected. Another important aspect regarding barrels is brought to light in Ballistics for Investigating Officers (2004:5), which states that each firearm, has unique marks, which are transferred to a bullet and a cartridge casing during the firing process. This report further elucidates that it is through these unique marks that a fired bullet and/or cartridge casing can be linked to a specific firearm.

According to the Ballistic Expert (2007), a “firearm” is defined as any hand held factory device that is designed to fire either a centre fire, rim fire or pin fire, factory manufactured ammunition at a velocity and energy more than eight joules. In their explanation, Blount (ed.) (2003:100) give a simple understanding of the workings of a firearm. They assert that all firearms work in a similar manner. The pulling of the trigger makes the firing pin strike the back of the cartridge, igniting a tiny pressure-sensitive charge, called a primer. This primer, in turn, detonates the explosive powder in the cartridge, forcing the bullet (or, in a shotgun, the pellets) down the barrel towards the target.

In clarifying possible misunderstandings of certain concepts, Fisher (2004:257) states that the field of firearm identification is sometimes improperly referred to as “ballistics”. He further propounds that “ballistics” refers to the trajectory taken by a projectile and assumes an understanding of physics. Bell (2004:136) agrees with Fisher (2004:257) in that firearm identification and firearm investigations are sometimes incorrectly referred to as “forensic ballistics”. Bell (2004:136) also defines “ballistics” as the study of the motion and trajectory of projectiles. Nickell and Fischer (1999:89) strongly suggest that the above misconception be discouraged. McQuoid-Manson and Dada (1999:30) also agree that ballistics is the study of projectiles (eg bullets) and they divide ballistics into three areas:

- **Internal ballistics:** deals with the ejection of projectile from the firearm
- **External ballistics:** deals with the flight of the projectile through the air
- **Terminal / wound ballistics:** deals with the impact of the projectile on a target

According to the sample, the concept of a “firearm” is understood as:

- a weapon that is dangerous and can fire bullets (5 of 30)
- a weapon that is capable of firing a projectile (9 of 30)
- a weapon that is made up of a hammer, trigger, barrel, firing pin and bears a serial number (10 of 30)
- a factory manufactured object that produces combustion to propel a projectile (2 of 30)
- an exhibit found at a crime scene, it can also be home made (1 of 30)
- a self-propelled instrument that can fire a projectile with more that eight joules of energy (2 of 30)

- a factory manufactured object that can fire live ammunition (1 of 30)

As compared to the literature and legislation, the sample has a limited understanding of the definition of a firearm. From the sample only (2 of 30) respondents mentioned the amount of force required for a firearm to discharge a projectile in order for it to be constituted as a firearm.

3.4 EXHIBITS

According to Joubert, Faris, Harms and Rabie (1996:410), when real evidence is presented to court for inspection, that evidence is regarded as an exhibit or exhibits. Schwikkard and Van der Merwe (2002:366) inform that real evidence owes its efficacy to the evidence of a witness who explains how an exhibit was used. Fisher (2004:10) warns that when physical evidence is being seized, due consideration must to be given to the legal and scientific requirements.

3.4.1 Seizing of firearm evidence as exhibits

Gardner (2005:46) contends that at any time when collecting a firearm or firearms at the scene, it must be safely secured and risk free. In Genge (2002:108) the writer warns that the first hazard, which should be borne in mind, is that any firearm is a danger and that any firearm should be presumed to be loaded until otherwise proven. He further warns that not all firearms can be rendered harmless. Older weapons, according to Genge (2002:108) and those recovered from saltwater are often rusted therefore special precautions should be taken when collecting these exhibits. From the case study, it was determined that firearm evidence was seized from the crime scenes and from the persons suspected of committing the crimes.

According to Management of Exhibits (2004:7-8, 11-12), the guidelines for collecting firearm evidence are set out as follows:

- gloves must be worn at all times during the collection process. Pepper (2005:102) also states that clean latex gloves be worn by crime scene investigators (CSI's) when collecting firearm evidence
- care must be taken when dealing with firearms at a scene, as the firearm might be still loaded

- the position of firearms, cartridge and bullets found at a scene must be accurately recorded and the exhibits must be marked accordingly
- the firearm(s) must be unloaded after fingerprints have been taken before it is forwarded to the forensic science laboratory
- all fired bullets and cartridge cases found must be sent to the forensic science laboratory (FSL)
- every fragment of bullet found, no matter how damaged or small, must be forwarded for examination
- under no circumstances may any marks be made on firearms, bullets, cartridge cases or shotgun pellets
- when a cartridge case or bullet is removed from a chamber of a weapon, special care must be taken to ensure that the cartridge case or weapon is not damaged
- except for weapons which are fired under special circumstances with arrangements from experts, no weapon may be fired by any person
- do not reinsert any bullets which have been fired into the fired cartridge cases
- primer residue samples must be taken within two and half hours from the time the shot was fired and samples must be taken from both hands of all persons suspected to have been involved in the shooting incident

Gardner (2005:46) asserts that weapons found at a scene should not be moved or collected, until thorough measurements, sketches, and photographs have been recorded. In the same vein, it is mentioned that during the sketching and measuring phases of the crime scene, it is important to also note and record the location of all shell casings, bullet holes, bullets, bullet fragments and shotgun shot patterns that are found at a crime scene.

According to the LCRC Manager (2007), the general guidelines for firearm evidence seizing are to:

- first observe the scene and the firearm evidence
- record all details of the evidence by using either photograph, sketch or video
- then carefully lift for prints or other evidence (blood, hair)
- ensure that the firearm is risk free (safe)
- package the weapon and evidence in forensic science bags, with unique serial numbers

- carefully record all the details of the evidence

In their discussion Lee et al. (2001:157) suggest that care must be taken when collecting firearms to avoid disturbing any potential fingerprints or blood spatters that may have been deposited on the firearm. Fisher (2004:37) and Lee et al. (2001:157) give an alternative way of picking up firearms. They suggest that for handguns the firearms may be picked up or touched on the textured grips without altering or damaging existing fingerprints on the weapon. They suggest that in order to move larger weapons, the lanyard ring can be used to lift the weapon if one is attached to it. Marais (1992:167) sets out guidelines for the collection of shotguns and rifles. He suggests that the gun sling (belt) be used to pick up a shotgun or rifle but if the gun sling is unavailable, the weapons must be picked up with a firm grip on the trigger guard.

Marais (1992:167) points out that when collecting a firearm, it is important to record the model, serial number, the number of expended bullets in the weapon, as well as to state whether the weapon is loaded or not. Fisher (2004:37), Horswell (2004:34), Swanson, Chamelin and Territo (1992:105) and Lee et al. (2001:157) warn that when collecting a firearm, one should never insert a stick or object into the barrel of a firearm to pick it up, as this will destroy potential evidence and this action may change or alter the rifling in the barrel.

It is the strong opinion of Lee et al. (2001:159) and Swanson et al. (1992:105), who contend that firearm evidence (bullets, cartridges, firearms, and projectiles, amongst others), should never be marked or scripted on as this action could destroy potential evidence. With regard to firearm evidence marking, Gardner (2005:46) clearly indicates that when removing bullets embeddings, metal forceps are never to be used, as these may cause additional markings on the bullets.

Nickell and Fischer (1999:90) brings to our attention an aspect of ricochet bullets not mentioned by other authors. He warns that when collecting firearm evidence, Investigators should be aware of bullets that may have ricocheted and should collect them with care. Both Horswell (2004:34) and Lee et al. (2001:157) state that a firearm must not be cleaned when being collected. These authors further strongly suggest that a weapon should never be stripped or taken apart before being submitted for analysis.

According to the sample, firearm evidence can be seized as an exhibit as follows:

- ensure that the firearm is made safe and then place it in a bag, which must be sealed (8 of 30)
- have it photographed, fingerprinted and packaged by experts (7 of 30)
- the LCRC member to collect firearm evidence (5 of 30)
- enter it into the South African Police exhibit register (SAP 13) (3 of 30)
- collect with a pen, wrap with tissue and place in a bag (1 of 30)
- identify, photograph and collect in the prescribed manner (6 of 30)

The sample has a general idea as to how to seize firearm evidence as exhibits. However, their explanations are not in line with the literature study. They do not specify details as stipulated in Management of Exhibits (2004:7-8 & 11-12). The other point of concern, mentioned by one respondent of the sample was that a pen must be used to pick up the weapon. It was not stated how the pen must be used to pick up the weapon, however Lee et al. (2001:157) above talks about destroying potential evidence by using a stick to pick up a weapon. The same can be said for using a pen as it may also destroy potential evidence.

3.4.2 Packaging of firearm evidence as exhibits

Fisher (2004:89) comments that evidence which is sent to a crime laboratory should be packaged to prevent breakage, spoilage, or contamination. Van Rooyen (2004:106) states that emphasis placed on matters that correct packaging and sealing of physical evidence largely determine the evidential integrity of it. In maintaining the integrity of physical evidence and to prevent breakage, spoilage, and contamination, Bennett and Hess (1996:137) suggest that evidence be packaged and sealed in separate durable containers. Erzinclioglu (2000:41) emphatically states that when packaging evidence there must be no doubt as to the history of it and that a chain of custody should be maintained by keeping a record of signatures on the package.

3.4.2.1 Firearms

According to Lee et al. (2001:157), a firearm should never be packaged whilst it is still loaded. Horswell (2004:34) reaffirms this belief that a firearm should never be transported to a laboratory whilst it is still loaded. In opposition, Cunliffe and Piazza

(1980:238) suggest that a firearm should be transported to a crime laboratory whilst it is still loaded. These authors ascertain, that unloading a firearm without damaging prints, is impossible. There are many inherent dangers associated with the transporting of a loaded firearm, including accidental discharge. Regarding the damaging of prints, there are recently specially trained persons who can unload a firearm without damaging prints, as compared to the days of the publication of the authors' book *Criminalistics and Scientific Investigation* in 1980.

When packaging a firearm as an exhibit, Horswell (2004:34) suggests that:

- a strong cardboard or wooden box, which is well packed, be used to transport a firearm
- if blood, fingerprints or any other material is present on the firearm, clean paper is taped around the firearm to prevent loss of this vital evidence

In the view of Swanson et al. (1992:105), once a firearm has been unloaded, it should be suspended in a box by a ring, which passes through the guard of the firearm. These also warn that placing a firearm in a coat or pants pocket, should be avoided. Pepper (2005:16) supports the suggestion that a firearm be secured with a string in a box as a method of packaging.

According to *Management of Exhibits* (2004:12-13), the guidelines for packaging firearms are that:

- all weapons forwarded to the Forensic Science Laboratory must be unloaded before sending for examination
- loaded firearms may not be packed and sealed under any circumstance
- if a bullet is stuck in the weapon and it cannot be removed, this fact must be stated clearly (in bold red writing) in the covering minutes
- all weapons must be thoroughly packed to prevent them from getting damaged in provided Forensic Science Laboratory packaging
- the magazines of the firearm must always be forwarded together with the firearm
- a covering minute must accompany the exhibit to the forensic laboratory
- the covering minute must contain a brief description of the incident as well as all case details

- firearms must be forwarded for forensic investigation before it is etched (a process of restoring the serial number on a firearm)

In their deliberation Lee et al., (2001:157) state that a firearm should be packaged in a primary container or wrapping and placed in a paper bag, envelope or cardboard box specific utilized for firearms. Fisher (2004:34) brings to our attention a vital aspect, which is, when packaging a firearm for examination as evidence, a detailed description of what was done to the firearm must accompany the exhibit. According to Ogle (2004:162) firearms must be packaged separately from detachable magazines, extracted cartridges and bullets.

There is a disagreement between Management of Exhibits (2004:12-13) and Ogle (2004:162) concerning the packaging of the magazine with the weapon. Ogle believes that packaging the magazine and the weapon together will destroy possible evidence and the SAPS believe that packaging the magazine and the weapon together, yet being kept separately, is vital for the individualisation process.

The sample group understands the packaging of firearms as an exhibit as follows:

- ensure that the firearm is risk free and safe (12 of 30)
- use forensic science bags that consist of tamper proof packaging (10 of 30)
- the forensic bag must contain the case details, the investigators' details and police station details (5 of 30)
- firearm exhibit and magazine must placed in the same forensic bag (10 of 30)
- if unloaded for any reason, this must be clearly stated (4 of 30)
- gloves must be worn (10 of 30)
- packaging guidelines must be followed (6 of 30)

The sample group's explanation is in line with the literature, with the exception that none of the respondents raised the point that a firearm must be suspended in box by a ring which passes through the firearm guard as stipulated in Swanson et al. (1992:105) and Pepper (2005:16).

3.4.2.2 Other firearm evidence

Lee et al. (2001:157) state that any unused ammunition must be collected, packaged, marked and its location, near or in the firearm, be described. Lee et al. (2001:159)

also suggest that both projectiles and spent casings found at a crime scene should be wrapped with soft paper and then packaged in containers. They further outline that if the projectiles or casings are coated with blood or biological fluids, these should be allowed to dry, then wrapped and packaged. According to Horswell (2004:35), all recovered projectiles and cartridge cases should be wrapped in plastic bags and then packed in rigid containers.

According to Management of Exhibits (2004:11-12), firearm related evidence should be packaged as follows:

- the cartridge cases or bullets must be placed in containers, such as envelopes, which must contain the case number, station, and place where the exhibit was found
- bullets, especially those made of lead, must be wrapped in tissue paper before being packaged - this must be done as soon as possible
- never place bullets or cartridges in cotton wool
- cartridge cases found on the scene must be kept separate from those removed from weapon
- if a bullet is removed from a body, the bullet or fragment must be rinsed, dried and wrapped in tissue paper and placed in a container
- the primer residue kit must preferably be used for the collection of primer residue sample, and the kit instructions be followed

From the above discussion it is noted that Horswell (2004:35) suggest(s) that cartridge cases should be wrapped in plastic bags and then packed, whilst Management of Exhibits (2004:11-12) suggest(s) that firearm evidence be wrapped in tissue paper. The suggestion of the SAPS is more reasonable as the use of plastic as a wrapping agent may lead to the build up of moisture causing contamination of such evidence. Wrapping bullets and shell casings or cartridges in cotton fabric is the suggestion of both Bennett and Hess (1996:136), Nickell and Fischer (1999:35). These writers, also add that other evidence, such as firing pins, impression marks and fatal bullets are to be wrapped in cotton fabric then packaged to prevent breakage or damage to the qualities of individual evidence.

Ogle (2004:162) points out that when packaging a bullet or bullet fragments, that have been removed from a person (dead or alive), the evidence must be air dried, then wrapped in bond paper that has been crumpled and sealed in a labelled paper

envelope or box and that each exhibit should be packaged separately. Ogle (2004:162) warns that under no circumstances should these exhibits be marked or attempted to be marked. In another important point, Genge (2002:105-106), Pepper (2005:102) and Bell (2004:137) inform that when removing a bullet from a wall or any other surface, in which a bullet or bullet fragment is embedded, a piece of the surface surrounding that evidence should be removed and sent to the laboratory as well.

Horswell (2004:35) adds to this discourse a vital aspect often forgotten by investigators and that is gunshot residue (GSR), which is also regarded as firearm evidence. Horswell states that when items of clothing are suspected to contain GSR or even has a projectile hole, these items of clothing should be carefully wrapped in clean paper and folded as little as possible, in order to prevent dislodging powder. Each item should be packaged separately. If clothing is wet, it should be allowed to air dry under the investigator's control, then packaged. Finally, if GSR is taken off a person's hands, it should be within a specific time, done using the prescribed laboratory GSR kits and packaged according to instructions.

3.5 FIREARM EVIDENCE PROCESSING RESPONSIBILITY

According to Gardner (2005:45-47), it is the responsibility of a crime scene technician, who is specially trained to identify, record, ensure firearm(s) to be risk free and safe, collect and package all firearm evidence, which include firearms, projectiles, spent cartridges, bullets, bullets fragments, gunshot residue (GSR). Genge (2002:17-19) describes a crime scene investigator (CSI) as a job title which encompasses a wide range of skills and responsibilities. In addition, Genge (2002:17-19), informs that a CSI is a specially trained individual.

Both the Local Criminal Record Centre (LCRC) Manager (2007) and the Ballistic Expert (2007) strongly agree that it is the duty and responsibility of the LCRC member to process firearm evidence at a crime scene. However, from the case study conducted, it was established that both Investigators and LCRC members, had collected firearms and firearm related evidence. In this chapter, it was also established that specially trained persons should collect firearm evidence at a crime scene. In light of this fact, the researcher concludes that in Chapter 2, 74 percent of the sample group have received some sort of specialised training. This will account for one of the reasons, for investigators to have processed firearm evidence at a

crime scene. The other reason is that a delay in waiting for the experts to attend the crime scene could have caused some vital firearm evidence to be destroyed, this reason was gathered from the interviews conducted with investigators.

Pepper (2005:101) points out that the recovery of firearms, cartridges and bullets including ensuring the safety of firearms, is the responsibility of a trained and authorised specialist. This authorised individual is likely to be a specially trained police firearms officer or possibly a forensic firearms expert. Horswell (2004:181,186-187), emphasises that a ballistic expert should be called to a crime scene, where a firearm has been used or suspected to have been used. He states that the obvious reason for this is that of safety and that a ballistic expert is best trained to handle and package exhibits relative to firearms and ammunition examination.

According to the sample group, firearm evidence processing responsibilities lie with the:

- investigating officer who attends the scene (6 of 30)
- ballistic expert from the Forensic Science Laboratory (FSL) (5 of 30)
- Local Criminal Record Centre (LCRC) member (8 of 30)
- investigating officer on call (9 of 30)
- senior member who attends the scene (2 of 30)

It is evident that the sample group has an array of opinions regarding the firearm processing responsibilities. From the literature study, it is clear that responsibility lies with a specially trained person (ballistic expert or the LCRC person). Only (13 of 30) respondents share the opinion of the literature study.

3.6 CONTAMINATION

As defined in Ogle (2004:316), “contamination” is the unwanted transfer of material from another source to an item or a piece of physical evidence. Ogle (2004:317) also defines “cross contamination” as “the unwanted transfer of material between two or more items of physical evidence”. In Gardner (2005:25) the cause of cross contamination is brought to light, when stated that it is directly associated with the Locard principle of exchange and is caused by inappropriate handling of evidence.

According to Horswell (2004:24), items that are not properly packaged may lead to contamination through the introduction of foreign matter. From information obtained from the above authors, it is evident that firearm evidence is susceptible to many forms of contamination. A vital aspect of concerning contamination, according to Bell (2004:73), is that contamination can occur as from the collection process until the actual analysis of the evidence.

3.6.1 Causes of firearm evidence contamination

Horswell (2004:19) contends that when collecting items by hand, consideration must be given to the possibility of contamination by perspiration exuded from the hands. According to Blount (ed.) (2003:17), evidence could be destroyed or damaged by the weather. According to Van Rooyen (2004:105), cartridge shells must be marked as close to the open air as possible and pertaining to a firearm or firearms, the grips must be removed and marks made on the metal. In Nickell and Fischer (1999:36) it is also said the firearm evidence must be marked for identification and then logged. They go on to say that, bullets or any other object larger than a cubic inch, should be marked with the initials of the investigator.

In contrast to Nickell and Fischer (1999:36), Ogle (2004:163) suggest that firearm evidence should not be marked. According to the recommendation made, firearms which have been recovered should not be scribed, as this may lead to latent prints, trace evidence, or bloodstains being obliterated. There is a similar disagreement expressed by Gardner (2005:45), who states that any projectiles or casings located at a crime scene must not directly be marked on by the crime scene technician. This may destroy microscopic details and firearms should not be superglue-fumed (a process used to lift latent prints off items of evidence) prior to ballistic examination, as this action may damage or destroy microscopic details.

It is the opinion of the Ballistic Expert (2007), that the following are causes of contamination of firearm evidence:

- weather conditions (rain, wind, snow)
- uncontrolled physical activities at the crime scene, for example, bystanders who trample cartridge cases
- mishandling of firearm evidence by the investigator or first officer at the scene
- handling the evidence without wearing personal protective gear

Fisher (2004:11) comments that too much handling of physical evidence may damage fingerprints, dislodge minute trace evidence and contaminate the evidence. Improper handling is also the view of Bennett and Hess (1996:135), who state that it is a cause for loss of integrity of evidence. Pepper (2005:16) informs that incorrect or poor packaging may give rise to possible contamination of evidence. Van Rooyen (2004:106) reiterates the point made by Pepper (2005:16), which according to the forensic laboratory staff, incorrect packaging materials and unsuitable packaging material often result in physical evidence being broken, damaged, or contaminated. In the view of Lyman (1999:12), untrained officers may also cause evidence to be contaminated.

The sample group informs that the following are causes of firearm evidence contamination:

- the weather (rain, wind) (5 of 30)
- crime scene not secured and bystanders tramping evidence (8 of 30)
- members who fail to wear gloves (5 of 30)
- negligent handling of firearm evidence (4 of 30)
- through corruption, members may purposefully mishandle or destroy (1 of 30)
- forensic bags not being properly sealed (7 of 30)

The samples group's view is in line with the literature study. One respondent conveyed a motive for contamination, which was not identified by others and this is, that members may purposefully contaminate firearm evidence, due to corruption.

3.6.2 Measures to prevent contamination

According to Gilbert (1993:99), each officer at a crime scene should wear gloves which are clean and light weight. The author further suggests that if no gloves are available the officers should wrap clean flexible material around their hands when collecting evidence. Horswell (2004:19), also warns that gloves be worn when collecting evidence as gloves prevent perspiration from the hands from damaging latent prints. Horswell further elucidates that; all collection equipment must be clean when collecting evidence.

The Ballistic Expert (2007) and the LCRC Manager (2007) suggest the employment of the following measures in order to prevent contamination:

- proper cordoning off of a crime scene
- protecting physical evidence found at a crime scene
- all personnel must wear personal protective equipment (PPE)
- firearm evidence must be properly packaged and sealed in forensic bags
- different types of evidence must be packaged separately, for instance clothes containing blood and a firearm must not be packaged together
- set procedures and guidelines must be followed

Ogle (2004:14) points out that, in preventing contamination, access to the crime scene must be limited to crime scene personnel only and that evidence must be protected from any possible inclement weather. Genge (2002:108-109) sets out some guidelines that will help prevent contamination to firearm evidence and these are listed as:

- a weapon must not be picked up by placing a pencil in the barrel and lifting it
- a firearm must not be finger printed without consulting a firearm examiner
- cartridges must not be handled, as they may bare prints
- firearm evidence must not be placed in wet containers, as this may cause corrosion of the evidence
- the paraffin test must not be carried out when testing the suspect's hands for gunshot residue (GSR) as this process is no longer credible

According to Fisher (2004:270), firearms must not be placed in a pocket for safekeeping. Fisher informs that a safe way of lifting a firearm is to hold it with two fingers on the checkered part of the butt or possibly by the ring on the butt. In a well-summarised explanation, Ballistics for Investigating Officers (2004:17) suggests that the collection of firearm evidence should be left to the experts, as they have proper equipment and knowledge as to how to collect exhibits in order to prevent destruction and/or contamination.

The combined suggestions of the sample group regarding measures to prevent contamination are:

- that there needs to be a culture of checking and double checking, instilled in members (4 of 30)
- firearm evidence must only be handled by authorised persons (8 of 30)

- gloves must be worn at all time during the processing of firearm evidence (14 of 30)
- limit the number of people that handle the firearm evidence (2 of 30)
- retrain police personnel concerning crime scene management (1 of 30)
- secure the crime scene and prevent bystanders from entering the scene (4 of 30)
- only trained experts should collect firearm evidence (2 of 30)
- different firearm evidence must be packaged separately (3 of 30)

The sample group failed to mention a vital measure of preventing contamination stated by Horswell (2004:19), which entails the cleanliness of collection equipment. Collecting evidence with unclean equipment could unknowingly contaminate the evidence.

3.6.3 Chain of custody

Bell (2004:59) communicates that the term “chain of custody” involves procedures and documentation used to ensure the integrity of evidence from the collection phase at the crime scene to the courtroom presentation and through to final disposition or destruction. Jackson and Jackson (2004:374) also agree that a chain of custody is the provision of a complete, documented account of the progress of an item of evidence from crime scene to court. According to Bell (2004:59), chain of custody is also referred to as “chain of evidence”, “chain of possession”, or “continuity of evidence”. Bell (2004:81) concurs that the chain of custody starts with evidence collection.

According to Van Rooyen (2004:12), the continuity of possession, that is, the continuous safekeeping and identification of physical evidence, is essentially important in individualisation. He adds that if an investigator fails to properly identify or safe keep samples, that is, objects or items found at a crime scene or in the possession of the perpetrator, it will lower the value of laboratory analysis to a minimum.

Van der Westhuizen (1996:29) points out that maintaining the continuity of possession implies continuous safe possession and identification of physical evidence, which is of great importance for the purpose of individualisation. Van der

Westhuizen (1996:29) adamantly states that the degree to which physical integrity and continuity of possession is maintained, determines the quality of the substantive integrity, and further states that this implies the acceptance of physical crime information, its interpretation and the results of the investigation.

Van Rooyen (2004:12) sets out some guidelines in maintaining a proper chain of custody, these are:

- limit the number of individuals who handle the evidence
- once evidence leaves your possession, make a recording of the evidence
- all evidence handler's should affix their names and assignment to the package
- to obtain a signed receipt from any person accepting the evidence
- when evidence is returned, determine that it is in the same condition as when received
- any changes to the evidence should be brought to the attention of the courts

Horswell (2004:187) comments that the ballistic experts handle and package firearm evidence that eliminates other members in the continuity chain, thus streamlining the evidentiary production in court. Both Van Rooyen (2004:12) and Bell (2004:59) agree that maintaining a complete chain of custody is vital to the integrity and the admissibility of physical firearm evidence in court and this should start from the collection of evidence.

Erzinclioglu (2006:41) regards the chain of custody as the most important matter with crime scene investigation. He further writes that a chain of custody is maintained by keeping a record of signatures on labels on the containers, bag or glass tubes when handed from person to person. Ogle (2004:13-14) maintains that the handling and analysis of evidence will sometimes produce alteration of the evidence or packaging. It is for this reason that the chain of possession be established and maintained, so that the person who affected the charges can explain any apparent or real alterations of evidence.

3.7 RESPONDENTS WHO PROCESSED FIREARM EVIDENCE

From the interviews conducted, 80% (24 of 30) of the sample group have processed firearm evidence at a crime scene. When breaking down this percentage, it was found that 0% (0 of 5) of the prosecutors and 96% (24 of 25) of the investigators

have processed firearm evidence. A nil return from the group of prosecutors is not a poor reflection on them, as it is not part of their job description to conduct firearm processing.

Concerning the case study conducted, the prosecutors were involved in the prosecution of the 25 cases researched for the case study. The cases researched appeared in the criminal court in which prosecution took place. From the research conducted, it has been established that the responsibility for firearm evidence processing is that of the LCRC member. However, from the sample (investigators) it has also been established that the investigators have processed firearm evidence at a crime scene. Unforeseen circumstances, as determined by the research (example: a delay in waiting for the experts could have caused the evidence to have been destroyed) and subsequently resulted in investigators processing firearm evidence rather than LCRC members.

3.8 ADMISSIBILITY OF EVIDENCE

According to Van Rooyen (2004:244), evidence forms the basis for the building of a case and in order for this evidence to be admissible, it must be competent, relevant and of credible substance and significance. He goes on to say that relevance is considered as the most fundamental concept of evidence. This is clear in section 210 of the Criminal Procedure Act, 1977 (Act No. 51 of 1977) which states that no evidence as to any fact, matter or thing shall be admissible which is irrelevant and immaterial and which cannot be used to prove or disprove any point at issue in court proceedings. Zeffertt et al. (2003:224) explain the meaning of a “point or fact at issue”. They assert that a fact, as a matter of substantive law, encompasses that one or the other parties must prove or disprove any point at issue in order to succeed. However, from the explanation of Zeffertt et al. (2003:224), it is evident that parties mentioned are the state and defence.

Van Rooyen (2004:245) informs that real evidence only has to be relevant to be admissible. *S vs Baleka* (1) 1986 (4) SA 192 (T) (cited in Van Rooyen, 2004:245) contend that the primary test for admissibility is relevancy. The relevancy of evidence is clearly expressed in (*DPP vs Kilbourne* (1973) AC 729) (as cited in Van Rooyen 2004:245), that evidence is relevant if it is logically probative or not probative of some matters, which require proof.

According to Schwikkard and Van Der Merwe (2002:20), there is no degree of admissibility and evidence is either admissible or inadmissible. Evidence cannot be more or less admissible. Schwikkard and Van der Merwe (2002:20) add that once evidence is admissible, it may carry more or less weight, according to the particular circumstances of the case. The admissibility of evidence and weight of evidence should not be confused as is stated in (*S vs Fourie* 1973 (1) SA 100 (D) 102 H-103 A) (as cited in Schwikkard & Van der Merwe, 2002:20) “it is one thing to say that evidence is relevant and an entirely different thing to say that it is cogent or persuasive”.

Bell (2004:6-7) states that before any scientific evidence is present before court, it must be determined to be admissible. She informs that admissible evidence is reliable and relevant to the case at hand. According to Pepper (2005:146), there is a general acceptance of forensic evidence in a court of law in the United Kingdom (UK). However, in the United States of America (USA), scientific evidence has been accepted since 1923 and since the 1993 case of *Daubert v Merrell Dow Pharmaceuticals Incorporated*, the Judge held that all scientific expert evidence must be relevant to the case being heard to be admissible. In South Africa, according to Zeffertt et al. (2003:29,221) and Schwikkard and Van der Merwe (2002:20), evidence must meet the following requirements in order to be admissible:

- **Relevance:** evidence must be relevant in order to be admissible, this is according to section 210 of the Criminal Procedure Act, 1977 (Act No. 51 of 1977). In the words of Joubert (1999:332): “evidence can also be irrelevant if its evidential value is too insignificant to make a contribution to proving or refuting any of the facts in issue”
- **Constitutionally obtained:** evidence must be constitutionally obtained in order to be admissible; this is according to section 35 (5) of the 1996 Constitution. Evidence must be obtained in a manner that does not violate any right in the Bill of Rights
- **Conditional admissibility:** evidence may be admitted on condition that some of the defects, which make it inadmissible, are remedied during the course of the trial

The learned authors say that this procedure is rare and is merely one of convenience.

Lyman (1999:178) propounds that, for any item of evidence to be admissible, it must be readily identifiable by the officer or investigator, who collected it at the crime scene. Van Heerden (1991:12) emphasises that the admissibility and evidential value of evidence are largely determined by the method of collecting disputed objects and standards of comparison and the measures taken to preserve their integrity.

According to the sample group, admissibility of evidence is described as:

- evidence that is constitutionally required and which is acceptable to prove or disprove any fact and issue, unless it falls within section 35 (5) of the 1996 Constitution (1 of 30)
- evidence that is accepted by the courts 13 of 30)
- there being no doubt regarding the evidence before court (2 of 30)
- any evidence that is relevant and accepted by court (8 of 30)
- any physical evidence that the defence does not dispute (3 of 30)
- the strength of the evidence (2 of 30)
- whatever evidence is gathered is accepted in court (1 of 30)

The sample has an in-depth understanding of the concept “admissibility of evidence”. However, one respondent commented that whatever evidence is gathered is acceptable.

3.8.1 Integrity of firearm evidence

According to Van Der Westhuizen (1996:29), physical integrity is determined by the handling of physical evidence. This implies that information must reach the laboratory undamaged and uncontaminated. Van der Westhuizen (1996:29) further states that the degree to which physical integrity and continuity of possession is maintained determine the quality of substantive integrity, which implies the acceptability of physical crime information. Bell (2004:59) contends that the chain of custody is vital to the integrity of evidence. She goes on to state that problems concerning the chain of custody could affect the outcome of criminal cases, as in the famous O J Simpson (*California v O J Simpson* BA097211) trial.

Van Rooyen (2004:12) sets out the guidelines to integrity of evidence as follows:

- evidence presented at court must be the same as found at the crime scene
- there has not been an opportunity to replace or improperly alter the evidence

- any changes in the condition must be explained (example: destruction through laboratory analysis)

According to the sample group, integrity of firearm evidence can be described as:

- maintaining the chain of custody (15 of 30)
- evidence that contains an expert statement (5 of 30)
- the honesty of the evidence (1 of 30)
- the strength of the evidence (2 of 30)
- evidence that is legally admissible (4 of 30)
- the manner in which the evidence was collected, packaged and forwarded to the laboratory (4 of 30)

The sample group's view is in line with the literature study. However, none of the respondents introduced two important aspects put forward by Van Rooyen (2004:12), which are: evidence presented at court must be the same as found at the scene and that any changes in the condition of the evidence must be explained. In the words of the Ballistic Expert (2007), "integrity of firearm evidence is the maintaining of proper control when handling and examining firearm evidence, as well as the one hundred percent correct documentation in relation to that, exhibit."

3.8.2 Maintaining the integrity of firearm evidence

According to Ballistics for Investigating Officers (2004:21), in maintaining integrity of firearm evidence, the continuity of possession (chain of custody) must be complete when the evidence is presented in court. They state that, vital to the integrity of the evidence is the packaging of the firearm exhibits, which must contain a unique seal, be intact and have a unique number. The package must also contain a unique mark, which is the criminal administrative system (CAS), case register (CR) or inquest number.

Fisher (2004:10-11), informs that to prove the integrity of physical evidence, a chain of custody must be demonstrated. This chain, he says, will show who had contact with the evidence, at what time, under what circumstances and what change, if any. The authors Ogle (2004:13-14), Bell (2004: 59) and Van Rooyen (2004:12) agree that the maintenance of a proper chain of custody is vital to the integrity of physical evidence (firearm evidence).

Lyman (1999:179) suggests that the best rule of thumb is for investigators who collect the evidence to deliver the evidence to the laboratory. The LCRC Manager (2007) expresses that in order to maintain the integrity of firearm evidence, there must be proper handling, recording, packaging and labelling of the evidence. She adds that it also entails a full explanation of any changes that might have occurred to the said firearm evidence during analysis.

According to the sample group, maintaining the integrity of firearm evidence involves:

- preserving the complete chain of custody and proving beyond reasonable doubt that that which is found at the scene is the same which has been analysed and presented at court (5 of 30)
- evidence that has been properly obtained and securely managed in its process (9 of 30)
- evidence that is not contaminated and the chain of custody is maintained (4 of 30)
- evidence being handled with care (8 of 30)
- the training of members to properly process firearm evidence (2 of 30)
- firearm evidence that contains an expert statement attached (2 of 30)

From the view of the sample group, (2 of 30) respondents are not in line with the literature study. These respondents suggested that proper training of how to maintain the integrity of firearm evidence would ensure that it is done correctly.

3.8.3 Integrity of firearm evidence and its effect on admissibility

The Ballistic Expert (2007) comments that integrity and admissibility goes hand in hand. The Ballistic Expert (2007) further elucidates that integrity of firearm evidence must be maintained at all times and if the integrity of the evidence is maintained then admissibility will not be a problem. The Ballistic Expert (2007) concludes by saying that integrity confirms the original exhibit. From the interviews conducted, it was established that 83% (25 of 30) of the sample have dealt with criminal cases where the integrity of firearm evidence was questioned. This was both on the part of the prosecution and investigation. This percentage is noticeably very high. The issues surrounding the integrity of the firearm evidence could have been obviated thus lowering the initial percentage at the outcome of the said cases.

Ogle (2004:12) points out that integrity of evidence can have a two-fold effect. Firstly, if the evidence collected does not meet the scientific requirements, the laboratory will not be able to perform the required examination thus causing the evidence to be inadmissible. Secondly, if the evidence collected does not meet the legal requirements for admissibility, the evidence may be excluded in court. The legal requirements are those discussed from Zeffertt et al. (2003:29, 221) and Schwikkard and Van der Merwe (2002:20). These are relevance and constitutionally obtained evidence.

Jackson and Jackson (2004:2) state that if the continuity of evidence cannot be clearly demonstrated the evidence may be deemed inadmissible in court because of possible contamination or tampering. Gilbert (1993:99, 101-102) warns that if the chain of custody is incomplete or if there is any doubt regarding the packaging, the item of evidence will not be admitted as evidence in court. Nickell and Fischer (1999:40-41) brings to our attention an added task, as a result of the outcome of the 1995, O J Simpson case (*California v O J Simpson* BA097211). This is for criminalists and investigators to prove to the court that they did not falsify evidence so that the evidence may be admitted in court. According to Zeffertt et al. (2003:29 & 221) and Schwikkard and Van der Merwe (2002:20) in South African court the requirements for admissibility is still relevance and constitutionally obtained evidence.

The sample group express their understanding of integrity of firearm evidence and its effect/impact on admissibility as follows:

- if the integrity of the firearm evidence is compromised, it will be inadmissible because it will be irrelevant in terms of section 210 of the Criminal Procedure Act, 1977 (Act No. 51 of 1977) (1 of 30)
- if the section 212 statement of the Criminal Procedure Act, 1977 (Act No. 51 of 1977) (an expert statement, eg ballistic experts statement) is outstanding, the court will remand the case for completion (3 of 30)
- if the integrity of the evidence is questioned, courts may then not accept the evidence (12 of 30)
- the prosecutor must subsequently prove that the firearm evidence was not tampered with (1 of 30)
- it will be difficult for the state to prove their case (5 of 30)
- if the firearm evidence is not forwarded to the ballistic unit for analysis of the mechanism, it will affect the admissibility of such evidence in court (8 of 30)

The overall view of the sample is in line with the literature study.

3.8.4 Legal implications for inadmissible firearm evidence

According to Van Der Westhuizen (1996:42), “if there is any doubt that arises from the crime situation, the crime scene and the offender, it will render worthless all other efforts, which may compromise judicial individualisation of an offender”. The doubt that Van Der Westhuizen (1996:42) expresses is that the “integrity of evidence”, if not maintained, may eventually be disputed and result in inadmissibility. Therefore, he says there will be a negative snowball-effect on the judicial process particularly on the part of the state’s case.

According to Zeffertt et al. (2003:157), if during a criminal case, the prosecution does not have sufficient evidence against an accused the accused is entitled to be discharged at once. It has already been discussed, that if firearm evidence is found to be inadmissible due to lack of integrity, that evidence will be inadmissible and if the prosecution does not have other evidence against the accused, it can be concluded that the accused will be acquitted.

From the case study conducted, it was established that 56% (14 of 25) of the cases were withdrawn or not guilty and in 44% (11 of 25) of the cases, the state obtained convictions. Although the withdrawal and not guilty percentage was high, it could not conclusively be established that the reason for this high percentage was the inadmissibility of firearm evidence in those cases. The reason for this inconclusive result was that in cases that were withdrawn or not guilty, the reasons stated in the docket were:

- insufficient evidence (7 of 14 cases)
- no *prima facie* case (2 of 14 cases)
- withdrawn or provisionally withdrawn for further evidence (5 of 14 cases)

The prosecutors who prosecuted the cases in the case study did not stipulate the actual reason for the withdrawal or the not guilty verdict in the docket. It was for this reason the case study was inclusive. However, there was one case, Mayville 306/12/2002, a case of attempted murder and possession of an unlicensed firearm, in which it was stated that the reason for the charges being withdrawn was that it could not be determined if the firearm found on the accused fired the bullets and

cartridge. The researcher also established the category of offences from which the sample was drawn. These serious offences are discussed in section 2.7.3.

According to the Ballistic Expert (2007) and LCRC Manager (2007) there are legal implications of inadmissible firearm evidence in criminal proceedings. These are:

- the firearm evidence cannot be linked to the accused or the crime scene, proving that this link is vital in criminal matters
- the accused may be acquitted and charges withdrawn if further evidence is not found
- state will lose its case
- the public loses confidence in the criminal justice system
- the perpetrator may then commit other crimes
- all aspects will be negative on the part of the state

The sample group comments that the legal implications for inadmissible evidence are that:

- the accused may be acquitted on a technical aspect (13 of 30)
- the charges may be withdrawn if no other evidence exists (10 of 30)
- society will lose faith in the criminal justice system, and may lead them to take the law into their own hands (2 of 30)
- the crimes will remain unsolved and the criminals will remain in society (3 of 30)
- the police may face civil legal action for false arrest (2 of 30)

The sample group's view is in line with the literature study. The sample also mentioned one legal implication not found in literature; this was that the police might face civil action for false arrest.

3.9 GUIDELINES FOR PROCESSING FIREARM EVIDENCE

The researcher will discuss guidelines that will evoke a clearer understanding of the said guidelines itself. The categories were taken from Pepper (2005:101-103). These are:

- safety
- recording and documenting

- fingerprint and trace evidence
- collecting
- marking and packaging

3.9.1 Safety

Bell (2004:137) warns that safety concerns are the first priority when handling firearm evidence. Marais (1992:167) also warns that extreme care must be taken when handling firearms as they may be loaded. In Ogle (2004:162) a suggestion is made that firearms must always be treated as if loaded. According to Pepper (2005:101), firearms must always be made safe to handle by trained and authorised specialists. Fisher (2004:36) states that firearms or ammunition should be left untouched until investigating personnel arrive. Both, Horswell (2004:34) and Genge (2002:108) issue a stern warning - that a firearm should never be submitted to the laboratory for analysis whilst it is still loaded.

3.9.2 Recording and documenting

Nickell and Fischer (1999:26-28) clearly indicate that recording is the starting phase in which firearm evidence processing can be improved. They state that recording and documenting of the crime scene and the physical evidence is paramount. Fisher (2004:36) urges that before a weapon is recovered, its position must be indicated on a sketch or by outlining its position on the floor. These markings are important for later investigation and for being produced in court. In Pepper (2005:103) it is stated that the crime scene investigator (CSI) should either photographically or in a note, state the position the weapon was in when found, as well as comprehensively and accurately photograph the crime scene. Schwikkard and Van der Merwe (2002:368) confirm that photographs can be produced in court in terms of section 232 of the Criminal Procedure Act, 1977 (Act No. 51 of 1977).

Swanson et al. (1992:104) rate photos as a cardinal rule as weapons must not be moved or fingerprinted until they have been photographed. Blount (ed.) (2003:15) brings to light a key aspect when photographing firearm evidence. They suggest that at a crime scene a weapon, be photographed as is concerned (*in situ*), both with and without a scale. According to Bell (2004:137), it is crucial to completely document all aspects relating to firearms including information such as:

- how many bullets were fired
- which chamber was under the hammer (in case of a revolver)
- the general condition of the weapon

In a well-summarised discussion, Marais (1992:167) believes that the following general particulars of the firearm must be recorded. These are:

- model of the firearm
- serial number of the firearm
- make of the firearm
- whether the weapon was loaded or unloaded
- number of expended bullets and live bullets in the weapon

Marais (1992:167) adds that for the purpose of investigation it is important to record the following:

- position of the firearm in relation to the body of the deceased/injured
- the inclination of weapon in relation to the body
- ejected cartridge shells and their location

3.9.3 Fingerprints and trace evidence

According to Ogle (2004:162-163), before a weapon can be unloaded it must be examined for fingerprints, bloodstains or trace evidence. He warns that fingerprints, bloodstains or trace evidence may not be immediately visible and if there is any doubt about the presence of trace evidence, the weapon must not be processed for fingerprints. This should rather be done at the forensic science laboratory. Horswell (2004:35) sets out a guideline to follow when fingerprints, blood or other material may be suspected to be present on a firearm. He suggests that a clean piece of paper be placed around the weapon and sealed with tape. This will prevent loss of vital evidence.

Bell (2004:137) contends that the weapon examiner at a crime scene must always study the firearm evidence for latent fingerprints and other trace evidence, such as hair, blood and tissue on or in the barrel or impression, such as the textile parts on bullets. According to Pepper (2005:102-103), vital evidence, such as the shooter's

dioxin nucleic acid (DNA) is possible to be deposited on parts of the firearm, butt, magazine or on the cartridge case.

Pepper (2005:102-103) suggests that firearm discharge residue (FDR) must be collected from the suspect's hands or clothing as soon as possible, otherwise residue may fall off or be washed off. Fisher (2004:37) declares that when weapons are recovered, there is a possibility that valuable evidence may be found on cartridge cases, as well as on the weapons. He goes on to say that if fingerprints are found, in oil or grease on a weapon at an outdoor crime scene, in cold weather, the weapon should not be removed to a heated room, as this action will destroy fingerprints.

3.9.4 Collecting

From literature study the researcher concludes that the concept of "collecting firearm evidence" is the same as the concept of "seizing of firearm evidence as exhibits". This concept has been previously discussed under section 3.4.1.

3.9.5 Marking and packaging

Lee et al. (2001:157) express that a firearm must be packaged in a primary container or wrapped and placed in a paper bag, envelope or cardboard box, specified for firearms. Horswell (2004:34) suggests that a firearm be placed in a strong cardboard box and be well packed to prevent movement and contamination. Pepper (2005:102) states that shotguns should be packed in a solid container, such as a tube or box. Seeing that a shotgun can be packed in a solid container, it can be said that all large weapons including rifles could also be packed in solid containers. Horswell (2004:35) informs that all firearm evidence be separately packaged in rigid containers to prevent contamination. This includes items of clothing possibly containing firearm discharge residue (FDR). The packaging should contain all relevant details (CAS number, police station, name of investigator, date, time and place of recovery).

Gardner (2005:45) advises that ballistic evidence should always be wrapped and then individually containerised. Bell (2004:118) warns that firearm evidence be properly labelled and packaged and that this must be carried out in such a manner that will not alter the evidence and the package must also be properly labelled. According to Ogle (2004:162-164), a weapon (small or large firearms) should not be marked, but that a tag should rather be attached to the trigger for identification. Ogle

also believes that all firearm evidence (bullets, cartridge cases, shot wads, shot pellets) should be packaged separately and that under no circumstances should any firearm evidence be marked. Horswell (2004:35) and Marais (1992:167-168) agree with Ogle (2004:162-164) that no firearm evidence be marked, as by marking a firearm, potential evidence could be destroyed.

3.9.6 Guidelines suggested by the South African Police Service (SAPS)

According to Ballistics for Investigating Officers (2004:17-19), there are suggested guidelines on how firearm evidence at a crime scene should be processed. These should not be regarded as hard and fast rules, but rather as broad guidelines, which ought to be applied in practice:

- care must be taken when dealing with firearm - safety comes first
- the position of the firearm, cartridges, and bullets must be accurately recorded and exhibits be marked accordingly
- firearms must be fingerprinted before being collected
- firearms must be unloaded before being packaged, this must be done by a ballistic expert
- under no circumstances may any marks be made on bullets, cartridge cases or firearms
- if possible a ballistic expert must be called out to collect firearm evidence
- testing of firearms must only be carried out by the experts at the forensic laboratory
- all related firearm evidence including magazine, spent cartridge, bullets and shot gun shells must be forwarded with the firearm, however, they must be packaged separately
- when handling or collecting firearms or related evidence, it is vital that it is done in a manner so that the value of the evidence is not lost

The guidelines suggested by the SAPS are in line with those of international authors. The difference is that in South Africa it is the duty of the LCRC personnel to collect firearm evidence whilst internationally it is the duty of the Crime Scene Investigator (CSI) to collect firearm evidence. However, the vital aspect is that both CSI persons and the LCRC members are specially trained to deal with the collection of firearm evidence.

The Ballistic Expert (2007) advises that when processing firearm evidence, there must be strict adherence to the standard operating procedure (SOP), with regards to analysis, testing, packaging, and reporting of firearms and firearm related materials. According to the LCRC Manager (2007), the following are guidelines that need to be followed when processing firearm evidence at a crime scene:

- firearm evidence must be properly collected, marked and packaged
- gloves must be worn by all concerned
- chain of custody must be complete, any changes made must be explained in court by experts
- all evidence must be recorded
- evidence must be entered into the SAP 13 exhibit register at the police station, before being forwarded

The sample group adopts the following guidelines when processing firearm evidence at crime scene:

- upon departure to the scene and when collecting the evidence gloves must be worn (3 of 30)
- if possible, the experts should collect the firearm evidence (7 of 30)
- firearms must be handled with care as they may still be loaded (4 of 30)
- when collected by experts they will photograph, examine for fingerprints, package, safely transport, enter into the SAPS 13 exhibit register and forward to the laboratory (6 of 30)
- chain of custody must start at the crime scene (4 of 30)
- firearm evidence must be packaged in special forensic bags (9 of 30)
- packaging must be properly sealed (2 of 30)
- evidence must be processed in a manner that ensures integrity and that admissibility is not compromised (8 of 30)
- every person handling the firearm evidence must submit a statement (9 of 30)
- the lesser the chain of custody the stronger the integrity of the evidence (2 of 30)

The sample group failed to mention the guidelines stipulated by the literature study which entails recording the cartridge cases, bullets and firearms as they appear at the crime scene. The sample group also failed to mention another guideline

stipulated by the literature study, which is that firearm evidence when being collected must not be marked in any way.

With the integration of guidelines and suggestions from both national authors Marais and Van Rooyen (1994), Van Rooyen (2004), Marais (1992), Van der Westhuizen (1996) and international authors Lee (2001), Swanson, et al. (1992), Horswell (2004), Bell (2004), Gardner (2005), Genge (2002), Blount, et al. (2003), Gilbert (1993), Fisher (2004), Pepper (2005) and Ogle (2004), as well as the guidelines stipulated by the South African Police Service (SAPS), the researcher has formulated a firearm evidence-processing module. This module can successfully be employed by SAPS investigators (should the need arise), LCRC members and Ballistic experts. The module encompasses the following:

- when called out to a crime scene, be present as soon as possible. Upon departure obtain a brief report on the situation (example: the number of firearms, the number of deceased persons)
- ensure that you depart with firearm evidence, collecting equipment and personal protective equipment (PPE)
- upon arrival at the crime scene obtain a situation report from the first available police official
- then put on your (PPE) (gloves, head gear, crime scene jacket, mouth mask and shoe covering)
- walk through the crime scene in order to identify the firearm evidence and its location
- record the firearm evidence as they appear at the crime scene. The recording of the firearm evidence must take place (photograph, sketching, and videoing)
- when photographing firearm evidence, always place a measuring instrument (ruler) or an item as a scale reference, next to the firearm evidence
- the firearm evidence must then be examined for fingerprints and other trace evidence (this must only be carried out by a specially trained person)
- the firearm must then be made safe and risk free (this must only be carried out by a specially trained person). Always treat a firearm as if it is loaded
- each item of firearm evidence must individually be wrapped and packaged in forensic science laboratory (FSL) bags. Each bag must then be immediately sealed. This will maintain the integrity of the said evidence

- when collecting firearm evidence (bullets or bullet fragment) from an embedded surface, a piece of the surrounding surface must be removed and forwarded with the bullet
- live ammunition found at the scene must not be replaced in the magazine of the firearm, it must rather be packaged as an exhibit
- under no circumstance must any piece of firearm evidence be marked or scribed upon
- only specially trained persons should collect gunshot residue (GSR) from a suspect, or deceased
- items of clothing containing bullet holes or GSR should be wrapped and packaged in FSL bags
- all seized firearms must be packaged in FSL bags (different size bags are available)
- a firearm must be picked up by the trigger guard or the textured part of the handle
- the packaging of the firearm must contain all relevant information of the case and also contain the firearm details (make, model, serial number)
- when collecting a firearm or other firearm evidence from water or other liquid substance, the firearm or the firearm evidence must be allowed to be air dried before it is packaged
- a firearm magazine can be packaged with the firearm, however they must be separately wrapped
- under no circumstance should any firearm be tested at the crime scene
- all firearm evidence collected must be entered into the SAPS 13 exhibit register before being sent to the laboratory for examination. This step is vital to the chain of custody
- a chain statement must be immediately completed once handling of the exhibits has been completed

3.10 SUMMARY

Every crime scene is different. It is for this reason that there is no hard and fast rule for processing firearm evidence at a crime scene to ensure its admissibility as evidence in a court. However, if the basic guidelines and procedures discussed above are followed, there should be no reason why firearm evidence collected at a crime scene would not be accepted as evidence in court. When investigators are at

crime scene collecting firearm evidence, they must constantly bear in mind that every trace of evidence (even latent evidence) is of vital importance and the manner in which this evidence is dealt with, recorded, collected, packaged and forwarded to the laboratory, determines its admissibility in court.

CHAPTER 4

FINDINGS AND RECOMMENDATIONS

4.1 INTRODUCTION

The aim of this research was to research the correct procedure that needs to be followed when processing firearms at a crime scene to assure its admissibility as evidence in a criminal court. In order to achieve the aim of this research, the researcher formulated two research questions from the problem statement. In order to successfully address the research questions, the researcher collected data from literature (national and international), interviews and case studies. The researcher's findings are as follows:

4.2 PRIMARY FINDINGS

The following findings were based on the research questions:

4.2.1 Research question one: What is investigation of a crime scene?

It was found that investigation of a crime scene is a systematic or an organised search for truth of a crime. This investigation is conducted at a location in which a crime has been committed. It was also determined that there are many procedures, process and guidelines when investigating a crime scene and these actions need to be ultimately defended by the investigator in court.

4.2.2 Research question two: How should firearm evidence be processed during investigation of a crime scene, to be admissible in court?

With the integration of guidelines and suggestions from both national authors Marais and Van Rooyen (1994), Van Rooyen (2004), Marais (1992), Van der Westhuizen (1996) and international authors Lee (2001), Swanson, et al. (1992), Horswell (2004), Bell, (2004), Gardner, (2005), Genge, (2002), Blount, et al. (2003), Gilbert (1993), Fisher (2004), Pepper (2005) and Ogle (2004), as well as the guidelines stipulated by the South African Police Service (SAPS), the researcher has formulated a firearm evidence-processing module. This module can successfully be employed by SAPS Investigators (should the need arise), LCRC members and Ballistic experts. The module is as follows:

- when called out to a crime scene be present and attend to the situation as soon as possible. Upon departure obtain a brief report on the situation (example: the number of firearms, the number deceased)
- ensure that you depart with the both firearm evidence collecting equipment and personal protective equipment (PPE)
- upon arrival at the crime scene obtain a situation report from the first police officer
- then put on your (PPE) (gloves, head gear, crime scene jacket, mouth mask and shoe covering)
- walk through the scene of the crime, in order to identify the firearm evidence and its location
- record the firearm evidence as they appear at the scene of the crime. The recording of the firearm evidence must take place (photograph, sketching, and videoing)
- when photographing firearm evidence, always place a measuring instrument (ruler) or an item as a scale reference, next to the firearm evidence
- the firearm evidence must then be examined for fingerprints and other trace evidence (this must only be carried out by a specially trained person)
- the firearm must then be made safe and risk free (this must only be carried out by a specially trained person). Always treat a firearm as if it is loaded
- each item of firearm evidence must individually be wrapped and packaged in the forensic science laboratory (FSL) bags. Each bag must then be immediately sealed. This will maintain the integrity of the said evidence
- when collecting firearm evidence (bullets or bullet fragment) from an embedded surface, a piece of the surrounding surface must be removed and forwarded with the bullet
- live ammunition found at the scene must not be replaced in the magazine of the firearm, rather it must be packaged as an exhibit
- under no circumstance must any piece of firearm evidence be marked or scribed upon
- only specially trained persons should collect gunshot residue (GSR) from a suspect, or deceased
- items of clothing containing bullet holes or GSR should be wrapped and packaged in FSL bags

- all seized firearms must be packaged in FSL bags (different size bags are available)
- a firearm must be picked up by the trigger guard or the textured part of the handle
- the packaging of the firearm must contain all relevant information of the case and also contain the firearm details
- when collecting a firearm or other firearm evidence from water or other liquid substance, the firearm or the firearm evidence must be allowed to be air dried before it is packaged
- a firearm magazine can be packaged with the firearm, however they must be separately wrapped
- under no circumstance should any firearm be tested at the crime scene
- all firearm evidence collected must be entered into the SAPS 13 exhibit register before being sent to the laboratory for examination. This step is vital to the chain of custody
- a chain statement must be immediately completed once handling of the exhibits has been completed

4.3 SECONDARY FINDINGS

In the light of the literature study, the researcher's findings are as follows:

4.3.1 Forensic investigation

From the literature, it was established that forensic investigation is the use of any scientific method for the resolution of criminal cases, which mainly include the recovery and analysis of physical evidence that is crucial to the success of the subsequent inquiry. The respondents (27 of 30) have some idea of the meaning of forensic investigation; however, they lack a clear understanding of this term.

4.3.2 Investigation of crime

Investigation of crime was found to be the systematic search for the truth, which, is achieved by employing objective and subjective traces. The sample group, (30 of 30) has a good understanding of this concept. From the integration of literature, both

national and international, authors, as well from the interviews conducted, the researcher identified the following guidelines to investigate a crime at a scene:

- a crime scene must be cordoned off and perimeters must be set up to limit access into the crime scene
- determine the extent of the crime scene and identify the crime
- care must be taken not to destroy, disturb or contaminate evidence
- investigators must not jump to conclusions, but should ask the following questions: Why, When, Who, Where, What, and How, to find out the truth
- the witness, suspect and complainant must be identified
- if the suspect is at the crime scene, he or she must be immediately arrested
- a crime scene must be recorded
- evidence collection must be done whilst maintaining the integrity of the evidence

4.3.3 Purpose of investigation

From the research conducted, the purpose of investigation was identified as the reactive way to prevent crime. The majority of the sample (25 of 30) did correctly identify the purpose of investigation and the balance of the sample were more practical in their views of the purpose of investigation.

4.3.4 Objectives of investigation

From the literature, it was established that the objectives of investigation is:

- identification of crime
- gathering of evidence
- individualisation of the crime
- arresting the criminal
- recovery of stolen property
- involvement in the prosecution process

The sample group (28 of 30) had a good understanding of the objectives of investigation. Two of the respondents mentioned the reduction and prevention of crime as objectives, when in fact prevention of crime is a purpose of investigation.

4.3.5 Stages of investigating a crime scene

It was established from the literature study that there are three main stages of investigation. These uncovered stages are:

- a pre-investigation phase
- an investigative phase
- a post-investigative phase

The majority of the sample group had the general understanding of the different stages of crime scene investigation. However, they did not identify them into phases and they repeated some of the criminal investigation objectives under this heading. One of the respondents mentioned the placing of the case before court as a stage of investigating a crime scene. It is evident that this is not done at a crime scene, it can however be regarded as part of the whole investigation process.

4.3.6 Evidence

From the literature, the term 'evidence' was defined as all information that is given in a legal investigation in order to establish the fact in question (*Starr v Ramnath* 1954 2 SA 249 (N)). It was also established that in order for evidence to be admissible in court, the evidence must be relevant and constitutionally obtained. The respondents (30 of 30) had a good understanding of this concept. It was also established that the learned authors expressed difficulty in defining the term, 'evidence'.

4.3.7 Forms of evidence found at a crime scene

From the research conducted, it was discovered that there are different forms of evidence that can be found at a crime scene:

- **Impressions:** include fingerprints, tool marks, footwear, fabric impressions, tyre marks, and bite marks
- **Forensic biology:** includes blood, semen, body fluids, hair, nail scrapings, blood stains patterns
- **Trace evidence:** includes gun shot residue, arson accelerant, paint, glass and fibres
- **Firearms:** include weapons, gun powder patterns, casings, projectiles, fragments, pellets wadding and cartridges

- **Questioned documents:** include forged documents, disputed contracts, fake signature documents etc

The sample group (28 of 30) had a good understanding of the different forms of evidence that can be found at a crime scene, however they did not furnish details of the different forms of evidence that can be found at a crime scene as indicated in the literature study.

4.3.8 Crime scene responsibilities

From the literature study, it was established that in different countries crime scene responsibilities lie in the hands of individuals who are specially trained irrespective of title. Here in South Africa it has been established that crime scene responsibility lies with an array of individuals who have specialised training. From the sample group, it was discovered that (27 of 30) respondents have conducted crime scene investigation. The sample group further revealed that only (20 of 27) of those individuals had received some sort of training, either specialised or theoretical. The sample also indicated that the First Officers at a crime scene should conduct investigations of a crime scene. However, from the discussion under this heading it was brought to light that First Officers do not possess specialised training in order to conduct such investigations.

4.3.9 Identification and individualisation

From the literature study, it was established that:

- **identification:** is a process that utilises the class characteristics of an object or known substance to compare with evidence from a crime scene
- **individualisation:** is a process of linking physical evidence to a common source

From the literature study, it was established that there are eight (8) categories identification, and the sample only identified four (4) of these categories as stipulated in the literature. It was further established that differences exist between identification and individualisation. The sample has an understanding of the concepts. From the sample it was established that (19 of 30) respondents understood the concept of identification and (12 of 30) respondents understood the concept of individualisation.

4.3.10 Processing

From the literature study, it was established that the 'processing of a crime scene' is the same as the 'stages of investigating a crime scene'. Therefore, the researcher incorporated the two concepts.

4.3.11 Defining a firearm

From the legislation, it was established that a firearm is any device manufactured or designed to propel a bullet or projectile through a barrel or cylinder by means of a burning propellant, at a muzzle energy exceeding eight (8) joules (6ft-lbs). The sample has a limited understanding of the concept of a firearm - only (2 of 30) respondents mentioned the amount of force required for a firearm to discharge a projectile in order for it to be constituted as a firearm.

4.3.12 Firearm evidence processing responsibilities

From the literature study, it was established that specially trained persons should process firearm evidence at a crime scene. These specially trained people are LCRC members or ballistic experts. However, from the case study conducted, it was discovered that both investigators and LCRC members have processed firearm evidence at a crime scene.

4.3.13 Contamination, the causes and measures of prevention

From the literature study, it was established that contamination is unwanted transfer of material from another source to an item or piece of physical evidence. It was also established that the causes of contamination were:

- mishandling of the evidence
- weather conditions
- uncontrolled activities at the crime scene
- failure to wear protective gear

From the literature study, it was established that following measures should be followed to prevent contamination:

- proper cordoning off of the crime scene must take place, to keep bystanders aside

- crime scene personal must wear protective gear
- packaging equipment must be clean
- all evidence packaging must be properly sealed
- physical evidence must be protected from bad weather

The sample group (28 of 30) has good understanding of the concept contamination; its causes and preventative measures.

4.3.14 Respondent's who processed firearm evidence

It was established that eight (80) percent of the sample group had processed firearm evidence at a crime scene.

4.3.15 Admissibility of evidence

The sample (29 of 30) has an in-depth understanding of the concept "admissibility of evidence". However, one respondent commented that whatever evidence is gathered is acceptable. This comment is incorrect as, from the literature discussed above, it is evident that evidence must be relevant and constitutionally obtained in order to be deemed admissible.

4.3.16 Legal implications for inadmissible firearm evidence

From the literature study, it was established that if evidence is found to be inadmissible and that there is no other evidence against the accused, the accused would be discharged. From the case study, it was established that (14 of 25) cases were withdrawn or found to be not guilty and (11 of 25) cases state declared conviction. Although the withdrawal and not guilty percentage was high, it could not be conclusively established that the reason for this high percentage was the inadmissibility of firearm evidence in those cases.

4.4 RECOMMENDATIONS

The researcher has established that certain South African Police Service (SAPS) investigators have a lack of understanding and lack of knowledge regarding certain aspects of forensic investigation and processing of firearm evidence at a crime scene. In order to right these deficiencies the researcher recommends:

- An ongoing training programme that incorporates the following concepts into their current training curricula:
 - forensic investigation, its purpose and objectives
 - Locard principle
 - identification and individualisation
 - firearm and firearm related evidence
 - processing firearm evidence at a crime scene
 - integrity and admissibility of firearm evidence
 - legal implication(s) for inadmissibility of firearm evidence
- Investigators at station level who attend crime scenes which contain firearm evidence should call on LCRC members or ballistic experts to process the evidence
- That the investigators at station level are made aware of best practices for processing firearm evidence at a crime scene, so that when unforeseen circumstances arise that require them to process the said evidence they have adequate knowledge

Due to the lack of the availability of literature which specifically deals with this topic the researcher recommends that further research be conducted on the following:

- Processing of firearm evidence at a crime scene
- Admissibility of firearm evidence in criminal proceedings

4.5 CONCLUSION

During the research many concepts were defined, many suggestions made and many opinions analysed. This was carried out in order to gain a better understanding into forensic investigation and the research aim, which was the processing of firearm evidence at a crime scene to ensure its admissibility in court. In chapter 2, the researcher had a detailed discussion on the investigation of a crime scene. This discussion was the background needed to deal with chapter 3. This chapter dealt with aspects relating to the processing of firearm evidence, integrity of firearm evidence and admissibility of firearm evidence.

Finally, the researcher has adopted a new set of guidelines to assist investigators in ensuring that processed firearm evidence is admissible in court. The researcher has empowered himself with the knowledge gained from this research. The researcher

anticipates that this research will entitle investigators with a deeper understanding and knowledge, so that they can more advantageously perform their duties when it comes to processing firearm evidence at a crime scene.

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INTERVIEW SCHEDULE (Annexure A)

THE PROCESSING OF FIREARMS DURING INVESTIGATION OF A CRIME SCENE

Research questions

1. What is investigation of a crime scene?
2. How should firearm evidence be processed during of a crime scene, to be admissible in court?

Historical Information

1. What is your name?
2. In which organisation are you employed?
3. What position do you hold in your organisation?
4. For how long have you been in your profession?
5. Have you successfully completed any training, courses, or qualifications that are relevant to your profession? If yes, then what are they?

Investigation of a crime scene

6. What is forensic investigation?
7. What is investigation of crime?
8. What is the difference between forensic investigation and the investigation of crime?
9. What is the purpose of investigation?
10. What are the objectives of investigation?
11. What is the definition of a crime scene?
12. What are the different stages of investigating a crime scene?
13. What is meant by the concept "identification"?
14. What are the different identification categories?
15. What is meant by the concept "individualisation"?
16. What type of evidence is found at a crime scene?
17. Who is responsible to conduct investigation of a crime scene?
18. Have you ever conducted an investigation of a crime scene?
19. How do you go about conducting an investigation of a crime scene?

Processing of firearms to ensure its admissibility as evidence in court

20. What is meant by the concept “processing”?
21. What is meant by the concept “firearm”?
22. How do you define the concept “evidence”?
23. What is physical evidence?
24. What is meant by the concept “seizing of an exhibit”?
25. How will you seize a firearm as an exhibit?
26. What is meant by the concept “packaging of exhibit”?
27. How will you perform the packaging of a firearm?
28. Who is responsible for processing firearms at a crime scene?
29. Can firearm evidence that is being processed during an investigation of a crime scene be contaminated or destroyed?
30. What causes firearm evidence be contaminated or destroyed?
31. What measures must be undertaken to prevent such contamination or destruction?
32. How can the processing of firearm evidence of a crime scene be improved?
33. Have you ever processed a firearm at a crime scene? If yes, how did you go about doing so?
34. What is meant by the term “admissibility of evidence”?
35. What is meant by the term “integrity of firearm evidence”?
36. How must the integrity of firearm evidence be maintained?
37. Have you dealt with any cases where the integrity of firearm evidence was questioned in a court?
38. How does the integrity of firearm evidence affect the admissibility of such evidence in a criminal court?
39. What are the legal implications when firearm evidence is found to be inadmissible in criminal proceedings?
40. How should a firearm be processed during an investigation, to ensure the admissibility of the overall evidence as concerns that firearm?