Forensic Investigation of Clandestine Laboratories

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The Author

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Currently, the author is the forensic science development coordinator for the United States Department of Justice's International Criminal Investigative Training Assistance Program (ICITAP). With ICITAP, he assisted in establishing forensic science programs in the developing democracies of Armenia, Azerbaijan, Bosnia, Bulgaria, Georgia, Haiti, Kazakhstan, Kyrgyzstan, Senegal, and Uzbekistan. He served as president and chairman of the board of directors for the Southwestern Association of Forensic Scientists (SWAFS). He is a 1981 graduate of Northern Arizona University.

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Introduction

Drugs of abuse in the United States have traditionally come from a variety of foreign sources. Heroin and cocaine are produced in foreign countries. A vast amount of marijuana is cultivated and smuggled in from sources outside the United States. However, law enforcement authorities must look inward to identify the source of clandestinely produced synthetic drugs that are increasing in popularity.

Clandestinely produced drugs of abuse are not the only controlled substances affecting the public order. The clandestine production of explosives and explosive mixtures placed into destructive devices and used with criminal intent has greatly impacted the feelings of safety experienced by law-abiding citizens.

The manufacturing of controlled substances in clandestine labs is an ever-increasing problem within the United States. Identifying and shutting down these operations has the greatest impact in stemming the flow of contraband substances. The effect of eliminating the ultimate source of the controlled substance being manufactured reaches far beyond jailing individuals arrested at the site. Everyone who would potentially have come in contact with the finished product, from the mid-level distributors to the end users, feels the ramifications of putting the manufacturer out of business.

The investigation of clandestine labs is one of the most challenging of law enforcement. It is a roller-coaster ride of activity that requires every tool at its disposal. Traditional investigative techniques are used to develop information concerning the location of the clandestine lab and the identity of the operator. Forensic experts are used to corroborate information by establishing the identity of the final products as well as the manufacturing methods used to produce them.

No other law enforcement activity relies on forensic experts as heavily as does the investigation of clandestine labs. The forensic expert's involvement commences with the drafting of the affidavit used to obtain the search warrant. His or her expertise is imperative to effectively process the crime scene. Experts analyze the samples from the crime scene in a forensic laboratory. Finally, they render opinions in a written report or in courtroom testimony. Occasionally, the forensic expert may be called upon further to testify on

auxiliary issues concerning the clandestine lab investigation that occur even after the criminal case has been adjudicated.

A team effort is necessary for identifying, investigating, and prosecuting a clandestine lab. It is a collaboration of the efforts of law enforcement, forensic experts, scientists, and criminal prosecutors to present a case that definitively demonstrates how a group of items with legitimate uses is being used to manufacture an illegal controlled substance. *Forensic Investigation of Clandestine Laboratories* was written to provide these groups with the general information needed to understand how the different pieces of the clandestine lab puzzle fit together.

Individuals outside of law enforcement can benefit from the information in the first three chapters of this book. Emergency responders, such as police patrol officers, firefighters, emergency medical technicians (EMTs), and representatives from certain social service agencies, routinely encounter clandestine labs. Landlords, storage locker managers, and the public at large stumble upon these operations without realizing it. The knowledge gained from reading this text will allow these groups to be able to recognize a potentially dangerous situation so they can report it to the appropriate authorities.

The goal is to provide anyone involved in the investigation or prosecution of clandestine lab activity the information to guide him or her through the process of establishing the existence of a clandestine lab beyond a reasonable doubt. Just by reading this book, the reader will not be an expert in the clandestine manufacture of controlled substances. That can only be accomplished through training and experience.

The information in this book will provide an overview of clandestine labs. This will be accomplished by dividing the process into five sections that correspond to the various phases of investigation and prosecution. Described in the first section is how to recognize clandestine labs and the physical characteristics they have in common. In the second section, processing the site of a clandestine lab will be reviewed. Covered in the third section are the analytical techniques that can be used in the laboratory to analyze evidence from a clandestine laboratory. Presented in the fourth section are the opinions that can be rendered from the physical evidence. In the fifth and final section, presenting the evidence in court is covered.

Recognition of clandestine lab activity is the first step in the process. In Chapters 1 through 3, a clandestine lab is described, along with the common elements to expect. A profile of a clandestine lab operator will be presented. And, chemical and equipment requirements, as well as the basic manufacturing techniques utilized, will be identified. In this section, the commonly held, yet faulty, notion that the manufacture of controlled substances requires higher education, sophisticated equipment, and exotic chemicals will be dispelled. The knowledge gleaned from this section should enable an individual

to recognize a clandestine lab. An investigator should be able to articulate why a clandestine lab exists and, subsequently, secure a search warrant to proceed to the next phase of the process.

Some of the explanations of the manufacturing process may seem oversimplified to a forensic chemist. Yet investigators, attorneys, and jurors involved in the various segments of the investigation and prosecution of clandestine labs cannot be expected to have acquired the scientific knowledge necessary to understand the chemical processes involved. Using nontechnical terms, with common examples, should remove the scientific mystique. For a broad audience, the understanding of the process of clandestinely manufacturing a controlled substance is more easily achieved using laymen's terms.

In *Forensic Investigation of Clandestine Laboratories*, how to clandestinely make controlled substances is not described in detail. Unfortunately, there are already numerous sources of such information available to the general public. What is addressed in this book is generally how controlled substances are made; how investigators, forensic experts, scientists, and attorneys can identify the existence of a clandestine lab and compile the information necessary to establish what was being manufactured, and how it was being manufactured; and finally, how to present the information to a jury for adjudication.

Knowing what a clandestine lab is and proving one exists are separate issues. In Chapters 4 and 5, the steps necessary to collect and identify all of the pieces of the clandestine lab puzzle are presented. The information gathered from investigators must be evaluated. The steps required to process clandestine lab sites for physical evidence are outlined, and analytical approaches that can be taken during the subsequent laboratory analysis are described.

Processing the clandestine lab scene is addressed in Chapter 4. It is more complicated than the traditional crime scene search normally associated with a narcotics investigation. Because of the chemicals involved, the site of a clandestine lab is, by definition, a "hazardous materials incident" and necessitates invoking different protocols for crime scene processing. Agencies such as the fire department, emergency medical personnel, and local health and environmental quality personnel should be involved. The equipment requirements for processing clandestine lab scenes are more extensive because of the potential chemical exposures. Finally, there are a number of preliminary opinions that should be made when evaluating the physical evidence observed at the scene, which necessitates an on-scene expert.

Addressed in Chapter 5 are the options available to the forensic chemist who analyzes the evidentiary samples. Complete forensic laboratory analysis is a critical element of a clandestine lab investigation. The analysis of a reaction mixture is more complex than identifying the controlled substance

it contains. Identification of precursor and reagent chemicals as well as reaction by-products is necessary to establish the manufacturing method used. Identification of unique chemical components can be used as an investigative tool to connect the clandestine lab under investigation to other illegal activity.

Opinions, or "What does it all mean?", are presented in the next section. A large amount of information is collected during a clandestine lab investigation. Dealt with in this section, is collating information from various sources and creating a profile of the clandestine lab under investigation. What type of operation existed? What was it making? How was it being made? How much could it make? These are some of the questions that will be addressed in Chapter 6.

All of the work to this point may be useless if the expert's opinions cannot be relayed effectively to a jury. Expert testimony is presented in the final section of the book. Discussed in Chapter 7 is how to effectively educate the prosecutor, deal with defense attorneys, and present technical information to nontechnical jurors.

The main focus of clandestine lab investigations in the United States is the manufacture of illicit drugs because the manufacturing of explosives is not illegal, per se. However, placing the explosive final product of a clandestine lab into a destructive device is illegal. All of the techniques used to investigate clandestine drug labs can also be applied to the manufacture of explosive chemicals, compounds, and mixtures. Issues involving the clandestine manufacture of explosives are addressed in Chapter 8.

The use of forensic evidence is essential to the successful investigation and prosecution of a clandestine lab, whether the final product is a drug or an explosive. The proper collection and preservation of the physical evidence followed by the complete analysis of the evidentiary samples are key elements. The information gathered is the cornerstone on which the forensic expert's opinion is based. If forensic evidence is properly handled, the Court will have all of the information it needs to make a fully informed decision.

Donnell R. Christian, Jr.

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