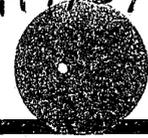


U.S. Department of Justice
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National Institute of Justice

Issues and Practices

Precursor and Essential Chemicals in Illicit Drug Production: Approaches to Enforcement

144764

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U.S. Department of Justice
Office of Justice Programs
National Institute of Justice

**Precursor and Essential Chemicals
in Illicit Drug Production:
Approaches to Enforcement**

by
James R. Sevick
Jefferson Research, Inc.

October 1993

Issues and Practices in Criminal Justice is a publication series of the National Institute of Justice. Each report presents the program options and management issues in a topic area, based on a review of research and evaluation findings, operational experience, and expert opinion on the subject. The intent is to provide information to make informed choices in planning, implementing, and improving programs and practice in criminal justice.

National Institute of Justice

Michael J. Russell
Acting Director

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Program Monitor

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Foreword

In the continuing struggle to control illegal drugs, one promising tactic is to prevent illegal drug manufacturers from obtaining the raw materials of drug production—precursor and essential chemicals. Without these chemicals, illegal drugs cannot be produced. However, precursor and essential chemicals are also critical to many other legitimate industries. Thus, the control of illegal trafficking in these materials must not unduly hinder their use by legal businesses.

The Chemical Diversion and Trafficking Act of 1988 gave Federal law enforcement officials new means to control the illicit trafficking in these chemicals, and many States have passed their own legislation. This *Issues and Practices* report provides law enforcement officials with basic information about the role precursor and essential chemicals play in illegal drug trafficking and the role of law enforcement agencies in preventing the illegal trade in these substances. Law enforcement officers will most often confront the problem of precursor and essential chemicals through the seizure of clandestine drug laboratories, which pose a growing threat in rural areas.

The National Institute of Justice (NIJ) established the Domestic Chemical Action Group (DCAG) in 1991 to provide support for the international Chemical Action Task Force (CATF) which had been called for at the 16th annual Economic Summit of the G-7 major industrialized countries

in 1990. One CATF goal was to recommend to the international community effective procedures to ensure that precursor and essential chemicals are not diverted to manufacture illicit drugs in the international market.

NIJ's Domestic Chemical Action Group was composed of representatives of key State and local law enforcement agencies and organizations. One aim of DCAG was to ensure that the concerns of domestic criminal justice agencies were represented in the comprehensive summary of current problems in preventing diversion of precursor chemicals within the United States. Much of the information in this report summarizes the work of these two groups, which have been important in identifying the problem and offering solutions to illicit trafficking.

For many years, NIJ has supported research on drug trafficking and use and their close links with criminal activity. Additionally, NIJ has supported the drafting of model State chemical control legislation to promote uniformity among the States in preventing illegal trafficking in precursor and essential chemicals. The prevention of the illegal diversion of precursor and essential chemicals is one more step in the effort to control drugs and crime.

Michael J. Russell
Acting Director
National Institute of Justice

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provided a great deal of background information and was quick to provide data not available from published sources.

I also interviewed several members of the Domestic Chemical Action Group for this project, and they and their staffs were very helpful in pointing out the important issues surrounding the topic.

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Jefferson Research, Inc.
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Table of Contents

	<i>Page</i>
Foreword	iii
Acknowledgements	v
Part I: Introduction	
Chapter 1: Purposes and Organization	3
Purposes	3
Organization	3
Background	4
Endnotes	5
Chapter 2: The Problem of Precursor and Essential Chemicals	7
The Drug "Industry"	7
Precursor and Essential Chemicals	7
Endnotes	11
Part II: Trafficking and Diversion: Methods and Relevant Legislation	
Chapter 3: Diversion and Its Prevention	15
Methods of Diversion	15
Approaches to Combat Diversion	18
Endnote	20
Chapter 4: Legislation and Policy	21
Overview of the Chemical Diversion and Trafficking Act	21
State Legislation on Precursor and Essential Chemicals	23
Pertinent Federal Safety and Environmental Laws and Regulations	25
Liability for Cleanup of Contaminated Property	26
Endnotes	27
Part III: Issues for Law Enforcement	
Chapter 5: Clandestine Drug Labs	31
Location and Composition of Clandestine Labs	31
Hazards of Clandestine Drug Labs	32
Endnotes	34
Chapter 6: Training	35
Law Enforcement Personnel	35
Prosecutors and Judges	36
Model Programs for Clan Lab Seizure and Cleanup	36

Chapter 7: Data and Statistics	37
Data	37
Information Sharing Among Law Enforcement Agencies	37
Chapter 8: Additional Issues	39
Improved Technology	39
Related Legal Devices	39
Environmental and Occupational Regulations	39
Financing of Clan Lab Seizures and Cleanups	40
Endnote	40
Glossary of Technical and Legal Terms	41
List of Acronyms	43
Bibliography	45

Appendices

Appendix A: Sources of Diversion	47
Appendix B: CDTA Requirements for the Chemical Industry	51
Appendix C: Conducting a Seizure of a Clandestine Drug Lab	55
Appendix D: International Measures to Control Diversion	59
Appendix E: Information Sources	65

List of Figures

Figure 1: Diversion of Precursor Chemicals	48
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List of Tables

Table 1: Comprehensive List of Chemicals Used in Clandestine Production of Illicit Drugs	9
Table 2: Worldwide Seizures of Chemicals Used in Cocaine Production, 1990	16
Table 3: Trade in Chemicals: Suspicious Factors	17
Table 4: CDTA Thresholds by Weight for Listed Chemicals	22
Table 5: Toxicity and Flammability of Selected Precursor and Essential Chemicals	33
Table 6: Chemicals Currently Listed in the U.N. Convention	61

PART I

INTRODUCTION

Chapter 1

Purposes and Organization

The diversion of precursor and essential chemicals from legitimate uses in industry to the manufacture of illicit drugs is a critical part of the Nation's drug problem. Stopping this diversion is thus an essential part of U.S. drug control strategy. Law enforcement agencies throughout the country need to know about the issues that arise from diversion. Wherever interstate or international commerce occurs—which includes every highway in the United States—the possibility exists that precursor and essential chemicals are being diverted for illicit use. Any place big enough to hold a kitchen table is big enough to contain a clandestine drug-manufacturing laboratory. These clandestine laboratories, or “clan labs,” are the places where illegally diverted chemicals are turned into illicit drugs.

In fact, due to increasingly stringent controls at the sites of chemical manufacture, criminals are enlarging their illicit diversion activities in those states with little manufacturing capability and less rigorous regulation in order to obtain these substances. In the same way, clandestine drug labs are often located in rural and deserted sites, where less attention will be paid to their dangerous, polluting activities. So, even small rural law enforcement agencies far away from urban drug markets have to be prepared to encounter the diversion of these substances.

Purposes

One purpose of this report is to inform U.S. law enforcement agencies about the diversion of these chemicals. Chemical diversion is a critical step in the manufacture of illicit drugs.

The second purpose of the report is to inform agencies about the issues that they are likely to encounter in their efforts to enforce their own State laws concerning diversion and to cooperate with Federal and other law enforcement and environmental agencies in the control of this problem.

This report is based on the proceedings of the multinational Chemical Action Task Force (CATF). The CATF, estab-

lished by the heads of government of the Group of Seven Industrialized Nations (G-7) in 1990, was given the mandate to describe the nature and extent of the diversion of precursor and essential chemicals around the world and to identify international mechanisms for combating diversion. The United States' participation in the CATF was assisted by the Domestic Chemical Action Group (DCAG). The DCAG consists of about 30 members of Federal, State, and local law enforcement agencies who are experts in dealing with illegal diversion of chemicals. The DCAG also identified several issues of importance to State and local law enforcement agencies. These issues are also discussed in this report.

Organization

The report is divided into four parts. Part I is an introduction to the subject of diversion. In addition to this organizational chapter, it includes

- Chapter 2, which describes the drug “industry” and how precursor and essential chemicals are used in the manufacture of illicit drugs.

Part II discusses methods of diversion and legislation to control it. It consists of two chapters:

- Chapter 3 describes how precursor and essential chemicals are diverted for illegal purposes and how law enforcement agencies control diversion.
- Chapter 4 discusses Federal and State legislation that defines diversion as an illegal act. It also describes laws in the areas of environmental control and occupational safety that law enforcement agencies must comply with in their efforts to control diversion. (Seizures of clandestine laboratories require law enforcement agencies to be aware of a host of criminal, environmental, and occupational laws and regulations that are seldom required in other areas of police work.)

Part III describes the issues related to precursor and essential chemicals that are important to law enforcement agencies. Local agencies most frequently encounter precursor and essential chemicals in the seizure of clandestine drug manufacturing labs. In recent years, seizures of these clan labs around the country have occurred at a rate of over two per day:

- Chapter 5 reviews several problems related to clan lab seizures and accompanying legal concerns.

The DCAG identified several issues in the diversion of precursor and essential chemicals that must be addressed by all law enforcement and criminal justice agencies if the Nation is to control this problem. The remainder of Part III reviews these issues:

- Chapter 6 discusses training, which is necessary to inform law enforcement personnel about the diversion of these chemicals. This knowledge is of great importance, because of the toxic effects that can result from inadvertent exposure to precursor and essential chemicals.
- Chapter 7 discusses the development of data and statistics on precursor and essential chemicals. Reliable statistics and information sharing among agencies can assist in the identification of illegal traffickers in these substances and can help agencies plan how to control diversion within their jurisdictions.
- Chapter 8 provides additional information about several other issues related to chemical diversion and its control.

The final section of the report contains five appendices to assist law enforcement personnel who need more detailed information about various topics related to chemical diversion:

- Appendix A presents an overview of the international aspects of drug trafficking and diversion.
- Appendix B is a synopsis of the Drug Enforcement Administration's guidelines for the seizure of clandestine drug labs.
- Appendix C provides information on the reporting procedures for the chemical industry required by the Chemical Diversion and Trafficking Act of 1988.
- Appendix D is a summary of international treaties and agreements concerning diversion and trafficking.

- Appendix E lists sources of further information and contains a bibliography of additional documents on the diversion and trafficking of precursor and essential chemicals.

Background

In July 1990, representatives of the seven major industrialized countries—the G-7—met in Houston, Texas, for their 16th annual Economic Summit. In addition to President George H. Bush of the United States, the heads of state and government of Canada, France, Germany, Italy, Japan, and the United Kingdom attended, as well as the president of the European Commission (EC). The annual Economic Summits provide the opportunity for the industrialized countries to discuss, at the highest governmental levels, the most important economic issues facing their countries and the world.

The Chemical Action Task Force

At the Houston meeting, the Summit participants considered the devastating effects of drug use and drug trafficking upon the world's societies. They agreed that a united stance must be taken if the menace of drugs is to be controlled. An important part of this plan is regulating the flow of precursor and essential chemicals. The international nature of drug trafficking contributes heavily to drug enforcement concerns in each individual country—both in the industrialized world and in less developed countries. Thus when the G-7 countries formed the CATF, it was given the following mandate:

Effective procedures should be adopted to ensure that precursor and essential chemicals are not diverted to manufacture illicit drugs. A task force similar to the FATF (Financial Action Task Force) should be created for this purpose, composed of Summit participants and other countries that trade in these chemicals, with the involvement of representatives of the chemical industry. The task force should address the problems which concern cocaine, heroin and synthetic drugs and report within a year.¹

The United States, as the Economic Summit's host, organized the CATF under the auspices of the U.S. Department of Justice. In addition to the G-7 nations and the EC, 19 other countries and international organizations accepted invitations to send representatives to the Task Force. These

included Argentina, Australia, Belgium, Bolivia, Brazil, China, Colombia, Ecuador, Hungary, India, the Netherlands, Pakistan, Peru, Spain, Sweden, Switzerland, Thailand, the International Narcotics Control Board, and the Organization of American States.

The U.S. Department of Justice organized and chaired the CATF. During its first year, the chairman of the international group was William P. Barr, then the Deputy Attorney General and later Attorney General of the United States. Deputy Attorney General George J. Terwilliger III assumed the chairmanship in the spring of 1992.

Between October 1990 and May 1992, the CATF met six times in Washington, D.C. The meetings included over 100 experts in chemical manufacturing and trade, as well as government representatives in customs, commerce, justice, health and welfare, and law enforcement.

The Task Force members formed three working groups to tackle the complex problems related to precursor and essential chemicals. The Chemical Issues Working Group, chaired by Italy, reviewed the processes used in the manufacture of illicit drugs, identifying those chemicals that are needed for their production and those most suitable for international regulation and control. The Diversion Issues Working Group, with Canada as its chair, documented the methods by which criminals divert precursor and essential chemicals to illegal use. The Legal and Regulatory Issues Working Group, chaired by France, recommended appropriate national and international laws and regulations to address the problems identified by the other two working groups.

The working groups each met several times to share ideas and collate data. Each prepared a report that summarized its proceedings and findings.² Based on the reports of these working groups, in April 1991 the CATF Plenary Group developed 46 recommendations for the improved national and international control of precursor and essential chemicals.³ The group then met in Washington, D.C., on May 13-14, 1992, to assess participants' progress in implementing the 1991 recommendations.

The Domestic Chemical Action Group

The United States is a world leader in recognizing the problem of chemical diversion and in controlling diversion

through laws and regulations. Thus, the U.S. delegation to the CATF was important in providing the Task Force with information about its relatively advanced methods of controlling precursor and essential chemicals. To ensure that the U.S. delegation could provide the CATF with a comprehensive summary of current problems in preventing diversion, the Department of Justice (through the National Institute of Justice) convened the DCAG. The DCAG was composed of some of the country's leading experts in the field. It included experts from the National Fraternal Order of Police, the National Criminal Justice Association, the International Association of Chiefs of Police, the National Association of Attorneys General, the U.S. Conference of Mayors, the Chemical Manufacturers Association, and the National District Attorneys Association. Law enforcement practitioners from California, Colorado, Pennsylvania, Texas, and Washington, all of whom were experienced in the control of diversion, also attended. In addition, the group included representatives from several Department of Justice components, including the Federal Bureau of Investigation, the Drug Enforcement Administration (DEA), the Criminal Division, and the Office of Justice Programs (including the National Institute of Justice). Ken Eikenberry, attorney general of Washington State, and Michael Scott, commander of the Texas Department of Public Safety Narcotics Service, were named spokespersons for the group, and they joined the U.S. delegation at CATF meetings.

The DCAG discussed issues that its members considered critical at the international level and shared methods currently being used in the United States to control diversion. The problems and ideas raised by the DCAG were a crucial part of the American delegation's contribution to the CATF.

Endnotes

1. Chemical Action Task Force, *Chemical Action Task Force Final Report* (Washington, DC: CATF, 1991), p. i.
2. Chemical Action Task Force, *Chemical Action Task Force Working Group Reports* (Washington, DC: CATF, 1991).
3. Chemical Action Task Force, *Chemical Action Task Force Final Report*, pp. 17-28.

Chapter 2

The Problem of Precursor and Essential Chemicals

Precursor and essential chemicals are critical to the manufacture of illicit drugs. Controlling their diversion from licit commerce is an important element of the national strategy to control the illicit drug industry.

The Drug "Industry"

The control of illegal drugs has become an important part of the operations of law enforcement agencies across the country. Unlike many other crimes, the world of illegal drugs somewhat resembles an industry. First, there is a "product," the drug itself. That product must be manufactured and then transported to the drug markets. It must be "marketed," or sold to buyers at the "retail" level. The need to distribute drugs widely also results in the need for "middlemen" who buy the substances from manufacturers and sell them to street-level drug dealers. Organized gangs often act as "distribution networks" that can make the marketing and sale of illicit drugs much more efficient. The profits from drug sales must then be "invested" somewhere, often in other illegal activities.

When viewed on the national or international level, the world of illegal drugs takes on an even stronger appearance of an industry. In the United States alone in 1990, about 662,000 people used cocaine frequently (at least once per month), and another 4.1 million used it occasionally.¹ The organization needed to produce, transport, and sell cocaine to these users is equally enormous. Although typical dosages of cocaine and other illicit drugs are very small, the millions of users and the frequency with which these drugs are used result in a total product that weighs many tons.

Cocaine is imported to the United States, primarily from South America. The worldwide production of cocaine is believed to be at least 1,000 metric tons, or about 2.2 million pounds.² Cocaine is an extract from the coca leaf; many

pounds of these leaves are necessary to produce a small amount of cocaine. This processing occurs in illegal "factories," or clandestine drug laboratories. Domestically, clandestine drug labs synthesize chemicals like methamphetamine and LSD.

The war on drugs is a world war, and it has become a total war. No longer do law enforcement agencies simply try to arrest the local pusher and the drug kingpin. More and more, traditional methods of military operations—interdiction, intelligence coordination, and economic warfare—are being used to control the drug problem. Furthermore, just as the military uses bombing to destroy an enemy's war-making potential, so have law enforcement agencies begun attempts to destroy criminals' "drug-making potential." This is accomplished, first of all, by destroying drug factories—the clandestine laboratories. Worldwide, law enforcement agencies reported seizing 2,843 clan labs in 1989. Of these, over 800 were in the United States, where most produced methamphetamine, amphetamine, and PCP.³ Most of the remainder were in South America, particularly Bolivia and Colombia. These latter labs primarily produced cocaine.

Second, drug-making potential can be destroyed by taking away the "raw materials" of illicit drug production. In the final analysis, manufactured drugs are simply chemical compounds. They are produced by means similar to those used to produce legitimate chemical products. If clan labs are the factories for producing illegal drugs, then the raw materials are precursor and essential chemicals.

Precursor and Essential Chemicals

The production of most drugs requires complex chemical processes. For example, cocaine is present in the leaves of the coca plant in very small concentrations. Large amounts

of leaves and solvents are required for the extraction process. The coca leaves are macerated in water, and a base, such as lime, is added. Kerosene or some other organic solvent is used to extract the cocaine from the leaves. A dilute aqueous solution of an acid, such as sulfuric acid, separates the cocaine from the kerosene. Ammonia water precipitates the cocaine, which is dried as coca paste. The coca paste is then purified with an oxidizing agent, such as potassium permanganate, and additional processing. An acid, such as hydrochloric acid, produces the final product, cocaine hydrochloride.

All of the salts, solvents, and acids used in this process are known as *essential chemicals*. They include reagents and catalysts used in the manufacture of a controlled substance. Although they are essential to the manufacturing process, they do not become a part of the molecular structure of the drug.

Another type of chemical of concern to law enforcement agencies is known as a precursor. A *precursor chemical* is used in the manufacture of a controlled substance, is critical to its creation, and actually becomes part of the controlled substance's molecular structure.

For example, ephedrine, a substance commonly used in the manufacture of medicines like over-the-counter cold tablets and diet pills, can be mixed with thionyl chloride and hydrogen to form methamphetamine. Ephedrine is a precursor to the production of methamphetamine, because it is actually a part of the molecular structure of the substance. Essential chemicals, such as solvents and compounds, are also used in the process to adjust the reaction conditions.

Manufactured drugs, including illicit drugs, require precursor or essential chemicals for their production. (Some drugs, like marijuana, are used in their natural state and do not require further processing.) This fact provides law enforcement agencies with one more way to combat the illegal drug problem. Just as the production of airplanes and tanks can be stopped or slowed by cutting off the supply of raw materials like steel and rubber, so can the production of illicit drugs be slowed by inhibiting the availability of precursor and essential chemicals.

However, the control of precursor and essential chemicals is a complicated undertaking for three reasons. First, almost all of these chemicals have numerous uses in legitimate industries. Many of the chemicals used in the processing of

cocaine—such as acetone, hydrochloric acid, and ammonia—have thousands of uses in dozens of industries and are found in most homes. For example, acetone is used in nail polish remover. Materials like ether, acetone, and methyl ethyl ketone (MEK) have hundreds of uses in production processes for plastics, rubber, munitions, petrochemicals, and pharmaceuticals. Likewise, precursor chemicals usually have uses in the production of medicines and other legitimate chemical products.

Second, because these chemicals are so widespread, many opportunities exist for illegal diversion. Many are produced in dozens or hundreds of chemical plants around the world. The chemical industry makes hundreds of thousands of tons of some of these products every year, and chemical manufacturing is an important component of the economy of many countries, including the United States. In fact, in 1988, the U.S. chemical industry employed over 1 million workers in 12,109 factories.⁴ The industry grosses over \$250 billion per year, and almost 20 percent of this income is from exports. It is thus critical that the control of precursor and essential chemicals not result in damage to the chemical industry through overregulation. It should be noted that U.S. chemical companies are highly supportive of current regulations, which are not viewed as an undue burden.

The third reason that it is difficult to control illicit trade in these chemicals is the sheer size of the problem. Because many of these chemicals are so important to industry, they are very easy to obtain. In addition, many can be manufactured using simple household chemicals or easily obtained substances. Because drug manufacture is usually a standard chemical process, it is often easy to substitute similar, readily obtained acids, bases, or solvents for regulated chemicals that are preferred in the manufacturing process. In 1988, 59,568 metric tons, or 131.1 million pounds, of essential chemicals were exported by companies in the United States.⁵

The CATF's Chemical Issues Working Group devised a comprehensive list of chemicals used in the illicit production of drugs (table 1). This list was based on a survey of 17 nations that have illicit drug production within their borders. Table 1 also indicates whether each substance is controlled under U.S. Federal law. The list includes only the most crucial, least readily substituted chemicals used in the illicit manufacture of drugs.

Table 1

Comprehensive List of Chemicals Used in Clandestine Production of Illicit Drugs

Chemical	Substances Produced	Controlled under U.S. Federal Law?
Acetic acid	Phenyl-2-propanone (P-2-P)/cocaine	No
Acetic anhydride	Heroin/P-2-P/methaqualone	Yes
Acetone	Cocaine/heroin/others	Yes
Acetyl chloride	Heroin	No
N-Acetylanthranilic acid	Methaqualone	Yes
Ammonium formate	Amphetamines	No
Ammonium hydroxide	Cocaine/others	No
Anthranilic acid	Methaqualone	Yes
Benzaldehyde	Amphetamines	No
Benzene	Cocaine	No
Benzyl chloride	Methamphetamine	Yes
Benzyl cyanide	Methamphetamine	Yes
2-Butanone (MEK)*	Cocaine	Yes
Butyl acetate	Cocaine	No
N-Butyl alcohol	Cocaine	No
Calcium carbonate	Cocaine/others	No
Calcium oxide/hydroxide	Cocaine/others	No
Chloroform	Cocaine/others	No
Cyclohexanone	Phencyclidine (PCP)	No
Diacetone alcohol	Cocaine	No
Diethylamine	Lysergic acid diethylamide (LSD)	No
Ephedrine	Methamphetamine	Yes
Ergometrine (ergonovine)	LSD	Yes
Ergotamine	LSD	Yes
Ethyl acetate	Cocaine	No
Ethyl alcohol	Cocaine/others	No
Ethylamine	Ethylamphetamine/3,4-methylenedioxy-N-ethylamphetamine (MDE)	Yes
Ethyl ether	Cocaine/heroin/others	Yes
N-Ethylephedrine	Ethylamphetamine/MDE	Yes

*2-Butanone and methyl ethyl ketone are two names for the same substance.

Table 1 (Continued)

Comprehensive List of Chemicals Used in Clandestine Production of Illicit Drugs

Chemical	Substances Produced	Controlled under U.S. Federal Law?
N-Ethylpseudoephedrine	Ethylamphetamine/MDE	Yes
Formamide	Amphetamines	No
Hexane	Cocaine	No
Hydriodic (hydriotic) acid	Methamphetamine	Yes
Hydrochloric acid	Cocaine/heroin/others	Yes*
Isopropyl alcohol	Cocaine	No
Isosafrole	Cocaine	Yes
Kerosene	Cocaine	No
Lysergic acid	LSD	Yes
Methyl alcohol	Cocaine	No
Methylamine	Methamphetamine/3,4-methylenedioxyamphetamine (MDMA)	Yes
Methylene chloride	Cocaine/heroin/others	No
3,4-Methylenedioxyphenyl-2-propanone	3,4-Methylenedioxyamphetamine (MDA)/MDMA/MDE	Yes
N-Methylephedrine	Amphetamines	Yes
N-Methylpseudoephedrine	Amphetamines	Yes
Nitroethane	Amphetamines	No
Norpseudoephedrine	4-Methylaminorex	Yes
Petroleum ether	Cocaine/others	No
Phenylacetic acid	Phenyl-2-propanone	Yes
Phenylpropanolamine	Amphetamines/4-methylaminorex	Yes
1-Phenyl-2-propanone	Amphetamines/methamphetamine	No
Piperidine	PCP	Yes
Piperonal	MDA/MDMA/MDE	Yes
Potassium carbonate	Cocaine	No
Potassium permanganate	Cocaine	Yes
Propionic anhydride	Fentanyl analogues	Yes
Pseudoephedrine	Methamphetamine	Yes
Pyridine	Heroin	No

*Exports to certain countries subject to provisions of the Chemical Diversion and Trafficking Act.

Table 1 (Continued)

Comprehensive List of Chemicals Used in Clandestine Production of Illicit Drugs

Chemical	Substances Produced	Controlled under U.S. Federal Law?
Safrole	MDA/MDMA/MDE	Yes
Sodium acetate	P-2-P	No
Sodium bicarbonate	Cocaine/others	No
Sodium carbonate	Cocaine/others	No
Sodium cyanide	PCP	No
Sodium hydroxide	Cocaine/others	No
Sodium sulfate	Cocaine/others	No
Sulfuric acid	Cocaine/others	Yes*
Toluene	Cocaine	Yes
ortho-Toluidine	Methaqualone	No
Xylenes	Cocaine	No

*Exports to certain countries subject to provisions of the Chemical Diversion and Trafficking Act.
Source: Chemical Action Task Force, *Chemical Action Task Force Working Group Reports* (Washington, DC: CATF, 1991), pp. C20-21, and 21 CFR 1310.05, as revised to April 1, 1992.

Endnotes

1. National Institute on Drug Abuse, *National Household Survey on Drug Abuse* (Rockville, MD: NIDA, 1990).
2. Office of National Drug Control Policy, *National Drug Control Strategy* (Washington, DC: U.S. Government Printing Office, 1991), p. 79.
3. Chemical Action Task Force, *Chemical Action Task Force Working Group Reports* (Washington, DC: CATF, 1991), p. C3.
4. U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1991* (Washington, DC: U.S. Department of Commerce), Tables 657 and 1303.
5. U.S. Congress, House Select Committee on Narcotics Abuse and Control, *Flow of Precursor Chemicals and Assault Weapons from the United States into the Andean Nations*, Hearings, November 1, 1989, Statement by John R. Hess, National Association of Chemical Distributors.

PART II

**TRAFFICKING AND DIVERSION:
METHODS AND RELEVANT LEGISLATION**

Chapter 3

Diversions and Its Prevention

As law enforcement agencies have become increasingly aware of the diversion of precursor and essential chemicals for use in the illicit drug trade, they have become more active in preventing this diversion. As a result, it is increasingly difficult for an illicit drug manufacturer to purchase chemicals without fear of detection and prosecution.

Nevertheless, as law enforcement has become more effective in slowing down the diversion of these chemicals, criminals have become more resourceful in their efforts to find sources for their illicit drug production. The CATF devoted one of its three working groups to the identification of methods of diversion. Law enforcement agencies should be aware of the sources and methods of diversion used by illicit drug manufacturers worldwide.

Law enforcement agencies throughout the world are dealing with the illicit diversion of precursor and essential chemicals. Table 2 indicates the total amount of precursor and essential chemicals seized in chemical-manufacturing countries and those countries in which cocaine is produced illicitly. The extent of the problem is reflected in the millions of liters of essential chemicals seized.

Methods of Diversion

The CATF identified numerous methods by which criminals worldwide successfully divert precursor and essential chemicals to illicit use. As mentioned previously, the chemical industry is one of the largest U.S. manufacturing industries, employing over a million workers in thousands of factories. Furthermore, these chemicals are sold through thousands of companies and transported by even more trucks, railway cars, and ships. Thus, many opportunities exist for illicit drug manufacturers to illegally obtain precursor and essential chemicals.

The CATF developed a list of suspicious circumstances that might indicate unwarranted use of a precursor or essential chemical. This list, presented in table 3, is meant to assist

law enforcement officers and chemical suppliers in identifying suspicious practices possibly involving the diversion of precursor and essential chemicals.

The CATF also developed a diagram showing the various points in the chemical distribution network at which diversion can occur (appendix A, figure 1).

Theft

Theft of licit chemicals remains a frequent and relatively easy method for criminals to obtain these products. This is particularly true when wholesale, retail, and export-import companies hold shipments of these products without adequate security measures.

Substitution

Chemical processes are widely known and well understood by both legitimate and illicit users of these products. If a drug manufacturer cannot obtain the precise materials he or she needs for the production of an illicit drug, it may be possible to substitute other materials for the needed precursor or essential chemicals. (For example, hydrochloric acid may be replaced by another acid with similar chemical properties.) The wide variety of chemical mixtures and extracts makes it possible for a criminal, in effect, to manufacture precursor and essential chemicals. It is important to understand that as chemical controls close one process for synthesizing an illicit drug, manufacturers can often move to another method using uncontrolled chemicals.

Circuitous Routes

Similar to the methods used in money laundering, circuitous routing of controlled chemicals involves passing materials among many owners and middlemen in many States, making it difficult to detect illicit use. The volume of trade is such that law enforcement agencies have difficulty following the trails of these shipments. In addition, differences in State

Table 2
Worldwide Seizures of Chemicals Used in Cocaine Production, 1990

Chemical	Type	Amount Seized
Acetone	Solvent	2,352,788 L
Ammonia	Alkali	1,263 L
Benzene	Solvent	760 L
Calcium oxide (lime)	Alkali	17,722 kg
Diesel fuel	Solvent	4,946 L
Ethyl ether	Solvent	2,186,633 L
Gasoline	Solvent	1,910 L
Hexane	Solvent	6,720 L
Hydrochloric acid	Acid	88,308 L
Kerosene	Solvent	4,410 L
Methyl ethyl ketone	Solvent	633,464 L
Petroleum ether	Solvent	920 L
Potassium permanganate	Oxidizer	1,309 kg
Sodium carbonate	Alkali	8,972 kg
Sodium hydroxide	Alkali	10,958 kg
Sulfuric acid	Acid	161,216 L

Source: Chemical Action Task Force, Chemical Action Task Force Working Group Reports (Washington, DC: CATF, 1991), Annex C-6.

reporting requirements for precursor and essential chemicals make circuitous routing of these substances an effective method of diversion.

Use of Warehouses

Criminals may also warehouse precursor and essential materials for long periods of time. Even if law enforcement agencies are suspicious that a shipment may be directed toward an illegal end user, specific proof may not be available. Law enforcement officers may not have the resources to frequently check the warehoused materials to see if they have been moved or used.

Smuggling

Smuggling precursor or essential chemicals into a country or state avoids recording requirements pertaining to transactions in these chemicals.

Relabeling or Mislabeled Containers

Most police officers and customs officials are not trained in the quick identification of chemical substances. Thus, it may be possible for criminals to relabel containers, so that inspectors may not detect that the chemical in the container is not the one described on the label. Furthermore, many chemicals are sold under trade names. This further compli-

Table 3

Trade in Chemicals: Suspicious Factors

This list was prepared to assist chemical suppliers in identifying suspicious orders and enquiries for chemicals that may be used in the illicit manufacture of drugs. The list is not exhaustive but highlights areas in which suppliers need to exercise greater vigilance.

Customer's Identity

- New customer
- Walk-in customer
- Failure or unwillingness to supply telephone number or address
- No business stationery
- Orders from companies that are not known or that cannot be easily traced in trade directories
- Customer not a member of a trade or business association

Business Practices

- Private house or post office box number as the address from which the order is made or to which goods are to be delivered
- Irregular ordering patterns
- Payment by cash, cashier's check, or postal money order
- Orders from abroad in which the proposed method of payment is not consistent with financial transactions relating to that part of the world
- Orders from universities or well-known companies in which normal arrangements for ordering goods are used but delivery is requested to a specific individual
- Use of a freight forwarder as ultimate consignee
- Delivery requested to an intermediary whose location and/or business is incompatible with the purported business of the end user

Method of Delivery

- Collection of goods in a private vehicle
- Purchase of goods in small containers when goods are claimed to be for industrial use
- Request for delivery by air freight
- Delivery requested via a dubious transit route
- Orders for chemicals in which the cost of delivery or routing exceeds cost of the merchandise

Use of Goods

- Unusual quantities ordered
- Indication of intended use inconsistent with the chemicals or goods ordered
- Export to countries where there is no real manufacturing requirement for the chemicals ordered
- Orders or purchases by companies with no obvious need
- Orders for more than one precursor or essential chemical
- Orders in which scheduled chemicals appear in a lengthy list of unscheduled chemicals

Source: Chemical Action Task Force, Diversion Working Group, *Chemical Action Task Force Final Report* (Washington, DC: CATF, 1991), Annex I.

cates the identification of these substances, because trade names are even less likely to be known by police and inspectors than chemical names.

Smurfing

"Smurfing" refers to the practice of buying amounts of precursor and essential chemicals that are under the limits at which a supplier is required to report the transaction. Smurfing allows criminals to gain access to necessary precursor and essential chemicals without engaging in outright illegal activity. Nevertheless, with vigilance, manufacturers and middlemen should be able to identify suspicious customers who frequently purchase small amounts of the listed chemicals.

Front Companies

Front companies may be established by illicit drug manufacturers to cover their illegitimate use of these substances. Front companies may carry on a legitimate business but make their profit from illegal activities.

Bribery and Coercion

The use of chemical products by thousands of legitimate manufacturing companies provides numerous opportunities for criminals to exploit this industry for illicit purposes. At the same time, the huge profits from the illicit drug trade make it possible for these criminals to bribe law enforcement officials, customs officials, and others engaged in the control and use of these chemicals. By bribing a worker in a large chemical plant, for example, a criminal may obtain a steady source of a needed chemical. The law enforcement system would have great difficulty identifying the source of such precursor chemicals.

Cash-and-Carry Transactions

Cash-and-carry transactions pose a problem, particularly when only relatively small amounts of illicit substances are bought. Any cash transaction should be considered questionable, since the chemical industry and legitimate users generally do not operate with cash sales.

Diversion in the International Arena

In addition to the diversion methods discussed above, which can apply to both domestic and international transactions, several diversion methods are only possible in international commerce.

Misusing or abusing opportunities afforded by international trade. Free trade zones and free ports are established by countries to facilitate international trade. The United States has 165 free or foreign trade zones. Many are in seaport cities, while others are associated with airports. For example, Kansas City, located a thousand miles from any ocean, is designated as a foreign trade zone.

In foreign trade zones, imported goods are still considered to be outside U.S. Customs territory. They may thus be handled, repacked or relabeled, and processed prior to release into U.S. markets. While foreign trade zones are meant to ease the red tape involved with trade in the United States, this ease of use also means that controls on exchange are less strict, and illegal operations, often involved with repackaging and relabeling, are more likely to occur in these areas. There is also more opportunity for smuggling.

Misdescribing goods on commercial or customs documents. Illicit drug manufacturers can obtain precursor and essential chemicals by fraudulently misidentifying these materials on commercial and customs documents. Because of the number of chemical products that can be sold in barrels or tankers, most law enforcement officers and customs agents cannot easily recognize a substance by its physical attributes, such as its appearance or aroma. As a result, criminals often can transport these goods across national boundaries without much fear of being caught. The falsified documents might be obtained by theft, fraud, or bribery.

Changing ownership after shipment, or floating exports. The American free enterprise system and the international system of trade permit frequent changes of ownership for any product in commerce. This is particularly true of chemical products, which may be owned or controlled by numerous middlemen in the system of distribution between manufacturer and end user, especially in international transactions. Each transfer of ownership may result in relabeling. Many chemicals are not sold under their chemical name but under trade names. These changes of names and labels make the tracking of listed chemicals much more difficult for investigators.

Approaches to Combat Diversion

The CATF identified 10 approaches that should be used to combat diversion throughout the chemical industry and its distribution system.¹ The CATF urged law enforcement agencies in countries that produce and use these chemicals to be vigilant in ensuring that industry makes serious efforts to implement these approaches.

Increase Awareness

A lack of awareness of the use of precursor and essential chemicals in the illicit drug trade remains a critical problem. Many in industry, as well as in the law enforcement community, are unaware that these chemicals play an integral part in the production of illegal drugs. Chemical companies and law enforcement agencies must continually train their employees and officers to increase their knowledge of how these chemicals are used and how to prevent their diversion to criminal drug manufacturers.

Improve Labeling of Chemicals

Consistent and complete labeling of chemicals can facilitate the investigation of illegal drug manufacturing. The use of trade names and the lack of information describing all the chemicals in a mixture permits criminals access to precursor and essential substances without the knowledge of law enforcement and customs officials.

Establish Effective Procedures to Prevent Smuggling

Smuggling remains an important method for criminals to obtain precursor and essential chemicals. Countries involved in the import and export of these chemicals must increase their efforts to identify smuggling rings, not only of the illicit drugs themselves, but also of their precursors.

Require Identification of Customers

All commercial operators in the chemical distribution chain must know who their customers are and why they need the listed chemicals. Due to the large number of middlemen who are often involved in chemical transactions, it is critical that commercial operators know not only the purposes of the distributors of their products, but also those of the ultimate consignee who will use the shipment of the listed chemicals.

Improve Record Keeping

Companies involved in the chemical trade should develop a system of records that carefully documents the sale, import, export, transshipment, and transit of listed chemicals. Furthermore, these records must be available to the authorities who control and investigate the illicit use of these substances. This is particularly important because every company needs to be able to identify the theft of regulated

chemicals by outside criminals or their own employees. In addition, the records can enable law enforcement officials to track the transit of these substances from manufacturer to illegal user and thus to disrupt the illegal distribution of precursor and essential chemicals.

Increase Knowledge and Awareness in Law Enforcement

Law enforcement agencies must become more aware of the role of precursor and essential chemicals in the drug trade. They must become familiar with chemical producers and middlemen in their jurisdictions and understand how to trace these chemicals in the investigation of clandestine laboratories and other illegal drug operations.

Approaches Affecting International Trade

Several approaches can control illicit international transactions involving precursor and essential chemicals.

Advance authorization or notification for certain chemical shipments. To prevent the shipment of these substances to illicit manufacturers, countries can require advance authorization to (or at least notification of) appropriate authorities of shipments of certain listed chemicals. This is particularly relevant for shipments to individuals or organizations that are not known to the company making the sale. Advance authorization would give the law enforcement agencies time to investigate the new buyers and to contact law enforcement agencies in other jurisdictions or other countries to verify the legitimacy of unknown buyers.

Advance authorization also enables law enforcement agencies to maintain closer surveillance of critical shipments as they travel from manufacturer to legitimate user. This can prevent illicit drug manufacturers from obtaining access to precursor and essential chemicals.

Authority to suspend shipments and seize chemicals. The CATF also recommended that appropriate authorities need to have the power to suspend shipments and to seize substances when there is adequate evidence that they may fall into the hands of illicit drug producers. Coupled with advance notification of shipment, suspension gives law enforcement authorities a powerful tool for enforcing other regulations concerning the identification of the buyers of these goods.

Effective controls in free trade zones and free ports. The large number of free trade zones and free ports, established

to increase world trade, unfortunately increases the difficulty of controlling precursor and essential chemicals. Free trade zones can enable criminal users to store these chemicals without effective customs controls and increase their opportunities to alter documents and shipments and thus escape detection. Authorities in these zones must exercise special caution to prevent the illegal transfer of precursor and essential chemicals to drug manufacturers.

Effective interregional and international cooperation among law enforcement authorities. Due to the nature of chemical production, it is almost inevitable that the production of illegal drugs will require the transport of raw materials, as well as the final product, between countries or at least between jurisdictions within a country. This is particularly true of cocaine production, which usually involves the import of essential chemicals to the drug producing countries and the export of the drug to countries where users are located. This requires law enforcement agencies to work cooperatively to detect and prosecute the illegal shipment of these substances. Cooperation is needed both on an international and a national level; for example, in the United States, cooperation will be necessary among Federal, State, and local agencies. In addition, cooperation must not extend only to police departments but also to other administrative

and legal levels such as customs, agencies related to interstate trade and commerce, and the courts.

The CATF also warned that, as the enforcement and control nets tighten to limit access to precursor and essential chemicals, criminals will undoubtedly find new ways to ply their trade. Not only will new processes of drug manufacture develop so that different precursor chemicals can be used, but new methods of diversion will appear as well, as criminals attempt to obtain these substances in any way they can to maintain their production of deadly drugs.

Endnote

1. The CATF also recommended the addition of 10 chemicals to the regulatory system in the U.N. convention (this recommendation has been adopted) and ratification and implementation of the 1988 U.N. Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances by all U.N. member nations. Chemical Action Task Force, *Chemical Action Task Force Final Report* (Washington, DC: CATF, 1991), p. 10.

Chapter 4

Legislation and Policy

Law enforcement officials have known about the problem of precursor and essential chemicals for many years. In 1988, the U.S. Congress passed the Chemical Diversion and Trafficking Act (CDTA).¹ This act was meant to control diversion, principally by requiring chemical manufacturers and suppliers to report and keep records of transactions involving these substances. The first section of this chapter provides an overview of this legislation. In addition, a more detailed discussion of the chemical handlers' requirements for reporting and record keeping is contained in appendix B.

Individual States have also passed laws similar to the Federal legislation. The second section of this chapter describes some of the principal requirements of these laws.

In addition, this chapter discusses environmental and occupational health and safety laws associated with illegal diversion. Many of the precursor and essential chemicals controlled by the CDTA and State laws are extremely toxic. They are thus included in numerous environmental laws that govern the use, storage, cleanup, and disposal of hazardous chemicals. When law enforcement agencies come into possession of these substances, they can become responsible for their cleanup and disposal. Thus, law enforcement agencies must understand their responsibilities under this legislation. Furthermore, law enforcement officers who are involved in the seizure or handling of these substances are covered by occupational health and safety legislation. This legislation is meant to protect employees who come into contact with toxic substances, and it necessitates not only the use of equipment and practices designed to limit exposure but also monitoring of the health of officers who are routinely exposed to toxic substances. These occupational requirements are discussed in the third section of this chapter. The chapter concludes with a discussion of potential agency liability for the cleanup of seized contaminated property.

Overview of the Chemical Diversion and Trafficking Act

The Chemical Diversion and Trafficking Act of 1988 is a part of the Anti-Drug Abuse Amendments Act of 1988. The CDTA gives the DEA the authority to regulate the domestic sales, as well as the import and export, of 20 precursor and essential chemicals necessary for producing cocaine, heroin, methamphetamine, LSD, and other illicit drugs. The Act also regulates the sale of machinery required in drug manufacture, such as tableting and encapsulating machines. Representatives of industry, including the Chemical Manufacturers Association, were consulted during drafting of the law, and they strongly support the law's goals.

Industry is central to the control of these chemicals. All chemical handlers (including manufacturers, distributors, importers, and exporters) must maintain records of any transaction involving a listed chemical that exceeds an established threshold amount. These records must be kept in a form that is retrievable by DEA. They must also obtain proof of identity from all purchasers of listed chemicals, and must notify the DEA of any unusual or suspicious orders. For international shipments, the DEA must be notified at least 15 days prior to shipment for any shipment over the threshold amount. The Act also requires that exporters and importers of listed chemicals report the transaction by means of DEA Form 486, the Import/Export Declaration.

The CDTA originally identified 20 precursor and essential chemicals to be regulated. The 1990 amendments to the CDTA added 11 more chemicals, and the DEA also has added two more chemicals, hydrochloric acid and sulfuric acid, by administrative action.² Thus, the United States now regulates a total of 33 precursor and essential chemicals. The listed chemicals are shown in table 4.

Table 4
CDTA Thresholds by Weight for Listed Chemicals

Chemical	Domestic Distribution	Import and Export Distribution
Precursors		
Anthranilic acid and its salts	30 kg	30 kg
N-Acetylanthranilic acid and its salts	40 kg	40 kg
Benzyl cyanide	1 kg	1 kg
D-lysergic acid, its salts, optical isomers, and salts of optical isomers	10 g	10 g
Ephedrine, its salts, optical isomers, and salts of optical isomers	1 kg	1 kg
Ergonovine and its salts	10 g	10 g
Ergotamine and its salts	10 g	10 g
Ethylamine and its salts	1 kg	1 kg
N-Ethylephedrine, its salts, optical isomers, and salts of optical isomers	1 kg	1 kg
N-Ethylpseudoephedrine, its salts, optical isomers, and salts of its optical isomers	1 kg	1 kg
Hydriodic Acid	1.7 kg	1.7 kg
Isosafrole	4 kg	4 kg
Methylamine and its salts	1 kg	1 kg
3,4-Methylenedioxyphenyl-2-propanone	1 kg	1 kg
N-Methylephedrine, its salts, optical isomers, and salts of optical isomers	1 kg	1 kg
N-Methylpseudoephedrine, its salts, optical isomers, and salts of its optical isomers	1 kg	1 kg
Norpseudoephedrine, its salts, optical isomers, and salts of its optical isomers	2.5 kg	2.5 kg
Phenylacetic acid and its salts	1 kg	1 kg
Phenylpropanolamine, its salts, optical isomers, and salts of its optical isomers	2.5 kg	2.5 kg
Piperidine and its salts	4 kg	4 kg
Piperonal anhydride	1 g	1 g
Propionic anhydride	1 g	1 g
Pseudoephedrine, its salts, optical isomers, and salts of its optical isomers	1 kg	1 kg
Safrole	4 kg	4 kg

Table 4 (Continued)
CDTA Thresholds by Weight for Listed Chemicals

Chemical	Domestic Distribution	Import and Export Distribution
Essentials		
Acetic anhydride	1,023 kg	1,023 kg
Acetone	150 kg	1,500 kg
Benzyl chloride	1 kg	4 kg
2-Butanone (MEK)*	145 kg	1,455 kg
Ethyl ether	135.8 kg	1,364 kg
Hydriodic acid (anhydrous)	No Limit	27 kg
Potassium permanganate	55 kg	500 kg
Sulfuric Acid	No Limit	50 gal
Toluene	159 kg	1,591 kg

*2-Butanone and methyl ethyl ketone are two names for the same substance.

Source: 21 CFR 1310, as amended at 57 FR 184, Sept. 22, 1992, pp. 43614-15.

Effectiveness of the CDTA

The CDTA and related regulations have already proven remarkably effective in controlling the production of illicit drugs in the United States and overseas. Domestically, the number of clan labs seized decreased significantly (about 35 percent) in 1990 and by an additional 28 percent in 1991.³ This indicates that criminals are having a more difficult time obtaining the precursor chemicals required for illicit drug manufacture, resulting in fewer clan labs for police to seize.

The legislation had notable impact on use levels of methamphetamine. According to data from the Drug Abuse Warning Network (DAWN) of the National Institute on Drug Abuse, the number of hospital emergency room episodes resulting from adverse reactions to methamphetamine dropped from 8,823 in 1989 to 5,257 in 1990.⁴ This 40 percent decrease in emergency room visits probably reflects the lower availability of methamphetamine on the streets.

Internationally, as of April 1990, the DEA accepted 165 companies in South America as legitimate dealers in these substances and rejected 42, or about 20 percent of the total.

In some cocaine producing regions, the rejection rate was over 50 percent. The export of several essential chemicals to cocaine producing countries correspondingly plummeted. For example, in 1988, prior to passage of the CDTA, 90,852 metric tons of acetone, ethyl ether, methyl ethyl ketone, and toluene were exported from the United States to South American countries. In 1989, the year the CDTA went into effect, this amount had declined by over half, to 40,464 metric tons.⁵

The chemical industry has shown a strong interest in cooperating with the DEA. By doing so, it not only preserves its integrity but also assists law enforcement authorities in controlling the drug problem in the United States. The initial success of the CDTA resulted in large part from the quick adoption of its requirements by industry.

State Legislation on Precursor and Essential Chemicals

Although the Federal Chemical Diversion and Trafficking Act provides an overall national framework for the control

of precursor and essential chemicals, many States have not passed corresponding legislation on this topic. As a result, criminals can move to States with less stringent laws on chemical diversion. For example, the implementation of strict laws and penalties in California, New Jersey, and Texas resulted in a flurry of clan lab activity in adjacent States.

At least 37 States have some limited legislation that reference the distribution and use of precursor chemicals in illicit drug production. In 32 of these States, some precursor compounds are placed on Schedules II or III of the Federal scheduling system for drugs. Schedule I substances are narcotics that have no accepted medical use in the United States. Schedules II and III contain substances that have accepted medical uses but have either a high abuse potential with severe psychological or physical dependence (Schedule II) or an abuse potential with dependence liability (Schedule III). Schedule IV substances have less potential for abuse and include prescription drugs like Valium and Darvon. Schedule V substances have even less abuse potential and are often available over the counter.⁶ Penalties for the illegal possession and use of precursor substances would thus correspond to those for other substances on the same schedules.⁷

Most of the 37 States only regulate the immediate precursors of amphetamines and methamphetamine. However, only 18 States have enacted detailed chemical tracking legislation, according to a study by the American Prosecutors Research Institute (APRI).⁸ These States are cited by APRI as having adequate provisions to regulate the use and flow of precursor chemicals by legal producers and users. These provisions generally require manufacturers, transporters, and sellers to obtain licenses or permits from State law enforcement agencies or the pharmaceutical control board. They also parallel the CDTA by requiring detailed reporting and record keeping, and reporting of thefts, shortages, or losses of a listed chemical.

The 16 States that still *do not* regulate immediate precursor chemicals (as of 1991) are Arkansas, Connecticut, Georgia, Indiana, Iowa, Kentucky, Maine, Maryland, Massachusetts, Michigan, Missouri, Nebraska, Nevada, Pennsylvania, South Dakota, and Vermont.

Critics note two types of problems with current State legislation. The first is that 16 States remain without precursor chemical legislation and thus have no record keeping or notification provisions. Criminals can exploit these gaps to conceal illegal chemical transactions.

Secondly, differences in regulations across States can be exploited. Illicit drug manufacturers can acquire chemicals in States where they are not listed, or they can use State borders to conceal transactions. In addition, some States are relatively slow in adding chemicals to their lists of precursors; this is particularly a problem in controlling new "designer" drugs. It has been suggested that State controlled substances legislation should be written to include in their precursor chemical lists all federally listed chemicals, with a clause that permits rapid inclusion of new substances that are added to the Federal list, without a separate and extended State review process.

Some States have been creative in providing for controls while still affording the minimum possible reporting requirements for businesses dealing in precursor chemicals. For example, the State of Washington relaxes reporting requirements when there is a pattern of regular business or an established record of lawful purposes for using the substance.⁹ Washington's code also requires the State Board of Pharmacy to report annually to the legislature concerning substances that should be added or subtracted from the list.

Model Legislation

The National Institute of Justice, in cooperation with the DEA, funded a project to develop model State legislation for controlling precursor and essential chemicals. This project, cited above, was conducted by the American Prosecutors Research Institute, an affiliate of the National District Attorneys Association. The project included the development of a Model State Chemical Control Act. The Act was developed by a team of investigators and prosecutors from five States, as well as Department of Justice staff. Individual States can use this model as the framework for their own chemical control legislation.

The Act provides a model for a regulatory structure to control precursor chemicals, and accommodates business needs without sacrificing the State's ability to prevent illegal chemical diversion. The model Act addresses the following requirements for adequate control:

- *Authority to regulate.* The Act establishes a state's authority to regulate transactions involving 32 chemicals. The list of chemicals is almost identical to the Federal list. Unlike the Federal legislation, no threshold amounts are contained in the model Act.
- *Registration and permits.* The model Act requires annual registration of all manufacturers and distributors

of the listed chemicals. A permit is also required of any person who buys or possesses these substances.

- *Reports, records, and purchaser identification.* Suspicious transactions or circumstances, such as cash payments, thefts, and discrepancies in shipments, must be reported by manufacturers, distributors, and possessors. Also, all persons or organizations trading in the listed chemicals must provide monthly reports of transactions.
- *Additional safeguards against diversion.* Convicted drug offenders and minors are ineligible to apply for registrations and permits. The Act also provides procedures for denial, suspension, and revocation of registrants and permit holders.
- *Investigatory and enforcement powers.* The model legislation provides authority for State officials to identify and adequately respond to noncompliance, including administrative inspections of inventories and records. It authorizes fines, imprisonment, and special civil assessments, including forfeiture of assets under separate State forfeiture laws.
- *Offsets for administrative expenses.* The Act provides for the financing of State expenses through the use of fines and forfeitures, as well as reasonable fees for registration and permits.
- *Protections for legitimate commerce.* Common carriers, pharmacists, physicians, and other authorized practitioners are exempted from the Act's requirements. Special provisions for publicly held corporations and for regular legitimate users all aim at minimizing the reporting burden on legal manufacturers and users.

An information package that includes a copy of the Model State Chemical Control Act and sample State regulations is available from APRI. The address can be found in appendix E.

Pertinent Federal Safety and Environmental Laws and Regulations

Toxic materials and toxic waste are subject to a variety of Federal and State safety and environmental laws and regulations. Because numerous precursor and essential chemicals are toxic or hazardous, they too are covered by the same laws. Any law enforcement agency that deals with these substances may be subject to applicable environmental and

occupational health and safety laws. The seizure of a clan lab site, for example, can make the agency responsible for the cleanup and storage of toxic materials. When the materials are transported away from the clan lab site, laws on the transport of toxic and hazardous waste may come into effect. Even the storage of samples in evidence rooms may be subject to these laws and regulations.

This section summarizes the liability under Federal laws and regulations of local law enforcement agencies that seize clan labs.

It should be noted that many State and local governments have additional safety and environmental laws and regulations that are more stringent than current Federal requirements. Law enforcement agencies should consult with local and State environmental and occupational health and safety agencies to determine local requirements.

It is thus critical that every agency that conducts clan lab seizures understand and follow both Federal and local requirements. These regulations are in place to protect employees and the public from harm resulting from the illegal contamination of the environment. However, it is expensive to conform to these regulations, and the law enforcement agency may be held liable for the costs. (For example, one police department recently paid \$70,000 for the cleanup of a single clan lab site.) However, failure to follow relevant regulations is illegal, and agencies can be held accountable. For example, a small police department in Oregon recently was fined by the court for failing to follow occupational health requirements during a clan lab seizure.¹⁰

OSHA Regulations

The Federal Occupational Safety and Health Administration (OSHA) is responsible for regulating safety in the workplace. Its authorizing legislation also establishes an employee's "right to know" about toxic and hazardous substances to which he or she may be exposed. Because law enforcement officers conducting clan lab investigations may be exposed to hazardous substances, their employing agency must follow the appropriate safety regulations,¹¹ as outlined below:

- The employer (law enforcement agency) must communicate clear and unambiguous warnings about the hazards and dangers of chemical substances encountered during employment. Ordinarily, training and/or education on toxic substances is required not only for police officers conducting raids but also for others who

come into contact with the toxic substances. For example, investigators, crime lab technicians, and chemists who work at the site of the seizure or with the chemicals are probably covered under this regulation.

- All employees who may be exposed to hazardous chemicals must receive training on potential hazards, the use of protective equipment, safe work practices, and other safety measures. This is ordinarily interpreted to mean that officers should have 40 hours of initial training and 3 days of field experience, as well as 8 hours per year of refresher courses. Training must be certified according to OSHA standards.
- All employees must be issued proper protective equipment, which must meet National Institute of Occupational Safety and Health standards for exposure levels.
- Employees who are exposed to hazardous substances must undergo continuous medical surveillance. Exposures must be documented for future medical reference.

Federal Environmental Statutes and Regulations

Several Federal statutes address environmental pollution. Each statute has a significant body of regulations detailing the requirements for compliance. Relevant statutes include the following:

- Resource Conservation and Recovery Act, as amended by the Hazardous and Solid Waste Act,¹² which governs the transportation, storage, and disposal of hazardous wastes.
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Authorization Act,¹³ which governs emergency responses to releases of hazardous substances into the environment and the cleanup of inactive hazardous waste disposal sites.
- Hazardous Materials Transportation Act,¹⁴ which regulates the packaging, marking, labeling, and transportation of hazardous materials, including hazardous wastes.

Because these regulations are very detailed, law enforcement agencies ordinarily turn to certified hazardous waste contractors to complete the cleanup, transport, and disposal of toxic wastes from clan lab sites.

Liability for Cleanup of Contaminated Property

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) was intended to place the burden of cleanup of toxic sites and spills on the party or parties responsible for the spill or benefiting from the activity resulting in the spill.¹⁵ The statute permits the Federal government to remove hazardous materials and take remedial action to clean up a release of hazardous substances and to collect the cost of the cleanup from "any responsible party." Responsible parties may include the owners of the property, the legal tenant who caused the contamination, the local law enforcement agency that seizes the laboratory, a contractor or environmental agency that performs the initial removal, or any other entity or contractor involved in the transport, disposal, and cleanup of the waste materials.¹⁶ The law requires that liability be apportioned according to which parties materially gained from the release of the toxic material. However, practically speaking, the clan lab "cooker" (the criminal manufacturer) who gained the most from the lab probably cannot be identified or else is in jail or otherwise without assets. Liability in such a case may fall upon the property owner, although court decisions in these circumstances are unclear. Additional legislation has been proposed to ease the liability of the "innocent owner" who was not aware that the site was used as a drug lab.¹⁷

It is clear that spills, releases, and other contamination resulting from the actions or omissions of a law enforcement agency makes the agency liable for cleanup and other costs. For this reason, law enforcement agencies must be very careful that the clan lab seizure and cleanup is carried out in such a way as to make releases of or exposures to toxic substances from the lab impossible.

Seizure and disposal of property under asset forfeiture. Asset forfeiture laws may leave local agencies liable for cleanup costs. For example, in Federal forfeitures, section 120(h) of the Superfund Amendment and Reauthorization Act of 1986 specifically requires a Federal agency that sells contaminated property to "warrant prior necessary remedial action and to agree to perform any future remedial action that becomes necessary after the transfer."¹⁸

The DEA uses the proceeds from forfeited assets to finance its cleanup activities at clan lab sites. It also has created a model forfeiture program that States can use as a guide in creating their own programs.¹⁹

Local law enforcement agencies should consult with the appropriate State and local regulatory agencies and with their legal counsels to identify any liabilities that may result from clan lab seizures or resulting asset forfeitures.

Endnotes

1. Chemical Diversion and Trafficking Act, Subtitle A of the Anti-Drug Abuse Amendments of 1988 (Title VI—Public Law 100-670), which amended the Controlled Substances Act and the Controlled Substances Import and Export Act (21 U.S.C. 802 et seq.)
2. 21 CFR Part 1310 as amended at 57 FR 184, Sept. 22, 1992, pp. 43614-15.
3. Chemical Operations Section, Drug Enforcement Administration, Department of Justice, unpublished data.
4. National Institute on Drug Abuse, Drug Abuse Warning Network, unpublished data, 1991.
5. Chemical Action Task Force, Diversion Working Group, *Chemical Action Task Force Working Group Reports* (Washington, DC: CATF, 1991), p. H-3.
6. 21 U.S.C. 841(a)(1), 841(b)(1),(c).
7. National Criminal Justice Association, *A Guide to State Controlled Substances Acts* (Washington, DC: National Criminal Justice Association, 1991), pp. 15-19.
8. Sherry Green, "Preventing Illegal Diversion of Chemicals," *Research in Brief* (Washington DC: National Institute of Justice, forthcoming).
9. 69.43 RCW.
10. E. F. Conners, "Hazardous Chemicals from Clandestine Labs Pose Threat to Law Enforcement," *Police Chief* 57, 1 (January 1990): 37-41.
11. 29 CFR 1910 et seq.
12. 2 U.S.C. 6905, 6912(a), 6921-6927, 6930, 6934-6935, 6937-6939, 6974; 40 CFR 260-299.
13. Public Law 96-510 and amendments; 40 CFR 300; 42 U.S.C. 9605, 9620; 33 U.S.C. 1321 (c)(2); 3 CFR, 1971-1975 Comp. p. 793; 3 CFR, 1987 Comp. p. 193.
14. 49 U.S.C. Appendix 1801 et seq.; 49 CFR 386.
15. T. B. Maher, "Legal Liabilities Faced by Owners of Property Contaminated by Clandestine Methamphetamine Laboratories: The Oregon Approach," *Willamette Law Review* 27 (1991): 325.
16. *Ibid.*
17. The Federal regulations concerning the liability of property owners (and, indirectly, agencies that seize property) are covered by two regulations. The description of an "innocent landowner" can be found in the *Federal Register*, August 18, 1989, Vol. 54, p. 34235. Further regulations on landowner liability are in the *Federal Register*, April 29, 1992, Vol. 57, p. 18344.
18. *Ibid.*
19. U.S. Department of Justice, Drug Enforcement Administration, *Model Forfeiture of Drug Profits Act* (Washington, DC: U.S. Department of Justice, 1981).

PART III

**ISSUES FOR
LAW ENFORCEMENT**

Chapter 5

Clandestine Drug Labs

Local criminal justice agencies in the United States most often will confront the problem of precursor and essential chemicals through the seizure of clan labs. These seizures grew at an exponential rate during the 1980s. The DEA has reported that clan lab seizures increased from 226 in 1983 to 775 in 1987 and 784 in 1988. As mentioned previously, the implementation of the Chemical Diversion and Trafficking Act of 1988 has resulted in some success in limiting clandestine drug labs, as indicated by the number of reported clandestine laboratory seizures. The number of seizures declined by about 35 percent in 1990 and by an additional 28 percent in 1991. The increased difficulty criminals had in obtaining needed chemicals as a result of the CDTA and State legislation clearly was a major factor in this decline. However, the problem is still not under control. Over 350 seizures occurred in 1991, and the growing sophistication of drug manufacturers in avoiding detection may have contributed to the lower seizure rates. Some local law enforcement officials believe that these national statistics underreport the actual number of seizures, although this theory is not supported by corresponding increases in other drug use indicators (such as data on drug related emergency room visits).

In regions of the country where clan lab activity is high, seizures place a significant burden on the entire criminal justice system. For example, the U.S. Attorney's Office in Eugene, Oregon had no cases of clandestine drug lab activity in 1980. In 1982 and 1983, the office had one case involving clan labs. By 1988, lab seizures represented 50 to 70 percent of the entire caseload of the office.¹

The Western United States has been the principal region of the country for clan lab activity; the States with the highest number of reported seizures in 1991 were California, Texas, Colorado, and Oregon. These four States were responsible for 71 percent of the seizures reported to the DEA in that year.² However, seizures have occurred in most States, and increasing enforcement efforts against illicit producers by law enforcement in Western States may have resulted in the movement of producers to less populous States.

The vast majority of clan labs in the United States produce methamphetamine and related drugs. An examination of a sample of seized labs indicated that 82 percent produced methamphetamine, 10 percent amphetamines, and 2.5 percent PCP.³

The profits resulting from illicit drug production are immense. It has been estimated that, in 18 hours, with \$200 of raw materials, a clan lab can produce drugs with a street value of \$92,000. The total annual production of methamphetamine by domestic clandestine labs is believed to be 25 tons, with a street value of \$3 billion.⁴

The ease with which a lab can be set up makes it an attractive business for both first-time offenders and organized criminal gangs. The knowledge of chemistry needed to set up and operate a lab is about equivalent to that learned in a high school. Instructions for operating a lab are available through many illegal and legal sources, including several books and magazine articles written by people in favor of legalizing drug use.

The seizure of clan labs causes unique problems for law enforcement agencies. Many agencies have never confronted these types of problems before, because they have not previously had to deal with environmental and health regulations. The costs of cleanup operations, and the possibility that the seizing agency may be responsible for these costs, also may inhibit agencies from pursuing a policy of actively seizing clan labs.

Location and Composition of Clandestine Labs

Although drug lab seizures have been most frequent in a few States, they have occurred in practically every State in the Union. Most of the illicit drugs produced in America, such as methamphetamine, LSD, and PCP, require a relatively small volume of materials. Thus, clan labs do not require a large amount of space, equipment, or raw materials. In fact,

a lab to synthesize these substances can be set up on an ordinary kitchen table. As a result, clan labs have been found in a variety of locations. Some have been seized in rental vans along the highway. Vans are particularly advantageous to "cookers" (criminal manufacturers), because they can drive to deserted locations to set up the lab and then leave wastes and residues at the site, precluding the necessity for disposal and cleanup.

California and Oregon have recently been home to the majority of lab seizures, but the mobility of these illegal labs is such that any State may develop a problem. As mentioned earlier, Texas traditionally has had a relatively large clan lab problem. In response, the Texas Legislature passed tough laws to control the problem. As a result, clan lab activity in Oklahoma, Arkansas, and Louisiana increased. Other States that have recently noted increased clan lab activity include Idaho, Kansas, Missouri, Pennsylvania, and South Dakota.⁵

Rural sites are particularly desirable for illicit manufacturers because of the lower probability of detection. There are fewer people to see the lab and to smell the strong odors produced by the precursor and essential chemicals used in drug production. Rural sites also permit easier transport, storage, and disposal of containers of raw materials, which might arouse suspicion in an urban setting. Due to lack of resources and personnel, rural law enforcement officers in some areas are less likely to be trained to recognize the indications of clan labs and thus may be less likely to investigate suspicious activities. Nevertheless, clan labs also have been discovered in city apartments and suburban homes. Many labs are detected as the result of fires and explosions that occur during the synthesis of the drugs.

Clan labs usually are set up on rental property, because most criminals are not willing to risk detection in their own homes. Use of rental property also permits the site to be abandoned without the need for removing wastes and equipment. This adds to the problems of law enforcement officers, because the site is usually contaminated with toxic chemicals when discovered by officers.

The equipment needed for manufacturing illicit drugs does not differ appreciably from that required for any standard chemistry lab. Beakers, test tubes, burners, and glassware for distillation and other processes are sufficient to operate a clan lab.

Hazards of Clandestine Drug Labs

Seizing a clan lab is a risky operation, even if its users are long gone. The dangerous chemicals used in the production

of illicit drugs expose officers to a range of health risks not ordinarily associated with law enforcement. These risks include explosions, inhalation of toxic substances, and booby traps, as well as the risks associated with dismantling labs and disposing of toxins.

Explosion and Inhalation

The manufacture of illicit drugs involves the use of many dangerous and toxic substances. Table 5 lists some of the toxic effects of chemicals used in clan labs. Many volatile and explosive solvents are employed for most chemical processes. Solvents include materials like acetone, benzene, ether, and FreonTM. They irritate the skin, eyes, and mucous membranes and also cause mild intoxication.

Other classes of chemicals include acids and bases that are corrosive or irritating to human tissues. Inhaled, they irritate mucous membranes in the nose, throat, and lungs. They can also cause nausea, headache, and dizziness.

Criminals seldom use proper safety procedures for handling toxic substances in clan labs. Because they almost always use rental property and therefore are ready to move out at a moment's notice, they often store dangerous chemicals improperly. In addition, because odors can make neighbors suspicious, adequate ventilation of volatile substances is seldom provided. This means that explosive amounts of the substances may be present in the lab. Thus, if a forced entry is being made by officers of an occupied lab, it is possible for these substances to explode due to punctures of their containers by gunfire or the breakage of equipment.

Other, less documented, dangers from clan labs result from the residues of many toxic substances and the capability of very small amounts of these substances to do damage. Untrained officers may routinely transport toxic evidence in car trunks, and resulting leakage may cause symptoms in officers who later use the car. The storage of evidence contaminated with toxic substances in evidence rooms can pollute a building's air circulation system. As a result, building occupants not connected with the evidence may develop symptoms of exposure to these substances.

Booby traps. The National Sheriffs Association has reported the results of 70 raids selected randomly to determine typical dangers encountered by law enforcement officers. About 10 percent of the labs seized were booby-trapped.⁶ The traps have included shotguns and incendiary devices. They are set on doors, refrigerators, and cabinets containing flammable substances. Their purpose is both to harm personnel and to destroy evidence. About 30 percent of seized labs

Table 5
Toxicity and Flammability of
Selected Precursor and Essential Chemicals

Chemical	Acute Toxicity	Flammability	Other Properties
Acetic anhydride	Moderate	Moderate	Irritant, corrosive
Benzene	Moderate to high	High	Carcinogen, blood disorders
Chloroform	Moderate	Low	Incoordination, probably a carcinogen
Ethanol	Low	High	Incoordination
Hydriodic acid	High	Low	Corrosive, irritant
Hydrochloric acid	High	Low	Corrosive, irritant
Hydrogen cyanide	Extreme	Low	Rapid asphyxiation
Lead acetate	High	Low	Blood disorders
Lithium aluminum hydride	Moderate	High	Water reactive, explosive
Mercury chloride	High	Low	Corrosive, irritant
Methylamine	High	Extreme	Corrosive
Petroleum ether	Low	Extreme	Incoordination
Phenylacetic acid	Low	Low	Irritant
Phosphine	High	Extreme	Rapid asphyxiation
Red phosphorous	Low	Low	Reactive, explosive
Sodium	High	Low	Water reactive, explosive
Thioxyyl chloride	High	Low	Water reactive, explosive

Source: National Fire Protection Association, *National Fire Protection Standard #30* (flammable liquids) (Quincy, MA: NFPA, 1990).

also employed sophisticated electronic countermeasures to detect entry. In these 70 raids, 13 fire fighters and 4 police officers required hospitalization for medical treatment, and there were numerous minor injuries not requiring hospitalization.⁷

Disposal Methods. Criminal drug manufacturers usually either neglect to dispose of clan lab waste materials or do so illegally. Wastes may be poured into the septic system, into local streams or lakes, or onto the floor or ground around the clan lab. All these places thus become polluted and dangerous to law enforcement officers and others who come into contact with them.

Dangerous residues of toxic chemicals can remain in soil and on other surfaces for long periods of time and often require special cleanup methods for their removal or neutralization.

Dismantling. Dismantling a clandestine drug lab requires compliance with several laws involving the disposal of toxic substances. By seizing the clan lab, the law enforcement agency becomes liable for assuring that these laws and regulations are followed. Ordinarily, this requires that all equipment and waste materials be transported and disposed so as not to threaten the environment. Most law enforcement agencies employ private contractors that specialize in the

disposal of toxic and hazardous waste to dismantle clan labs. Some police departments in large cities use "HAZMAT" (hazardous materials) teams, that are either a part of the department or are in the environmental protection department of the local jurisdiction. Agencies without access to a HAZMAT team usually use chemists familiar with handling toxic substances to dismantle the lab.

By seizing the lab, the law enforcement agency may also be responsible for decontaminating the property. This also requires the services of a professional hazardous waste management company.

Endnotes

1. T. B. Maher, "Legal Liabilities Faced by Owners of Property Contaminated by Clandestine Methamphetamine Laboratories: The Oregon Approach," *Willamette Law Review* 27 (1991): 325.

2. Chemical Operations Section, Drug Enforcement Administration, Department of Justice, unpublished data.
3. U.S. Department of Justice, Drug Enforcement Administration, *Guidelines for the Cleanup of Clandestine Drug Laboratories* (Washington, DC: U.S. Government Printing Office, 1990), p. 2.
4. A. T. Laszlo, "Clandestine Drug Laboratories: Confronting a Growing National Crisis," *National Sheriff* 41, 4 (1989): 9-14.
5. E. F. Conners, "Hazardous Chemicals from Clandestine Labs Pose Threat to Law Enforcement," *Police Chief* 57, 1 (January 1990): 37-38.
6. Laszlo, "Clandestine Drug Laboratories," pp. 10-11.
7. *Ibid*, p. 9.

Chapter 6

Training

Training in how to control diversion of precursor and essential chemicals as well as in how to seize clan labs is necessary at various levels in the justice system.

Law Enforcement Personnel

Law enforcement officers who are involved in seizures of clandestine drug laboratories need special training. Not only is training required under the occupational health laws and regulations mentioned in chapter 4, but it is also necessary for protecting officers from injury. Some evidence suggests that a lack of knowledge about clan labs and chemicals among officers who have not received special training can lead to injury and loss of life, as well as to the possibility of legal liability for environmental pollution resulting from the use of untrained officers in clan lab seizures. Law enforcement officers sometimes happen upon clan lab operations and expose themselves to toxic substances because of their lack of knowledge about the dangers inherent in the operations. Lack of knowledge about both the dangers and the legal requirements has resulted in improper transport and storage of evidence from clan labs. For example, law enforcement officers sometimes transport hazardous substances in the trunks of agency cars, and store substances in evidence rooms without following proper procedures to assure against leakage and pollution through air circulation systems.

Law enforcement officers also may not have a full understanding of the long-term health dangers resulting from exposure to the toxic and hazardous substances routinely used in clan labs. Some officers may take a nonchalant attitude toward exposure to these substances and may fail to wear adequate protective clothing and respiratory equipment. They may also fail to report exposures and undergo routine medical examinations. Ignorance of or improper attention to environmental and occupational regulations by law enforcement officers and supervisory personnel may

leave the department exposed to legal liability resulting from injury or environmental damage due to the use of improper procedures in clan lab seizures.

As mentioned previously, OSHA regulations require at least 40 hours of initial training for employees who come into contact with toxic substances as a routine part of their work. Although most law enforcement officers do not routinely come into contact with these chemicals, they should be aware of the dangers involved in the seizure of a clan lab.

Investigators

Investigators also require training to inform them about laws to prevent diversion of precursor and essential chemicals, methods of diversion, and methods of detecting these crimes. Because it may be important to follow paper trails related to reporting requirements under the Chemical Diversion and Trafficking Act, investigators who specialize in white-collar crime also should receive training. It is important to involve chemists in investigations of clan lab activities because they are more likely to understand the chemical industry, chemical processes, and the dangers of chemical exposure than investigators who are not trained in chemistry or other sciences.

Evidence Technicians

Evidence technicians and others who may be on the clan lab site require training in evidentiary procedures for seizures, as well as extensive training in chemical hazards.

Management and Supervisory Personnel

Managers and supervisory personnel need training to inform them of the importance of controlling chemical diversion, as well as of the legal and regulatory requirements concerning occupational hazards, environmental safety,

and financing and liability issues related to clan lab seizures. Management should also be able to identify other local and State environmental and occupational safety agencies that may be of assistance in the processing and cleanup of clan lab sites.

Rural Law Enforcement Officers

Rural law enforcement officers are particularly in need of training about clan labs and chemicals. Law enforcement agencies serving rural areas are more likely to encounter clan labs than their urban counterparts. Illegal drug producers are more likely to select rural areas due to their isolation. Also, rural sites offer more opportunities for the concealment of chemicals and the disposal of toxic wastes.

Prosecutors and Judges

In many jurisdictions, because prosecutors are not fully aware of the importance of chemical diversion in illicit drug manufacture and trafficking, they are less likely to prosecute offenses related to these crimes. Similarly, judges may be less likely to impose maximum penalties in these cases. Both prosecutors and judges may therefore need training to understand the problem, and prosecutors should learn procedures for investigating and prosecuting chemical diversion under various State and Federal controlled substances acts.

Model Programs for Clan Lab Seizure and Cleanup

Not all law enforcement agencies have developed adequate, efficient procedures for clan lab seizures. Such seizures are usually haphazard in terms of planning, interagency coordi-

ination, and cleanup. DCAG members called for model programs that describe the best methods for conducting clan lab seizures and disposing of toxic wastes from these sites.

The U.S. Department of Justice's Bureau of Justice Assistance (BJA) is currently funding five sites in a Clan Lab Model Enforcement Program, including the California Department of Justice, the Washington State Patrol, the city of Portland, Oregon, the Pennsylvania State Attorney General's Office, and the New Jersey State Police. The objectives of this program are (1) to assess the effectiveness and safety of approaches to clan lab enforcement, (2) to disseminate these approaches to agencies that wish to address the problems of clan labs in their jurisdictions, (3) to assess existing clan lab operations, (4) to develop a "model" approach to the investigation and prosecution of clan labs, (5) to develop training and technical assistance materials to transfer the model to other sites, and (6) to assess the BJA-funded demonstration sites and disseminate the results.

BJA, in cooperation with the DEA, is also supporting a Clan Lab Cleanup Program. This program is funding model cleanup programs through the California Department of Toxic Waste Control, the Washington State Department of Ecology, and the Portland (Oregon) Fire Bureau. The objectives of this program are similar to those listed above. Reports on the model seizure and cleanup programs should be available in 1993. (See appendix E for more information on this program.)

Chapter 7

Data and Statistics

Data

Nationwide, there is a lack of accurate data on clandestine drug labs and on efforts to control precursor and essential chemicals, such as the number of investigations and prosecutions related to the CDTA and State legislation. Currently, the DEA can only report seizures that its own agents conduct or those that are voluntarily reported by State and local agencies. State and local agencies are not required to report seizures to the DEA. Furthermore, there are no accepted national criteria or definitions for classifying a clan lab. The DEA, for example, distinguishes clan labs that are operational at the time of seizure from those that are dismantled, boxed, stored, or abandoned. Other jurisdictions may not consider the seizure of an abandoned or boxed lab as an actual seizure. Thus, even in jurisdictions that report seizures to the DEA, underreporting may result from different definitions of what constitutes a seizure.

Accurate statistics are necessary to understand the extent of the clan lab and chemical diversion problem. A better understanding of the size of the problem can help law enforcement agencies in planning and committing resources. It would also assist law enforcement in working with State and local legislatures to obtain stronger legislation for controlling diversion and adequate financial resources to pay for the costs resulting from conforming to occupational safety and environmental protection regulations.

Information Sharing Among Law Enforcement Agencies

Sharing of information about precursor and essential chemicals is also extremely important. Many of the cases confronted by State and local law enforcement agencies involve the

procurement of precursor chemicals from manufacturers in other States. The investigation of these cases therefore involves contact with other State law enforcement departments, as well as with the DEA and FBI. In these cases, the differences in legislation for controlling precursor and essential chemicals add to the difficulty of the investigation process.

Law enforcement agencies need better mechanisms for sharing information, as well as increased joint investigation efforts including the DEA, State and local law enforcement, and regulatory agencies. Some suggest that other State and federal agencies, such as departments of transportation and environmental regulatory agencies, should also maintain records on the manufacture and transport of precursor and essential chemicals.

Greater contact with international law enforcement authorities and law enforcement agencies in other countries may also be of assistance in investigating cases involving the import and export of these substances. (International investigations should be referred to the Office of International Affairs, Criminal Division, U.S. Department of Justice.)

Often, the emphasis placed upon traditional clandestine laboratory enforcement actions—that is, the arrest of clan lab operators—overshadows the significance associated with denying operators access to precursor chemicals. Denial of access to regulated chemicals and the prosecution of chemical supply companies in violation of the CDTA and State legislation should be viewed as useful enforcement tools. Therefore, it is important that all intelligence information regarding the source of chemicals seized in clan labs be documented and shared with all concerned agencies for actionable follow-up.

Chapter 8

Additional Issues

Improved Technology

Additional research and development of technology for use in detecting and prosecuting crimes involving precursor and essential chemicals are also needed. A variety of potential devices, such as chemical "sniffers" that could detect minute amounts of precursors, could be helpful in controlling diversion. Some suggested that modern scientific techniques such as gas chromatography and mass spectroscopy could be useful in tracing shipments of listed chemicals to specific manufacturers. Testing devices that could quickly determine the toxic substances present at the scene of a clan lab seizure would also be useful.

Other devices needed by law enforcement include protective clothing that is better designed for use during clan lab seizures. Improved features might include less bulky suits that would permit greater maneuverability in dangerous situations and would accommodate body armor.

Better methods of storing and retrieving data on chemical manufacture and transactions would also assist in the investigation of crimes involving chemical diversion.

Related Legal Devices

Some diversion experts are interested in exploring other legal mechanisms for approaching crimes involving chemical diversion. The application of environmental protection and even occupational safety laws to operators of clan labs might be an additional deterrent to these crimes, as well as another way of prosecuting them.

In addition, some DCAG members were interested in the possible application of the Racketeer-Influenced and Corrupt Organizations (RICO) Act of 1970¹ to chemical diversion. Organized crime organizations and gangs are heavily involved in the manufacture of illicit drugs, as well as in providing precursor and essential chemicals to foreign drug producers. The RICO Act makes it a crime to engage in "a

pattern of racketeering activity." Two definitions of racketeering activity, among others, are (1) any State law offense involving narcotic or dangerous drugs punishable by more than one year imprisonment and (2) any Federal felony involving the "manufacturer, importation, receiving, concealment, buying, selling, or otherwise dealing in narcotic or dangerous drugs." Because trafficking in precursor and essential chemicals is in violation of the Federal Chemical Diversion and Trafficking Act, as well as numerous State laws, this activity may be considered racketeering and thus may be chargeable under the RICO Act.

Other State and local laws not related to drug control can often be applied to clandestine laboratory operators. For example, California prosecutors charge lab operators with violations of child endangerment laws.

Environmental and Occupational Regulations

Law enforcement agencies also need assistance in dealing with the body of Federal, State, and local regulations that restrict environmental pollution and assure occupational safety as they affect clandestine drug lab seizure and cleanup. Some law enforcement agencies may be out of compliance with Federal and other statutes and regulations, because they do not understand either the requirements of the regulations or their applicability to law enforcement agencies.

Nevertheless, the DCAG generally agreed that these provisions are applicable to law enforcement agencies, although actual court cases in this area are relatively rare. DCAG members warned that agencies might suffer the injury or death of exposed officers, as well as legal liability for environmental exposures to hazardous substances, if they do not institute training programs to teach their officers the requirements for handling and disposing of wastes from clan lab seizures.

Financing of Clan Lab Seizures and Cleanups

DCAG members also considered the financing of environmental cleanup and occupational safety costs of drug lab seizures a priority problem. Some law enforcement agencies have already confronted bills of \$100,000 and higher for the cleanup of single clan lab sites. Particularly contaminated sites may require cleanup costs of hundreds of thousands of dollars.

Some experts suggest that the recent decline in clan lab seizures was not only due to better control of precursor chemicals but also to the reticence of law enforcement agencies to seize labs, because of the high cleanup costs for which they might be liable. (However, as mentioned previously, other indicators of the use of drugs manufactured in clan labs also suggest that clan lab activity is decreasing.) Several methods have been suggested for financing clan lab cleanups, ranging from joint Federal/State financing to State and Federal laws exempting law enforcement agencies from bearing the cleanup costs and transferring these costs to environmental protection agencies. Others suggest that asset forfeiture programs could be used to pay for clan lab cleanup.

Preventing the diversion of precursor and essential chemicals can be an effective new tool for controlling illegal drugs. By blocking criminals' access to the raw materials of drug production, law enforcement agencies, and the courts can

assure that illegal drugs do not reach the streets. However, preventing diversion also requires that law enforcement agencies acquire new capabilities for addressing environmental regulation and occupational safety requirements, for understanding interstate commerce and the chemical industry, and for promoting interagency cooperation among numerous local, State, and Federal law enforcement agencies.

The ever-changing nature of the drug problem also necessitates constant vigilance against chemical diversion. New "designer" drugs and manufacturing processes may require the control of new precursor and essential chemicals. As control of diversion becomes more effective, illegal drug producers will undoubtedly seek new ways to obtain precursor and essential chemicals and to conceal their clandestine labs. Law enforcement agencies can combat these problems by increasing their knowledge of the role of precursor and essential chemicals in illicit drug production.

Endnote

1. Part of the Organized Crime Control Act of 1970, Public Law 91-452; 84 U.S.C. 922, 941-948; 18 U.S.C. 1961 et seq.

Glossary of Technical and Legal Terms

Acute toxicity. Adverse health effects resulting from a brief exposure to a chemical substance or mixture. The effect may be reversible or irreversible.

Assessment. Determination of immediate safety or health risks and reduction, if possible, of any imminent hazards to law enforcement personnel in later stages of a seizure operation.

By-product. Chemical substance remaining after synthesis of illicit drugs.

Bulk chemicals. Drums, containers, or packages of precursor chemicals, reagents, solvents, by-products, or illicit drugs that should be taken for evidence or removed to a permitted waste disposal facility after a seizure.

Chemical Diversion and Trafficking Act of 1988. Subtitle A of the Anti-Drug Abuse Act of 1988, which places under Federal control selected precursor and essential chemicals as well as the distribution of tableting and encapsulating machines. It also requires that all manufacturers, distributors, importers, and exporters of these chemicals maintain retrievable receipts and distribution records for a period of four years for precursor chemicals and machines and two years for essential chemicals.

Chronic toxicity. Adverse health effects resulting from continuous or intermittent exposure to low levels or doses of a chemical substance or mixture over a long period of time (weeks to years).

Clan lab. Clandestine drug laboratory.

Clandestine drug laboratory. Any operation that is engaged in the manufacture of illegal drugs as defined by the Controlled Substances Act.

Cleanup. The process(es) of removing materials contaminated with hazardous substances or decontaminating their surfaces.

Condemnation. The legal act of declaring a property unfit for use by the public.

Controlled Substances Act. Public Law 91-513. It provides the legal basis for drug law enforcement in the United States and establishes regulations and activities governing controlled substances.

Corrosive. A substance is corrosive if it corrodes metal (e.g., steel) under certain conditions or if it exhibits strongly acidic or alkaline pH that would enable it to harm human tissue or aquatic life.

Decontamination. The process of removing chemical contamination from surfaces by washing or by chemical treatment.

Designer drug. A chemical derivative of a known illicit drug; controlled substance analog.

Disposal contractor. An individual or company that is appropriately qualified (and registered with the State, if necessary) to dispose of hazardous or toxic wastes in approved facilities.

Emergency response. The process, initiated by calling the National Response Center (NRC, 1-800-424-8802), of evaluating, and if necessary, taking actions to reduce or prevent the release into the environment of a hazardous substance that may pose an imminent and substantial threat to public health or the environment.

Essential chemical. Essential chemicals are necessary in the production process of drugs but do not become a part of the molecular structure of the drug. They include solvents, reagents, and catalysts used in the drug manufacturing process.

Evidentiary samples. Samples of drugs and other items collected by a certified chemist at a clan lab site to be used as evidence against the perpetrator(s). Samples are taken prior to bulk disposal of the chemicals and other materials.

Explosimeter. An instrument that measures the concentration of a flammable gas or vapor as a percentage of the lower explosive limit (LEL).

Explosive. A material producing a sudden, almost instantaneous release of pressure, gas, and heat when subjected to abrupt shock, pressure, or high temperature.

Flash point. The lowest temperature at which a substance gives off flammable vapor to form an ignitable mixture with air near its surface or within a vessel.

Generator. Any person whose act or process produces hazardous waste identified or listed in USEPA RCRA regulations, or whose act first causes a hazardous waste to become subject to regulation. By seizing a clan lab and its property, a law enforcement agency may become a hazardous waste generator.

Hazardous substance. Chemical substances, elements, mixtures, or solutions variously defined or listed under a number of Federal or State regulations.

Irritant. A chemical substance which produces reversible redness, swelling, or soreness when in contact with skin or mucous membranes.

Lead agency. A State-appointed agency (State or local) responsible for supervising, coordinating, and facilitating the cleanup of clandestine drug laboratories within the given State in cooperation with law enforcement personnel.

Lower explosive limit (LEL). Refers to the lowest concentration of gas or vapor (percent volume in air) that will burn or explode at ambient temperatures if an ignition source is present.

Notification letter. Letters from law enforcement or health agencies to appropriate parties regarding the status of a clan lab site relative to legal and health or safety issues.

Organic vapor analyzer. A device that detects the presence and concentration of organic vapors in the air that may pose an acute health or safety hazard.

Personal protective equipment. Various types of clothing (e.g., suits, gloves, hats, boots) or apparatus (e.g., face masks, respirators, radios, etc.) designed to prevent inhalation, skin contact, or ingestion of hazardous chemicals. Various "levels" of protection have been developed to correspond to different degrees of adverse health risks.

Precursor chemical. A chemical substance required for the synthesis of an illicit drug which is ultimately incorporated into the drug's molecular structure. Some precursors are hazardous in their own right and are regulated through Federal and State substance abuse and chemical diversion laws.

Reactive. Substances that are normally unstable and have a tendency to react violently with water or to explode during handling.

Reagent. A chemical required for the synthesis of an illicit drug substance but which is not incorporated into the final chemical product. Reagents used in illicit drug production are called essential chemicals.

Regulated person. Any individual, corporation, partnership, association, or other legal entity who manufactures, distributes, imports, or exports a precursor or essential chemical listed in the CDTA.

Regulated transaction. A distribution, receipt, sale, importation, or exportation by a regulated person which meets or exceeds the threshold amount of a CDTA-listed chemical, or the import, export or domestic distribution of a tableting or encapsulating machine. All regulated persons engaged in any of these transactions are subject to the record keeping and reporting requirements of the CDTA.

Residual contamination. Small amounts of chemical contamination that remain inside a laboratory or its contents or on the grounds surrounding the clan lab site that may pose a public health or environmental risk.

Seizure. The act of taking control of a clandestine drug laboratory, which involves planning, initial entry, assessment, processing, exit, and follow-up.

Solvent. An organic liquid used in various chemical reactions or extraction procedures to dissolve or separate precursor chemicals, reagents, or drug substances but which is not incorporated into the final product. Solvents used in illicit drug production are called essential chemicals.

Toxicity. The quality or degree of being poisonous to plant, animal, or human life as the result of exposure (ingestion, inhalation, or skin contact) to a hazardous chemical, mixture, or illicit drug.

List of Acronyms

APRI	American Prosecutors Research Institute	HSWA	Hazardous and Solid Waste Amendments (amends the Resource Conservation and Recovery Act)
BJA	Bureau of Justice Assistance	kg	Kilograms
CATF	Chemical Action Task Force	L	Liters
CDTA	Chemical Diversion and Trafficking Act of 1988	LEL	Lower explosive limit
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act (Superfund)	MEK	Methyl ethyl ketone, also called 2-butanone
CFR	Code of Federal Regulations	NIJ	National Institute of Justice
DAWN	Drug Abuse Warning Network	OJP	Office of Justice Programs
DCAG	Domestic Chemical Action Group	OSHA	Occupational Safety and Health Administration
DEA	Drug Enforcement Administration	P-2-P	Phenyl-2-propanone
EC	European Commission or European Community	RCRA	Resource Conservation and Recovery Act
EPA	Environmental Protection Agency	RICO	Racketeer-Influenced and Corrupt Organizations Act of 1970
FATF	Financial Action Task Force	SCBA	Self-contained breathing apparatus
G-7	Group of Seven Industrialized Nations	U.S.C.	United States Code

Bibliography

California Office of the Attorney General. *Clandestine Drug Labs: Kitchens of Death*. Rancho Cordova: Cal-Image Marketing, 1989. Videotape.

Chemical Action Task Force. *Chemical Action Task Force Final Report*. Washington, DC: CATF, 1991.

Chemical Action Task Force. *Chemical Action Task Force Working Group Reports*. Washington, DC: CATF, 1991.

Chemical Action Task Force. Status Report for the 1992 Economic Summit. Washington, DC: CATF, 1992.

Conners, E.F. "Hazardous Chemicals from Clandestine Labs Pose Threat to Law Enforcement." *Police Chief* 57,1 (January 1990): 37-41.

James, R.D. "Hazards of Clandestine Drug Laboratories." *FBI Law Enforcement Bulletin* 58,4 (1989): 16-21.

Laszlo, A.T. "Clandestine Drug Laboratories: Confronting a Growing National Crisis." *National Sheriff* 41,4 (1989): 10-14.

Maher, T.B. "Legal Liabilities Faced by Owners of Property Contaminated by Clandestine Methamphetamine Laboratories: The Oregon Approach." *Willamette Law Review* 27 (1991): 325-353.

National Criminal Justice Association. *A Guide to State Controlled Substances Acts*. Washington, DC: NCJA, 1991.

National Fire Protection Association. *National Fire Protection Standard #30* (flammable liquids). Quincy, MA: NFPA, 1990.

Office of National Drug Control Policy. *National Drug Control Strategy: 1991*. Washington, DC: U.S. Government Printing Office, 1991.

Stromberg, L. and A.C. Maehly. *Advances in Chemical Signature Analyses of Drugs*. Linköping, Sweden: Linköping University Forensic Science Center, 1979.

U.S. Congress, House Committee on Government Operations. *Clandestine Manufacture of Illicit Drugs*. Hearings before a subcommittee, September 24 and December 5, 1985. Washington, DC: U.S. Congress, 1985.

U.S. Congress, House Select Committee on Narcotics Abuse and Control. *Flow of Precursor Chemicals and Assault Weapons from the United States into the Andean Nations*. Hearings before the House Select Committee, November 1, 1989. Washington, DC: U.S. Congress, 1990.

U.S. Department of Justice, Drug Enforcement Administration. *Chemical Handler's Manual: An Information Outline of the Chemical Diversion and Trafficking Act of 1988*. Washington, DC: DEA, 1990.

U.S. Department of Justice, Drug Enforcement Administration. *Conference Report on the Drug Enforcement Administration and Chemical Industry National Conference*. Washington, DC: DEA, 1989.

U.S. Department of Justice, Drug Enforcement Administration. *Guidelines for the Cleanup of Clandestine Drug Laboratories*. Washington, DC: U.S. Government Printing Office, 1990.

U.S. Department of Justice, Drug Enforcement Administration. *Model State Chemical Act*. Washington, DC: DEA, 1990.

U.S. Department of State, Bureau of Narcotics Matters. *International Narcotics Control Strategy Report*. Washington, DC: U.S. Department of State, 1991.

U.S. General Accounting Office. *Implementation of the Chemical Diversion and Trafficking Act of 1988*. Washington, DC: GAO, 1991.

U.S. General Accounting Office. *Stronger Crackdown Needed on Clandestine Laboratories Manufacturing Dangerous Drugs*. Washington, DC: GAO, 1981.

Appendix A

Sources of Diversion

The worldwide manufacturing and distribution network for chemicals affords criminals many opportunities to divert precursor and essential chemicals from legitimate use to illicit drug production. The CATF identified eight specific sources of diversion; these are displayed in figure 1. The following sections enumerate those sources as well as the major factors at each source that lead to diversion.

Manufacturers

The manufacturers' own plants or warehouses present the first opportunity for diversion. Inaccurate production records can enable the theft of large amounts of chemicals without the manufacturers' knowledge. (It should be noted that the great majority of chemical manufacturers and handlers are complying satisfactorily with CDTA requirements.)

Manufacturers can also unwittingly ease the diversion of chemicals through ineffective customer identification. Thus criminals, posing as legitimate users of these products, can buy them directly from the manufacturer. Unless the manufacturer follows the procedures required by U.S. law to ensure that the customer has a legitimate need for the chemical product, the possibility of diversion exists.

Wholesalers and Retailers

A variety of companies sell chemicals on a wholesale and retail basis. These companies provide a second source of diversion for illicit drug manufacturers. Wholesale and retail companies can be set up as fronts to serve as a conduit from the manufacture of these chemicals to their use as raw materials in the drug production process. In some cases, front companies can actually sell precursor chemicals, as well as a variety of other chemicals, to legitimate clients. The vast profits available from the illegal drug trade make it possible to support these front companies, which may

operate at a loss. In other cases, the front company is nothing but a name and address on business stationery, which the drug manufacturer uses to directly buy from the chemical manufacturer. The possibility of selling to such front companies is the principal reason why manufacturers must attempt to identify their customers' legitimate need for the precursor and essential chemicals.

In addition, wholesalers and retailers, like manufacturers, may unwittingly sell these chemicals directly to criminals or indirectly through intermediaries working as agents for the drug manufacturers.

Freight Forwarders, Agents, Brokers, and the Spot Market

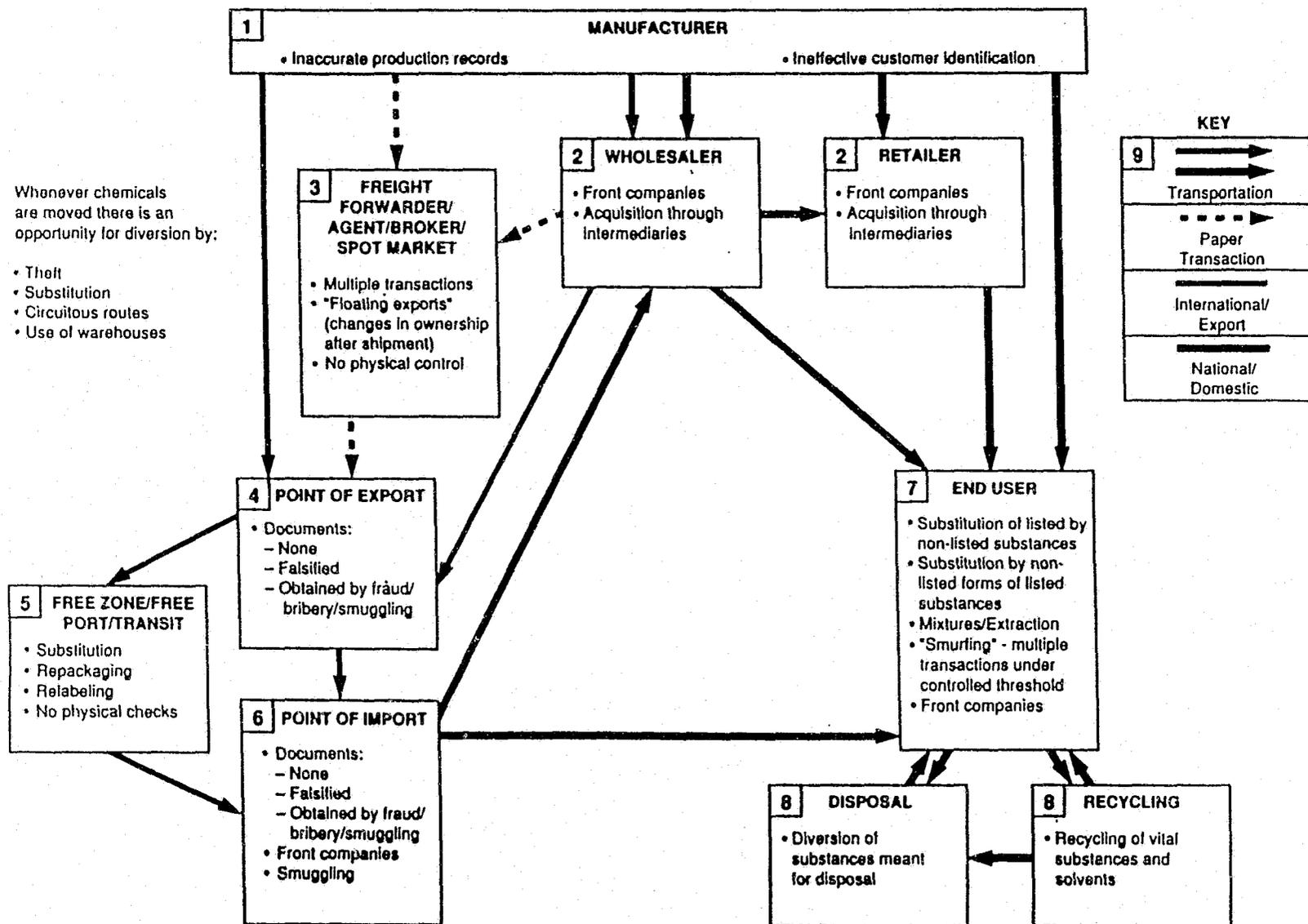
The chemical market also includes a wide variety of middlemen. These include freight forwarders, who assist importers and exporters in packaging, warehousing, and shipping products; agents who are representatives of the seller and who try to identify customers for the chemical products; and brokers who attempt to match clients who may be looking to buy or sell chemical materials. All of these persons may be involved in a spot market, a term that refers to informal sales of a product when a surplus exists.

All of these professions greatly complicate the control of illegal diversion of precursor and essential chemicals. As a chemical works its way through the distribution system, it may easily have 5 or even 10 different owners. These changes in ownership and control make tracking diverted chemicals very difficult and afford many opportunities for criminals to obtain control of shipments.

Furthermore, shipments may be stored in warehouses or other areas that have little or no security, making theft an easy task.

Figure 1

Diversion of Precursor Chemicals



Point of Export

All countries require that the export of manufactured goods or raw materials be controlled at all points of entry into and exit out of the country. However, the vast amount of materials that enter and leave at these points make it easy for criminals to successfully divert chemicals needed for the manufacture of illicit drugs. Customs officials seldom have the time or ability to test and certify that a barrel contains the chemical that its accompanying label and documentation claim it holds. Thus, inaccurate or false export documents can be utilized to divert precursor and essential chemicals to illegal use.

Furthermore, illicit chemical shipments may be able to pass through points of export by being intermingled with legal ones. In addition, bribery of customs officials and other export controllers is also a possibility.

Free Zones, Free Ports, and Transit

Many international shipments of chemicals stop at the ports or travel over the roads of several countries. For example, a chemical may be manufactured in Germany and then placed on a truck that travels through Austria, Switzerland, and Italy on its way to the port of Marseilles, France. From there it may be loaded onto a ship that stops at ports in Spain and Brazil before being unloaded in Colombia.

At each of these intermediate stops, as well as while they are on board ships and other vehicles, chemicals can be diverted by several methods. Illicit chemicals can be substituted in legal shipments, or chemicals can be repackaged or relabeled to obscure the true contents of the shipment. Finally, the lack of physical checks on the materials, due to the volume of traffic through free zones and free ports, may permit other forms of diversion.

Point of Import

Problems at the point of import are similar to those at the point of export. Required documentation can be forged or otherwise falsified, resulting in the entry of illicit precursors and essentials into a country. Manufacturers that export chemicals may unwittingly deal with front companies in the foreign country. These front companies would directly import precursors and essentials and provide them to illicit drug manufacturers. Finally, illicit precursor and essential chemicals can arrive in a country through smuggling.

Illicit End User

The illicit end user—the illicit drug manufacturer—has several other means at his or her disposal for diverting precursor and essential chemicals. Because chemical processes are widely understood, the manufacturer can substitute listed chemicals needed for drug manufacture with other substances. Because many of the precursor chemicals discussed here are simple acids, bases, and salts, it is possible for a drug manufacturer to substitute other varieties of these substances for those on the controlled list. Drug manufacturers, may, in essence, manufacture their own precursor and essential chemicals by mixing or extracting the needed chemicals from other chemical products that are not on the controlled list.

Illicit drug manufacturers can also divert chemicals by making multiple purchases each of which is under the threshold limit required for reporting. This method is commonly known as “smurfing.” Smurfing may be an effective means of diversion in the short run, but as time goes by, smurfers arouse suspicion because of their frequent, small purchases, often from numerous manufacturers, wholesalers, and retailers.

Disposal and Recycling

Criminals can also gain access to precursors and essentials by recycling their own materials or the waste materials of other companies. As listed substances become harder to obtain, illicit users are becoming more careful in their use of the products and are less likely to simply throw away used precursor chemicals. Instead, they attempt to recycle solvents, acids, and other substances necessary in the manufacture of the drug. They may also process the waste products of legitimate manufacturers into the precursors needed for their own illicit drug production. For this reason, it is important that companies that use precursors and essential chemicals ensure that the companies that dispose of their wastes are also legitimate, so these materials do not accidentally fall into the hands of illicit drug manufacturers.

Loopholes in the Law

In addition, the Drug Enforcement Agency reports that loopholes in existing laws also contribute to diversion. For example, the CDTA specifically exempts any chemical that is contained in a drug that may be marketed or distributed

lawfully in the United States under the Federal Food, Drug, and Cosmetic Act. Violators have consistently used this loophole to divert millions of 25 mg units of ephedrine tablets for use by clandestine laboratory operators. Legislation to close this loophole is pending in Congress.

Appendix B

CDTA Requirements for the Chemical Industry

This appendix provides a detailed explanation of requirements for chemical handlers (manufacturers and sellers) of precursor and essential chemicals.¹

Record Keeping

The CDTA has several record-keeping requirements for manufacturers and distributors of precursor and essential chemicals. All records of transactions must be maintained for four years following the transaction date for precursor chemicals and for two years for essential chemicals. Records from the sale of tableting machinery must also be kept for four years. Records must be kept at the business location where the sale occurred or at a central location in the case of larger firms. Firms with many places of business must also keep records to identify multiple purchases, which may be an attempt to circumvent the threshold limit.

Records of each transaction must include the following: the names and addresses of the buyer and seller; the date of the transaction; the name, quantity, and form of packaging for the substance in question; the method of transportation used to transfer the substance; and the type of identification provided by the purchaser and its unique identifying number.

Operators may use their normal business records for these purposes, as long as the information contained above is included, and as long as the information is retrievable for DEA investigations.

Reporting to the Drug Enforcement Administration

In certain circumstances, operators must make special oral reports to the special agent in charge of the DEA division

office in the area where the operator does business. (The DEA has 19 division offices located in major cities across the United States. For a listing of these offices, see appendix E.)

These circumstances are:

- Any transaction involving a large quantity of the chemical, an uncommon method of payment, an unusual method of delivery, or any situation that causes the chemical supplier to believe that the chemical might be used for an illegitimate purpose.
- Any transaction that involves a person whose description or identifying characteristics have been provided to the operator by the DEA. (It is unlawful, according to the CDTA, for a supplier to sell a listed chemical to such a person unless the DEA has approved the transaction. Violations of this requirement can result in a fine of up to \$25,000 and imprisonment for up to 1 year.)
- Any unusual or excessive loss or disappearance of a listed chemical.
- Any domestic transaction involving a tableting or encapsulating machine.

Suspicious Orders

Reports involving suspicious orders should be made when a customer pays in cash or another unusual manner, fails to provide adequate information about his or her business and the purpose of the chemical purchase, or otherwise is evasive or nonresponsive regarding the purchase.

Contents of Reports

Reports to the DEA regarding suspicious transactions or other suspicious circumstances must be made "at the earliest practical opportunity." The oral report must be followed by a written report to the same DEA division office, and must include the following information:

- The name, address, and telephone number of each party, if available.
- The date of the intended transaction.
- The name, quantity, description, and form of packaging of each chemical or machine.
- The method of transfer (truck, delivery, etc.).
- The type of identification used by the customer and any unique identifying number.
- Special circumstances that caused the operator to report the suspicious order.

If the report is for a loss or theft of a listed chemical, the report should contain the date, the type of chemical missing, and a description of the circumstances.

Proof of Identity

All transactions involving these chemicals require proof of identity. For companies, proof of identity requires the supplier to check the customer's documentation (business stationery, order forms, etc.) and then to validate that it is a legitimate company by checking local directories, credit bureaus, chambers of commerce, etc. Customers that cannot be validated should be reported to the DEA.

For new customers, operators must also establish the company's authorized purchasing agents, to prevent fraudulent purchases by unauthorized employees. For each customer, the operator must keep on file the names and signatures of authorized purchasing agents and any electronic passwords or other encoding methods used by the customer to insure the authenticity of the purchaser. This list of agents is required by law to be updated annually.

Any domestic transaction by an individual must also be accompanied by the purchaser's signature, driver's license, or other legitimate identification. The DEA suggests that any purchase by an individual with cash is by nature suspicious.

Export and Import Reporting Requirements

The principal mechanism for reporting international transactions of listed chemicals is DEA Form 486, the Import/Export Declaration for Precursor and Essential Chemicals. Any operator who imports or exports a listed chemical must submit this form to the DEA at least 15 days prior to shipment. Waivers of the 15-day requirement may be obtained from the DEA for regular customers, but the form must still be submitted prior to or on the date of the shipment.

Form 486 requires information on the size and description of each shipment, the name of the exporter, the name of the broker or forwarding agent, the method of shipment, and the name and address of the consignee and any intermediate consignees.

Establishing a Regular Customer List

Prior to the October 30, 1989 implementation of the CDTA import and export provisions, chemical exporters were required by law to furnish DEA with the names of their foreign regular customers. DEA either granted or denied regular customer status to each of these foreign customers, based upon investigative results. The 15-day advance notification requirement is waived for any export to an approved regular customer. An export to a customer not on a company's regular customer list, subsequent to the October 30, 1989 implementation date, requires 15-day advance notification to DEA via Form 486. If the exporter is not notified to the contrary after expiration of the 15 days, authorization is granted to export, and the customer automatically becomes a regular customer for future chemical transactions. The customer list serves principally to identify legitimate foreign sources and end users of precursor and essential chemicals. The DEA has the authority to remove a customer from a supplier's regular customer list; in which case, for each sale to this customer, Form 486 must again be submitted at least 15 days prior to shipment.

Complying With Foreign Import Restrictions

All exporters of precursor and essential chemicals must determine whether importing a substance into a foreign country is restricted by the laws and regulations of that country. The DEA periodically publishes a list of countries that have laws and regulations on the importation of listed chemicals. It is important for American exporters to main-

tain a current knowledge of these foreign laws, because if a shipment is found to be in violation of the laws of a foreign country, the U.S. exporter is subject to a penalty of up to 10 years imprisonment.² For each violation, individuals are also liable to a fine of up to \$250,000, and organizations are liable for up to \$500,000.³

Special Circumstances

The CDTA also requires actions by manufacturers and other operators in special circumstances regarding the sale and shipment of listed chemicals.

Transshipment Through the United States

Transshipment is the transport through the United States of listed chemicals that are destined for immediate exportation to a foreign purchaser. Like imports and exports, transshipments must also be reported to the DEA, although not on Form 486. These notices must be submitted at least 15 days prior to the shipment date and must contain the following information: the name of the chemical; a description of the size and weight of the shipment; the name, address, and telephone or telex of the foreign exporter; the foreign port of exportation; the approximate date of export; a description of the ship or other carrier; the name, address, and telephone number of the transshipper; the U.S. port of entry; the approximate date of entry; the name, address, and telephone number of the foreign port of entry; the shipping route from the U.S. port of exportation to the ultimate port of entry; and the approximate date of receipt at the foreign port of entry.

Returned Exports

If an export of a listed chemical is returned to the United States, written notification must be provided to the DEA explaining the circumstances of the return.

Suspension of Shipments

The DEA has the authority to suspend any export or import of a listed chemical based on evidence that the chemical may be diverted for use in the clandestine manufacture of a controlled substance. The importer or exporter may request an administrative hearing to determine the issues involved in the suspension of the shipment, under the Administrative Procedure Act.⁴

Inspection Authority

The CDTA gives the DEA the authority to inspect a chemical firm subject to the Act. The purpose of these inspections is to assure that the required records and reports are being maintained and that the firm is complying with the purpose and intent of the legislation.

Confidentiality

Information obtained under the CDTA is considered confidential business information and is exempt from disclosure through the Freedom of Information Act.⁵ However, the information may be disclosed in any investigation or proceeding under the CDTA, in State or local investigations under State or local legislation concerning chemical diversion, or to foreign law enforcement agencies in compliance with obligations of the United States under treaties or other international agreements. The DEA maintains strict procedures for the handling of confidential business information.

Voluntary Cooperation Between Business and Government

The DEA has also suggested areas in which voluntary cooperation between chemical operators and the DEA can assist in achieving the objectives of the CDTA. Although these voluntary actions are not required by law, the DEA recognizes that each chemical company is in the best position to know its own customers, and any information that can identify suspicious use might assist in the control of illicit diversion. The voluntary actions suggested by the DEA include the following:

Advance Notification of an Export of a Listed Chemical

Although the law requires a 15-day prior notice of exports, the DEA would prefer as much advance notice as possible, so it can contact foreign DEA offices and foreign authorities about the shipment.

Background Information on the Customer

Although the law requires that the operator identify each customer, additional information on the legitimate need of

the customer for the substance(s), and information on consignees for the listed chemical(s), would also be helpful for investigative purposes.

Changes in Patterns of Distribution

The reason for changes in the type and quantity of routine purchases are most easily determined by the operator. Sudden increases in the orders of precursor or essential chemicals should be verified by the operator to determine that the increase is for a legitimate commercial, industrial, or scientific use.

Subsidiary Companies

The DEA encourages manufacturers that export listed chemicals to foreign subsidiaries to teach employees of the foreign subsidiaries about the chemical diversion problem and about implementing voluntary controls on these chemicals.

Sales to Brokers and Other Exporters

Firms using brokers and other exporters should attempt to determine that foreign consignees receiving listed chemicals have legitimate needs for these products.

Availability of Previous Records

The DEA would also be assisted by the provision, when requested, of information regarding listed chemical sales and transactions prior to enactment of the CDTA.

Endnotes

1. Information contained in this appendix is taken primarily from the U.S. Department of Justice, Drug Enforcement Administration, *Chemical Handler's Manual: An Informational Outline of the Chemical Diversion and Trafficking Act of 1988* (Washington, DC: Drug Enforcement Administration, 1990).
2. 21 U.S.C. 960(d).
3. 18 U.S.C. 3571.
4. 5 U.S.C. 551-559, 21 CFR 1313.52-57.
5. 5 U.S.C. 552.

Appendix C

Conducting a Seizure of a Clandestine Drug Lab

The DEA and State and local authorities have been involved in developing manuals and other training materials to assist law enforcement agencies in conducting clan lab seizures.¹ Extensive training is necessary to prepare law enforcement officers to conduct safe and effective seizures. Agencies interested in obtaining such training are urged to contact the DEA, professional associations, and their State criminal justice agencies. (See appendix E for more information about training.)

The DEA recommends a six-step procedure for seizing a clan lab: (1) planning, (2) initial entry, (3) assessment, (4) processing, (5) exit, and (6) follow-up.² These steps are summarized below.

Planning

Planning a raid requires several steps. The first is to determine the hazards that might be encountered. Officers should obtain as much intelligence information as possible to ascertain the types of drugs being produced. This knowledge will indicate the nature of the chemical hazard that will confront the officers. Information about the perpetrators can indicate whether there is a likelihood of encountering violence, booby traps, and other dangers during the raid. The law enforcement agent in charge of the operation must be responsible for obtaining and disseminating this information to the officers involved in the seizure.

Other agencies should routinely be informed of the raid during the planning phase. The fire department should be able to provide assistance in determining the nature of toxic chemicals found on the site. Fire department personnel are usually well trained in the identification and handling of hazardous materials, due to their involvement in the control of these substances during spills and fires. Many larger fire departments have special teams, such as bomb squads and

hazardous materials teams, to deal with toxic emergencies. These teams should also be notified.

Ambulance and hospital emergency room personnel should be warned to prepare for possible chemical injuries. Equipment should be close by to provide emergency first aid and fire extinguishing capabilities during and immediately after the raid. Some jurisdictions have mobile units for hazardous waste disposal, with all the necessary protective clothing and equipment available, as well as facilities for decontamination of personnel and equipment.

Equipment and protective clothing are also factors to consider in planning a raid. The DEA has developed four levels of protection to be implemented during raid and cleanup operations. The highest level of protection is for situations in which the hazards are unknown or the site is known to contain toxic corrosive chemicals. In this case, the following equipment is suggested: pressure-demand, full face-piece, self-contained breathing apparatus (SCBA); fully encapsulated chemical-resistant suits; inner-lined chemical-resistant gloves; chemical-resistant safety boots; hard hats; and two-way radio communications.³

For sites in which the type of chemical is known to have less potential for exposure to corrosive or inflammable substances, less protective clothing is necessary. However, any cleanup of a clan lab should include the use of coveralls, safety boots, safety goggles, and hard hats. Respirators and other chemical-resistant equipment should also be on hand.

These precautions are not simply suggestions to guarantee safety; training, safety equipment, and medical follow-up are mandated by various environmental and occupational safety laws.

Selection of personnel to conduct the raid must take into account the need for specialized training in these operations. The raiding team should include a forensic chemist to

identify toxic substances and collect evidence. A site safety officer is needed to help avoid injury to officers during entry, assessment, and processing of the site. The safety officer is responsible for ensuring that officers wear protective clothing and follow safety procedures. The safety officer can also coordinate backup fire and emergency medical units, as well as oversee decontamination, transport of toxic wastes, and cleanup.

Initial Entry

Entry into the clan lab site requires the use of body armor and other protective equipment, including fire-retardant clothing. Initial entry should not be accomplished while wearing SCBA gear, because the gear impairs vision, mobility, and breathing, and may explode if exposed to gunfire or extreme heat.⁴

The inside of a clan lab presents dozens of hazards for the untrained police officer. The presence of booby traps is always a possibility, and the toxic nature of the stored chemicals makes any activity that may ignite or release them highly dangerous. The use of shotguns should be avoided, because their wide shot pattern makes them more likely to cause the unintentional release of toxic substances. In addition, diversionary devices such as tear gas, smoke grenades, or flashbulbs should not be used. In addition, officers must be trained to avoid any activity that results in a spark or flame. This includes turning light switches on or off, smoking cigarettes, moving canisters of potentially explosive materials, or using flashbulbs. Untrained personnel should also avoid opening doors to refrigerators and ovens, because these are routinely booby-trapped or used for the storage of hazardous substances.

Officers must also be warned to avoid touching or moving canisters and other equipment, because they might be booby-trapped. In addition, they should not touch, taste, or smell anything in the lab, because any substance could be toxic, and any container or surface could be contaminated by a toxic substance. People on the scene also must not touch their hands to their eyes or to mucous membranes such as their nose and mouth, nor eat food or drink liquids, because residues of any chemicals accidentally touched can be hazardous.

Following the initial entry, personnel not involved in the assessment or cleanup should be decontaminated and then leave the scene. Prisoners should also be decontaminated on-site.

Assessment

Once the site is secured and the immediate dangers of exposure controlled, an assessment of the clan lab operation should begin. The assessment team must be trained in the operation and maintenance of devices such as explosimeters, organic vapor analyzers, air-sampling pumps, and similar air-monitoring instruments. Equipment used on all raids must be intrinsically safe; that is, they must be designed to suppress sparks that may cause explosions during testing.

The assessment team should include a forensic chemist in protective gear to conduct an initial assessment of health and safety risks. This includes shutting down all active chemical procedures, ventilating the area, and making an initial determination of the types of substances in the lab. If a hazardous substance has been released, it is necessary to notify the National Response Center of the Environmental Protection Agency (1-800-424-8802) with information on the nature of the incident, the material spilled or released, the cause of the release, the quantity discharged, local weather conditions, injuries resulting from the release, and other information. Bomb squad personnel, in full protective equipment, should follow the forensic chemist and examine the entire area for booby traps.

Explosimeters and oxygen measuring devices should be used to determine whether the atmosphere of the lab is hazardous. The DEA suggests that the oxygen level reading be between 19.5 and 25 percent, and the concentration of any combustible gas be less than 25 percent of its lower explosive limit before operations continue. The concentration of organic vapors and gases should be less than the permissible exposure limit. (The forensic chemist must be trained in the use of these machines and must be aware of the explosive and exposure limits.) If these thresholds are not achieved, the area must be ventilated, and personnel who are not evacuated must be in full protective gear. For some labs, such as those producing LSD, the area should not be ventilated, because toxic dust may contaminate people outside the lab.

Processing

The gathering of evidence from clan labs also requires special training. Anyone working on the collection of evidence, especially fingerprint technicians, must be trained in clan lab hazards, due to the possibility of contact with toxic substances.

The DEA suggests that a photographic or videotape record be made of the entire crime scene, including general overviews of the area, close-ups of specific items in the inventory, as well as documentation of the sample-taking procedure, the original containers from which the samples are taken, and any visible contamination. Photographic and other equipment used in processing should be capable of being decontaminated.

An inventory of items on the scene should include all equipment, with descriptions of the quantity, type, size, manufacturer's serial numbers, condition, and location; and each chemical at the site, by type, concentration, and quantity. Unknown substances should be described according to their locations, color, volume, and general appearance. Samples of all substances should be taken as evidence.

It should be noted that samples are sufficient for evidence in court. Samples from each substance found at the scene should be collected, and the remainder of all containers should be disposed of in accordance with the procedures mentioned below. The DEA considers all equipment used in the lab to be hazardous waste, and it too must be disposed of properly.

Exit and Follow-Up

Exit and follow-up from the clan lab scene must always assure that the environmental cleanup of the site is carried out. The residual toxic chemicals remaining at a clandestine lab site hold great dangers for people who may come into contact with the site. Criminals who create these clandestine labs are noted for failing to follow any generally accepted procedures for lab safety or environmental safety. Thus, the dangers can persist not only long after the site is seized but also at great distances from the lab site. Therefore, the site itself and all remaining fixtures and furnishings must be cleaned or neutralized prior to any use or occupation of the site. Furthermore, as mentioned previously, law enforcement agencies may have legal responsibilities to clean up a seized lab site prior to its return to public or private use. Thus, cleanup of the site, and of areas surrounding the site that may have been contaminated, are a critical part of the seizure process.

Residual dangers following a clan lab seizure include the following:

- Processing areas that leach into water runoffs and sewage systems. Particularly in rural areas, toxic wastes

may simply be directed into the nearest stream or river, thus contaminating these, as well as the local ground water.

- Disposal and dumping areas outside the site, in which various toxic wastes may combine and result in substances even more dangerous than those used in illicit drug production.
- Storage areas at the site, which may, because of spillage, result in contamination of floors, eating surfaces, and shelving. Emissions of volatile substances may also continue from drapes, carpeting, and other porous materials long after the site is seized.
- Ventilation systems may send toxic fumes to other parts of the building in which the clan lab is located. This is particularly important in sites located in apartment or office buildings.

Residual cleanup generally requires a qualified hazardous waste disposal contractor. Some local governments maintain their own hazardous and toxic waste disposal agencies or have existing contracts for this work. Law enforcement agencies involved in clan lab seizures should consult with the proper State and local health, safety, and environmental agencies prior to the seizure, to arrange for cleanup and decontamination.

Additional Exit Activities

In addition to arranging for decontamination, the exit process from the clan lab seizure should include a final inspection by the agent in charge, the signing of appropriate documents for environmental cleanup, and the posting of warning signs.

Transport and Disposal of Hazardous Waste

Law enforcement agencies must be aware that the transport of toxic and hazardous wastes is controlled by various environmental laws. Most law enforcement agencies utilize contractors experienced in the transport of hazardous waste for this aspect of clan lab cleanup. However, many municipal governments and other local authorities have environmental agencies that are responsible for the cleanup or transport and disposal of toxic and hazardous wastes. Fire departments usually are aware of regulations and methods for the transport and disposal of toxic wastes within a jurisdiction. DEA Division Offices may also be able to advise law enforcement officers about transporting and disposing of toxic and hazardous wastes.

Preparing to transport wastes involves calculating the types and quantities of the toxic substances and obtaining an EPA identification number. A manifest must be prepared, and a disposal site must be selected that is permitted to accept the type of toxic substance(s) being transported. Packaging, marking, and labeling of the wastes is also controlled by Federal law; placards describing the substances being transported are also often required on the truck.

Follow-Up

Clandestine drug labs should be reported to the DEA special agent in charge at the appropriate DEA Division Office. Also, notification letters must be sent to the owner of property on which a lab was seized as well as to local health and environmental regulatory agencies. In seizures with DEA involvement, the DEA special agent in charge accomplishes this step. DEA Field Division Offices are listed in appendix E.

Endnotes

1. U.S. Department of Justice, Drug Enforcement Administration, *Guidelines for the Cleanup of Clandestine Drug Laboratories* (Washington, DC: U.S. Government Printing Office, 1990).
2. *Ibid*, pp. 5-6.
3. *Ibid*, p. 4.
4. It should be noted that important issues such as respiratory protection must be resolved by the agency involved. Some agencies contend that the lack of respiratory protection is a greater hazard for initial entry officers. Managers setting up clan lab seizure teams should be presented with all options for protecting their personnel.

Appendix D

International Measures to Control Diversion

The efforts of the United States to control the illegal diversion of precursor and essential chemicals will have only a limited effect if other countries do not join in the effort to stop the illicit trade in these chemicals. Fortunately, the world community has demonstrated its commitment to controlling illicit drugs through numerous recent measures designed to prevent diversion. This appendix reviews existing United Nations and other international measures to control diversion. It also summarizes the 46 recommendations of the Chemical Action Task Force for the control of diversion.

International and Regional Control of Diversion

Recent years have seen a variety of international efforts to prevent diversion. Since 1988, three major international organizations—the United Nations, the Organization of American States, and the European Commission—have promulgated various international agreements to control diversion. Although these agreements have not yet fully come into effect among member nations, the next few years should witness stronger international control of precursor and essential chemicals, due to these international efforts.

The 1988 UN Convention

The 1988 United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances is the foundation of international regulation of precursor and essential chemicals and is meant to be the “baseline international agreement to bring the diversion of chemicals to the illicit production of drugs under international control.”¹ More than 65 nations are parties to the Convention. In

addition, the International Narcotics Control Board, the Customs Cooperation Council, and the International Criminal Police Organization (Interpol), as well as the Organization of American States and the European Community have all issued cooperative regulatory measures or have developed and encouraged the use of model regulations by their member nations.

The Convention originally named 12 chemicals (see table 6) that should immediately be brought under international control. Parties to the Convention have several obligations in regard to the manufacture and trade of these chemicals. As one of the signatories, the United States is required to implement a variety of measures to control the illicit use of these chemicals:

Article 3 requires parties to criminalize the intentional manufacture, transport, or distribution of the 12 listed materials for use in or for the illicit cultivation, production, or manufacture of narcotic drugs or psychotropic substances, as well as the possession of these substances for the same illicit purposes. (The number of listed materials has been expanded to 22.)

Article 9 mandates that parties should cooperate in law enforcement efforts to suppress the commission of the offenses listed in Article 3 and requires training programs for customs officials and other law enforcement personnel on monitoring the import and export of these substances.

Article 12 requires the parties to take appropriate measures to monitor the manufacture and distribution of these substances, as well as their international trade, and to notify the authorities of the signatories about any suspicious transactions. It also requires proper labeling and documentation of imports and exports.

Article 13 provides that parties should take appropriate measures to prevent the illicit trade in and diversion of these substances and to cooperate with each other toward this end.

Article 14 stipulates that parties may take measures to destroy or otherwise dispose of illicit shipments that are seized or confiscated.

Article 18 requires the application of controls in free ports and free trade zones that are no less stringent than those in other parts of the country.

Article 19 controls postal shipments of these substances.

Regional Instruments and Models

In 1990, the Inter-American Drug Abuse Control Commission of the Organization of American States adopted their Model Regulations to Control Precursor Chemicals and Chemical Substances, Machines and Materials. These model regulations were suggested for adoption by members of the Organization, which includes the United States. The suggestions stipulated an increase in the number of chemicals controlled from the UN Convention's 12 to 36, as well as the adoption of stringent record-keeping, reporting, export-import, and transit requirements. The United States is already in conformance with these model regulations. A number of other nations in the Americas, including Argentina, the Bahamas, Jamaica, Peru, and Uruguay, have adopted or are considering the adoption of legislation or regulations based on this model.

In 1990, the European Community (EC) adopted Council Regulation No. 3677/90, which specifies measures to discourage the diversion of precursor and essential chemicals. The regulation requires that chemical manufacturers and operators notify authorities about any suspicious circumstances that might suggest the diversion of chemicals to illicit drug production. EC members are also required to notify authorities of the export of some chemicals at least 15 days before the completion of a customs export declaration. In addition, appropriate documentation, record keeping, and labeling are required of operators. A 1992 amending regulation strengthened EC compliance with the CATF recommendations.

Recommendations of the CATF

As mentioned previously, the CATF has issued a series of 46 recommendations to control diversion. Its final report also

stressed the need for "an international regime to prevent diversion."² Critical in this prevention effort is the need for actions not only among chemical-producing nations but also among transshipping and consuming countries.

The recommendations included actions affecting every aspect of diversion, including suspension of shipments, tighter controls on free trade zones, monitoring transactions in listed chemicals, access to information, sanctions, industry practices, and law enforcement. The CATF also made several recommendations about expanding the UN Convention and increasing the number of chemicals recommended for control.

Increasing the Effectiveness of the UN Convention

The CATF recommended several changes to the 1988 UN Convention, while recognizing that the Convention is the most significant mechanism for the control of diversion. The specific recommendations of the CATF included expansion of the number of signatories, increased implementation of the Convention's requirements by the existing signatories, and the adoption of the CATF's other recommendations by the signatories.

The CATF also suggested an increase in the number of chemicals controlled by the Convention. The expansion of the list of 12 chemicals in the UN Convention to 22 was based on the chemicals' suitability for use in illicit drug production, the amounts seized, the availability of the chemicals in international trade, and the importation of these chemicals into drug manufacturing countries in significantly greater amounts than are needed for legitimate commercial practices. In April 1992, the Commission on Dangerous Drugs of the United Nations approved the addition of these five precursor chemicals and five essential chemicals.

The CATF arranged the substances into three categories. Category 1 precursor chemicals are those used in the manufacture of synthetic drugs and have few other legitimate applications. Category 2 includes chemicals that are used in the production of synthetic drugs but that have wider legitimate uses. Category 3 includes chemicals that are essential to the production of cocaine and heroin. A list of the chemicals in each category is contained in table 6. Those chemicals marked with an asterisk were suggested for addition by the CATF.

Table 6
Chemicals Currently Listed in the UN Convention

Category 1	Category 2	Category 3
N-Acetylanthranilic acid*	Acetic anhydride	Acetone
Ephedrine	Anthranilic acid	Ethyl ether
Ergometrine	Isosafrol (cis- and trans-)*	Hydrochloric acid*
Ergotamine	Phenylacetic acid	Methyl ethyl ketone (MEK)*
Lysergic acid	Piperidine	Potassium permanganate*
3, 4-Methylene-dioxyphenyl-2-propanone*	Piperonal*	Sulfuric acid*
1-Phenyl-2-propanone	Safrole*	Toluene*
Pseudoephedrine		

*Added in 1992 as a result of CATF recommendations.

Source: Chemical Action Task Force, *Chemical Action Task Force Final Report* (Washington, DC: CATF, 1991), p. 10, and Chemical Action Task Force, *Status Report for the 1992 Economic Summit* (Washington, DC: CATF, 1992), p.1.

Creating a Framework for Control

In its effort to provide a general framework for the control of diversion, the CATF delineated five measures that should be critical in national and international efforts. These include:

- *Vigilance on the Part of Operators.* The first line of defense against diversion must be the manufacturers, sellers, and shippers of these substances. Vigilance must be aimed primarily at detecting suspicious or unusual transactions, because these are the most likely to result in the transfer of chemicals to illicit drug manufacturers. The CATF urged that countries not only develop protocols to track chemical transactions but also to promote the training of operators to inform them of the threat of diversion and to teach them how to detect suspicious circumstances.
- *Administrative Surveillance Based on Recording of Orders and Transactions.* The CATF also recommended that countries require the maintenance of records, including administrative and commercial documents, so that law enforcement authorities can identify and track illegal transactions. A two-year minimum for record maintenance was suggested.
- *Registration and Authorization of Operators.* A licensing system to identify and track all manufacturers, shippers, traders, and distributors of precursor and essential chemicals, based on the operators' competence and integrity, is another important measure for controlling diversion.
- *Export Authorization.* Export permits should be mandatory for any trade in these chemicals. The CATF also suggested that the export permit be made contingent upon possession of an import permit from the receiving country. The CATF recommended that exporters should be required to indicate not only the ultimate consignee of the shipment but also any intermediate consignees and brokers and to give details of the itinerary and means of transport for the shipment. Without such a report, the exporting country should deny permission for the export of the shipment.
- *Import Authorization.* Strict diligence should be exercised in the issuance of permits to import these substances.

The CATF suggested different levels of application of these five measures for the three categories of chemicals described in table 6. For Category 1 chemicals, countries should

implement all five measures. For Category 2 chemicals, all five should apply "to the extent necessary for effective control of international transactions." For Category 3 chemicals, the CATF suggested that vigilance (Measure 1) and surveillance (Measure 2) be applied, with export and import authorizations (Measures 4 and 5) also being applied for shipments headed for known cocaine- and heroin-producing countries.

Delineating Specific Practices

The CATF's other recommendations deal with specific aspects of the chemical distribution process and with actions that law enforcement agencies can take to prevent the illicit flow of these chemicals:

- *Free ports and trade zones.* The CATF recommended that suitable regulatory measures be applied to every stage of trade in the subject chemicals in free trade zones and free ports, as well as in other sensitive areas, like bonded warehouses.
- *Monitoring systems.* The CATF called for each country to implement a monitoring system to scrutinize trade in the subject chemicals and to identify new chemicals used for illicit purposes. Monitoring was particularly urged for the export trade in these substances. The CATF also called for the development of discrete tariff codes for precursor and essential chemicals, so the substances can be identified more easily in international trade.
- *Access to information.* The CATF made several suggestions about access to data on the subject chemicals. Governments were urged to establish the authority to access information on precursor and provider chemicals and to establish mechanisms to gain access to the facilities of chemical operators in order to collect evidence of irregularities. The CATF also recommended that rights to commercial secrecy must be respected and that confidential business information must not be used for purposes other than the control of chemical diversion; however, such commercial secrecy constraints must not be invoked to prevent the collection of information, access to facilities, or to restrain the application of control measures in an investigation of suspected chemical diversion.
- *Sanctions.* The CATF recommended that, to be effective, all measures adopted by countries to control diversion should be accompanied by sanctions. These might include revocation and suspension of licenses

and seizure or confiscation of chemical shipments. It also recommended that, in addition to penalties for individual liability for actions related to diversion, countries should consider adopting civil, administrative, and criminal penalties and sanctions for corporate liability in diversion cases.

- *Industry and commercial practices.* Principal CATF recommendations for industry involved the understanding that individual companies are the first line of defense against chemical diversion. Industry employees are in the best position to know their customers and both to track shipments through the distribution system and to recognize suspicious transactions. The CATF therefore recommended that chemical industry and commercial entities be required to establish the identities and bona fides of their customers, as well as the ultimate destination of each consignment of the subject chemicals. The CATF also called for each country to develop a mechanism to alert authorities of any suspicious circumstances involving a shipment of chemicals. Each country was also urged to develop training mechanisms and instructional booklets to inform employees of chemical companies of the dangers of diversion and to teach them how to prevent it.
- *Law enforcement and international cooperation.* Twelve of the CATF's 46 recommendations involved law enforcement and international cooperation among law enforcement agencies. The CATF called for collaborative investigations, training programs, and technical assistance among nations. To improve control of import-export trade, each country was encouraged to develop "white lists" of approved chemical users and dealers and to share these with other nations' law enforcement agencies. Differences among the developed nations and the less developed nations that harbor many drug manufacturers were of concern to the CATF. Its members called for developed countries, as well as the United Nations International Drug Control Program, to provide resources for improving communications, equipment, and training in diversion control. It also recommended that developed countries provide training, special facilities, equipment, clothing, and other assistance in kind for use in the physical examination of chemical shipments. Research in developing better methods of testing and identifying these substances was also encouraged.

Several other recommendations concerned increased cooperation and information sharing among international orga-

nizations such as the International Narcotics Control Board, Interpol, and the Customs Cooperation Council.

- *International mechanisms.* The CATF called for an increase in the number of formal and informal mechanisms for diversion control, including regional agreements, executive agreements, agency-to-agency data sharing, and cooperative agreements. The Task Force warned that these efforts should involve not only producing and consuming countries, but also other countries that transship chemicals, because these third-party countries often greatly complicate the tracking of chemical shipments.

Finally, the CATF made recommendations concerning follow-up activities resulting from its own deliberations. It called for the adoption of its recommendations by both

CATF participants and nonparticipants. It recommended that subgroups of CATF representatives make presentations about its proceedings to countries not represented on the CATF, especially those in Asia and Africa. It also recommended that additional meetings of the CATF be held in 1992 and 1993 to follow up on the recommendations and to identify additional areas of concern.

Endnotes

1. Chemical Action Task Force, *Chemical Action Task Force Final Report* (Washington, DC: CATF, 1991), p. 11.
2. *Ibid.*, p. 17.

Appendix E

Information Sources

Model State Legislation

For those who wish to learn more about how States can address chemical diversion, APRI has assembled an information package. It includes the Model State Chemical Control Act and accompanying commentary; sample State statutes, regulations, and forms; and a chart of State chemical control requirements. Interested parties should contact:

Ms. Sherry Green
Senior Attorney
APRI
National Drug Prosecution Center
1033 Fairfax Street
Suite 200
Alexandria, VA 22134
(703) 549-6790

Information and Training

Drug Enforcement Administration

The DEA operates a Clandestine Laboratory Safety Certification Program through a grant from the Bureau of Justice Assistance. The program provides a week-long curriculum on safety aspects of clan lab seizures. State and local law enforcement officers are eligible to attend the training and receive a certification in clan lab safety. Although the training itself is free, participants' jurisdictions must pay for travel and per diem expenses. Prior to attending, trainees must also have a complete medical screening in compliance with the worker protection rule for hazardous waste operations and emergency response. (29 CFR 1910.120) To obtain additional information about this course, contact:

DEA Office of Training
Clan Lab Unit/TRDS
FBI Academy
Quantico, VA 22135
(703) 640-7369

The DEA operates its own Hazardous Waste Disposal Unit, which is also involved with BJA's Clan Lab Cleanup Program. Contact:

Rolf Hill
Chief, Hazardous Waste Disposal Unit
DEA Office of Forensic Sciences
700 Army-Navy Drive
Arlington, VA 22202
ATTN: AFSH
(202) 307-8833

The DEA maintains 19 field offices in major cities throughout the country. These offices may assist local and State jurisdictions in clan lab investigations and seizures. The addresses and telephone numbers of these offices are listed below. Any law enforcement agency should feel free to contact the local field office to discuss how the DEA can assist in investigations of chemical diversion.

Drug Enforcement Administration Division Offices

Atlanta Field Division
Russell Federal Building
75 Spring St., S.W., Room 740
Atlanta, GA 30303
(404) 331-4401

Boston Field Division
50 Staniford St., Suite 200
Boston, MA 02114
(617) 557-2100

Chicago Field Division
500 Dirksen Federal Building
219 S. Dearborn St.
Chicago, IL 60604
(312) 353-7875

Dallas Field Division

1880 Regal Row
Dallas, TX 75235
(214) 767-7151

Denver Field Division

115 Inverness Drive E.
Englewood, CA 80112
(303) 784-6300

Detroit Field Division

357 Federal Building
231 West Lafayette
Detroit, MI 48226
(313) 226-7290

Houston Field Division

Suite 300
333 West Loop North
Houston, TX 77024
(713) 681-1771

Los Angeles Field Division

Edward Roybal Federal Building
255 East Temple, 20th Floor
Los Angeles, CA 90012
(213) 894-2650

Miami Field Division

8400 N.W. 53rd St.
Miami, FL 33166
(305) 591-4870

Newark Field Division

806 Federal Office Building
970 Broad St.
Newark, NJ 07102
(201) 645-6060

New Orleans Field Division

3838 N. Causeway Blvd.
Suite 1800
New Orleans, LA 70002
(504) 840-1100

New York Field Division

99 Tenth Avenue
New York, NY 10011
(212) 337-3900

Philadelphia Field Division

10224 Green Federal Building
600 Arch St.
Philadelphia, PA 19106
(215) 597-9530

Phoenix Field Division

Suite 301
3010 N. Second St.
Phoenix, AZ 85012
(602) 640-5700

San Diego Field Division

402 W. 35th St.
National City, CA 92050
(619) 585-4200

San Francisco Field Division

450 Golden Gate Ave.
P.O. Box 36035
San Francisco, CA 94102
(415) 556-6771

Seattle Field Division

Suite 301
220 West Mercer
Seattle, WA 98119
(206) 442-5443

St. Louis Field Division

Suite 500
7911 Forsythe Blvd.
St. Louis, MO 63105
(314) 425-3241

Washington D.C. Field Office

Room 2558
400 Sixth St., S.W.
Washington, DC 20024
(202) 401-7834

Environmental Protection Agency

Every State, and many municipalities, have environmental protection offices, which should be contacted to determine local law enforcement responsibilities for clandestine lab cleanups and waste disposal. The U.S. Environmental Protection Agency maintains regional offices that can provide law

enforcement agencies with information on Federal requirements, as well as putting them in contact with State and local authorities. The appropriate EPA regional offices are listed below.

EPA Hazardous Waste Regional Contacts

Region I (CT, MA, ME, NH, RI, VT)

Director
Waste Management Division
U.S. EPA Region I (HAA-1903)
JFK Federal Building, Rm. 2203
One Congress Street
Boston, MA 02203
(617) 565-3420

Region II (NJ, NY, PR, VI)

Director
Air & Waste Management Division
U.S. EPA Region II (AWM)
26 Federal Plaza, Room 900
New York, NY 10278
(212) 265-2657

Region III (DC, DE, MD, PA, VA, WV)

Director
U.S. EPA Region III (3HW)
841 Chestnut St.
Philadelphia, PA 19107
(215) 597-9800

Region IV (AL, FL, GA, KY, MS, NC, SC, TN)

Director
Waste Management Division
U.S. EPA Region IV
345 Courtland St., N.E.
Atlanta, GA 30365
(404) 347-4727

Region V (IL, IN, MI, MN, OH, WI)

Director
Waste Management Division
U.S. EPA Region V
77 West Jackson Blvd.
Chicago, IL 60604-3507
(312) 353-2000

Region VI (AR, LA, NM, OK, TX)

Director
Air & Waste Management Division
U.S. EPA Region VI (6H)
1445 Ross Ave., Suite 1200
Dallas, TX 75202
(214) 655-6444

Region VII (IA, KS, MO, NE)

Director
Waste Management Division
U.S. EPA Region VII (WSTM)
726 Minnesota Ave.
Kansas City, KS 66101
(913) 551-7000

Region VIII (CO, MT, ND, SD, UT, WY)

Director
Waste Management Division
U.S. EPA Region VIII (8HWM)
999 18th St., Suite 500
Denver, CO 80202-2405
(303) 293-1603

Region IX (AZ, CA, HI, NV, American Samoa, Guam)

Director
Waste Management Division
U.S. EPA Region IX
75 Hawthorne Street
San Francisco, CA 94105
(415) 744-1305

Region X (AK, ID, OR, WA)

Director
Hazardous Waste Division
U.S. EPA Region X (HW-11)
1200 Sixth Ave.
Seattle, WA 98101
(206) 553-4973

National Sheriffs Association

The National Sheriffs Association has conducted training on clan lab seizures for its members. It may be contacted at:

National Sheriffs Association
1450 Duke St.
Alexandria, VA 22314
(703) 836-7827

Bureau of Justice Assistance

The Bureau of Justice Assistance is currently conducting a Clandestine Laboratory Model Enforcement Program, as well as a Model Cleanup Program, in which several demonstration sites are being evaluated to determine the best practices for use in clan lab seizure and eradication. For more information, contact:

Luke Gallant
Program Manager, Division of
Discretionary Grants
Bureau of Justice Assistance
633 Indiana Ave., N.W.
Washington, DC 20531
(202) 307-0894

For information on evaluation of these programs contact:

Anna Laszlo
Project Director
The Circle, Inc.
8201 Greensboro Dr., Suite 600
McLean, VA 22102
(703) 821-8955