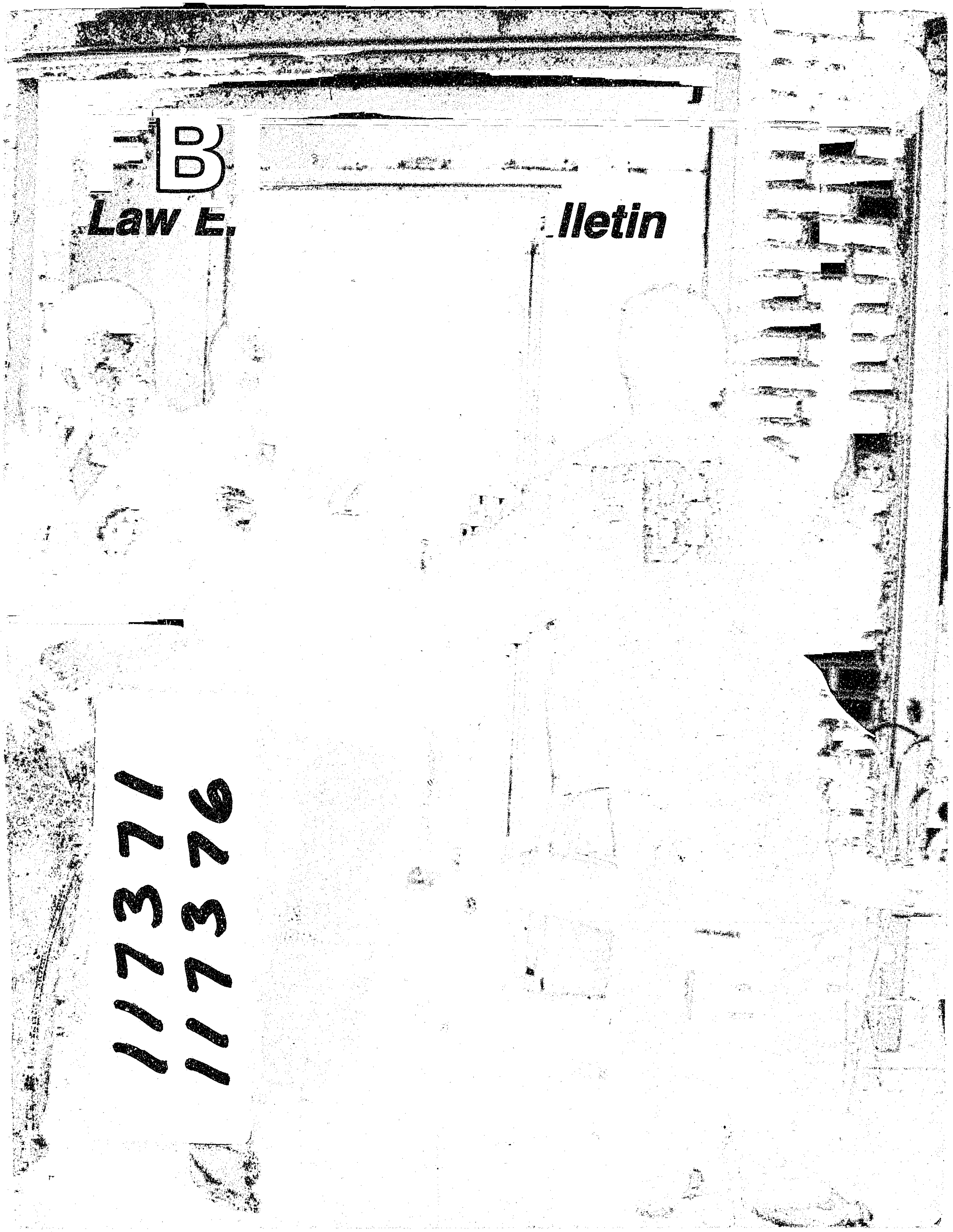
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Hazards of Clandestine Drug Laboratories

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Clandestine drug laboratories pose serious health hazards to law enforcement personnel. A typical site contains both toxic and volatile chemicals and materials, exposing those who seize, process, and dispose of these laboratories to unknown dangers.

Aggravating the problem is the significant increase in the number of clandestine laboratories. In fiscal year 1987, the Drug Enforcement Administration (DEA) seized 647 laboratories in the United States, compared to 184 in fiscal year 1981.

To insure the safety of law enforcement personnel who attempt to close down these laboratories, the hazards found there must be identified and adequate protection provided. This article details the problems encountered when securing clandestine laboratories and the safety program developed by DEA to protect law enforcement personnel from the inherent dangers.

INHERENT DANGERS

Clandestine laboratories present a variety of dangers—physical, chemical, and toxicological. Either brief or extended exposure to hazardous materials can have serious health consequences, depending on the type of chemical and the body's reaction to it.

Physical Hazards

The very nature of a clandestine laboratory site creates unique physical hazards. In order to mask the presence of the laboratory, the operator foregoes proper ventilation and other safety measures and confines the area with few access routes and poor lighting. There also exists the possibility of assault by attack dogs or a person wielding a gun, knife, or volatile or caustic chemicals. And, booby traps are being used with increased frequency by operators. Then there is the potential for explosions and fire caused by burning cigarettes, sparks from electrical switches, electrical equipment, damaged or mishandled gas cylinders, and firearms.

Chemical Hazards

Chemical hazards can take the form of solids, liquids, mists, or gases. Such substances are often unidentified or misidentified.

The chemicals used to manufacture drugs are generally identified as precursors, reagents, and solvents, many of which are explosive and extremely flammable. An example would be ether, a widely used, highly volatile solvent used to make "crack."

Identifying and protecting against chemical hazards is complicated by the fact that a chemical or combination of chemicals may pose more than one hazard. Recently, upon entering a clandestine laboratory, a DEA agent was splashed with a caustic liquid that contained methamphetamine. In addition to chemical burns, the agent also suffered a serious reaction to methamphetamine, which resulted in his hospitalization.

Toxic Hazards

Other hazardous materials found in clandestine laboratories are irritants and corrosives; chemicals that react violently with water, air, or with other chemicals; asphyxiants; and nerve toxins and other chemicals that may have immediate or delayed adverse effects on the skin or internal organs. Any compressed gas that exceeds certain pressure limits is also considered a hazard because of its potential explosive force.

> ***"Clandestine laboratories present a variety of dangers—physical, chemical, and toxicological."***
>
> *Special Agent James*

THE CLANDESTINE LABORATORY SAFETY PROGRAM

This program was started in 1986 by DEA and the California Bureau of Narcotics Enforcement, in accordance with regulations developed by the Occupational Safety and Health Administration (OSHA) and recommendations of The National Institute of Occupational Safety and Health (NIOSH). It consists of four basic elements—policies and procedures, equipment and protective clothing, training, and medical monitoring.

> **"*The main goal of the program is personnel safety....*"**

Policies and Procedures

The main goal of the program is personnel safety, i.e., eliminating exposure to the dangers inherent in clandestine laboratories. This has been accomplished through certification and revised investigative procedures.

With certification, selected agents and chemists are approved after medical training and screening as the only personnel authorized to seize, process, and dispose of clandestine laboratories. Only certified personnel are permitted to enter a clandestine laboratory site until the environment has been declared safe.

DEA's procedures for investigating clandestine laboratories were revised to insure a proper degree of safety in handling hazardous chemicals. Under the revised procedures, the raiding of these sites has been divided into five stages—planning, entry, assessment, processing, and exit.

Any time law enforcement officers initiate a response, they must first develop a plan of action. During the *planning* stage, certified agents and chemists identify the possible chemicals and arrange for the proper safety equipment and protective clothing. Other emergency services agencies, such as the fire department, emergency medical evacuation unit, and hazardous material disposal company, are placed on standby. Each certified agent and chemist is briefed and assigned specific duties.

Entry of a clandestine laboratory has the potential for the most danger. The entry team faces the possibility of armed resistance by owners and operators, booby traps, and exposure to hazardous chemicals. The team remains in the laboratory only as long as it takes to secure the site and arrest and remove the occupants.

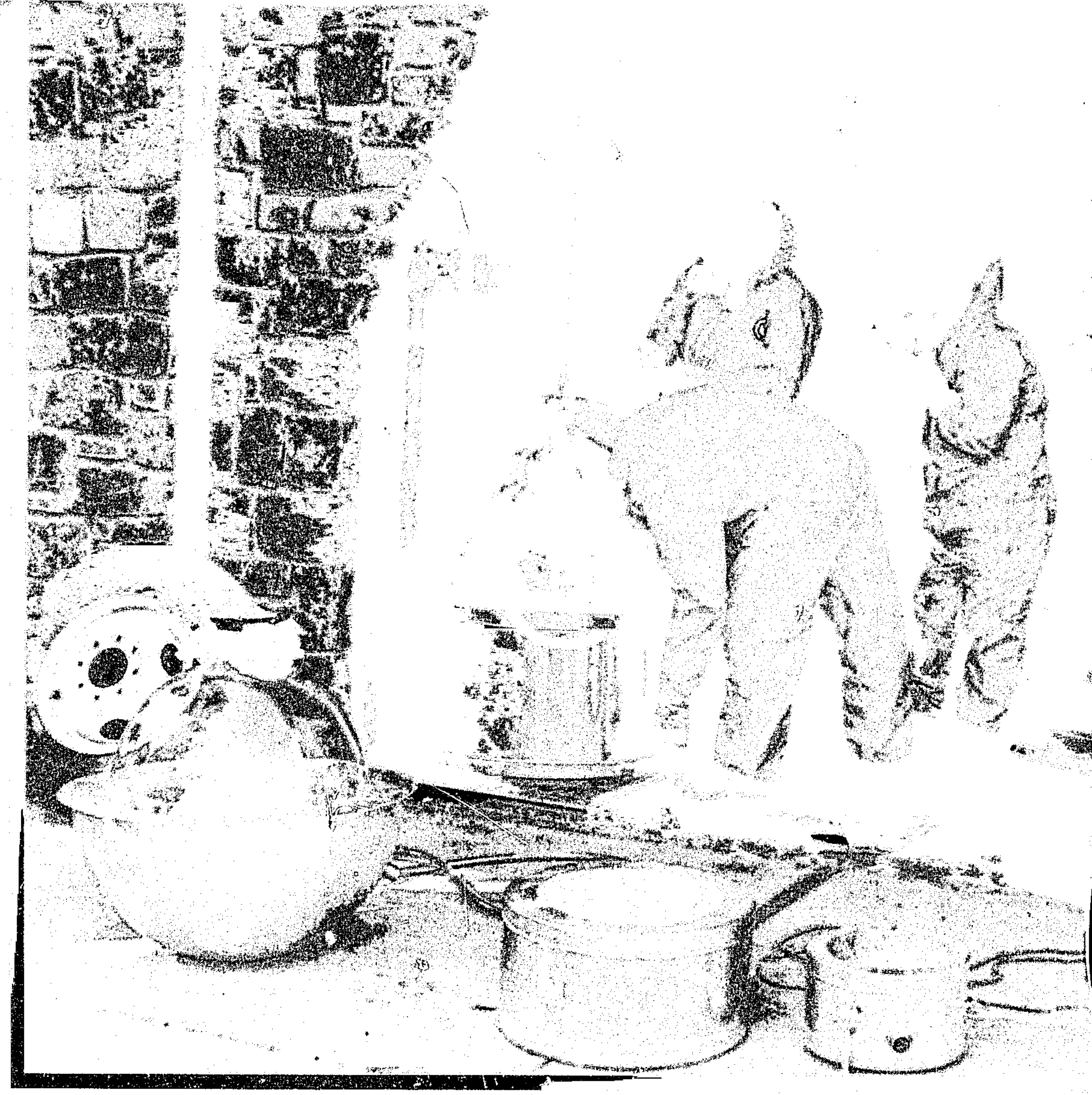
The entry team uses the lowest level of protection because the gear (fire protective clothing, goggles, and ballistic vest) limits mobility, dexterity, vision, and voice communications. Once outside, the entry team advises the assessment team of any hazards observed.

Once the laboratory site has been secured, the *assessment* team, comprised of an agent and chemist, enters the site to identify and assess the chemical hazards visually and through the use of air monitoring equipment. The equipment determines the oxygen level, explosive level, and the presence and concentration of toxins. If necessary, the assessment team will handle any imminent hazards, ventilate the site, and segregate incompatible chemicals to halt reaction.

Members of the assessment team wear fire protective clothing, chemical resistant suits, gloves, and boots. They also use self-contained breathing devices for respiratory protection. Personnel with identical gear are stationed outside to assist in case of emergency. In its assessment, the team determines the safety equipment and protective clothing needed by the processing team.

The *processing* of the laboratory involves identifying and collecting evidence. The site is photographed or video taped, and samples of the various chemicals are taken, along with other items determined to have evidentiary value.

Although the personal protective clothing and equipment used by the processing team is determined by the findings of the assessment team, at a minimum, it includes fire protective clothing, chemical resistant suits, gloves and boots, and goggles. If necessary, respiratory protection will also be used.



A processing team identifies and collects evidence at a clandestine laboratory site.

Once the laboratory has been processed, preparations are made to *exit* the laboratory site. This involves removing and disposing of hazardous materials, decontamination, and posting the site.

A licensed hazardous waste disposal company, under the direction of the agents and chemist, removes all chemicals and laboratory equipment, including glassware. Based on the hazard level, the materials are either stored or immediately destroyed. All persons who were inside the laboratory must undergo decontamination in accordance with accepted safety policies and procedures. In addition, anything removed from the site, including safety equipment and protective clothing, must be decontaminated or turned over to the disposal company for destruction.

> **"*DEA ... is working with ... State and local law enforcement agencies [to] develop ... safety programs....*"**

In most cases, even after the laboratory equipment and chemicals have been removed, the site is still contaminated, posing a public health hazard. To protect the public, the site is posted, the legal owner is notified by registered letter, and the local health department and other responsible agencies are alerted to the condition.

Equipment

In addition to personal safety gear and protective clothing, each of DEA's 19 domestic field divisions has a specially designed truck equipped with 140 gallons of heated water to supply emergency decontamination showers and eyewash faucets. An onboard, gasoline-powered electrical generator provides electricity for the portable lighting and smoke ejection fans carried on the truck. The 4-wheel-drive trucks also carry a power winch for use in rough terrain, fire extinguishers, flashlights, tools, and a first-aid kit.

Training

Initially, the training consists of 40 hours of classroom instruction and hands-on practical experience. The curriculum covers basic toxicology, chemical hazard recognition and assessment, safety procedures, the use of safety equipment and personal protective clothing, and emergency response, including fire suppression and first aid.

In the practical exercises, students don safety equipment and protective clothing to perform several tasks. After entering a smoke-filled, burning room and rescuing an individual, the students have to extinguish the chemical fire. Next, working in teams, the students enter a laboratory site, and using the proper equipment, assess the hazard level. Following the assessment, the team processes the laboratory by taking samples of the various liquid and solid materials present. The practical exercise concludes with the students going through decontamination.

> ***"The importance of medical monitoring cannot be overstated."***

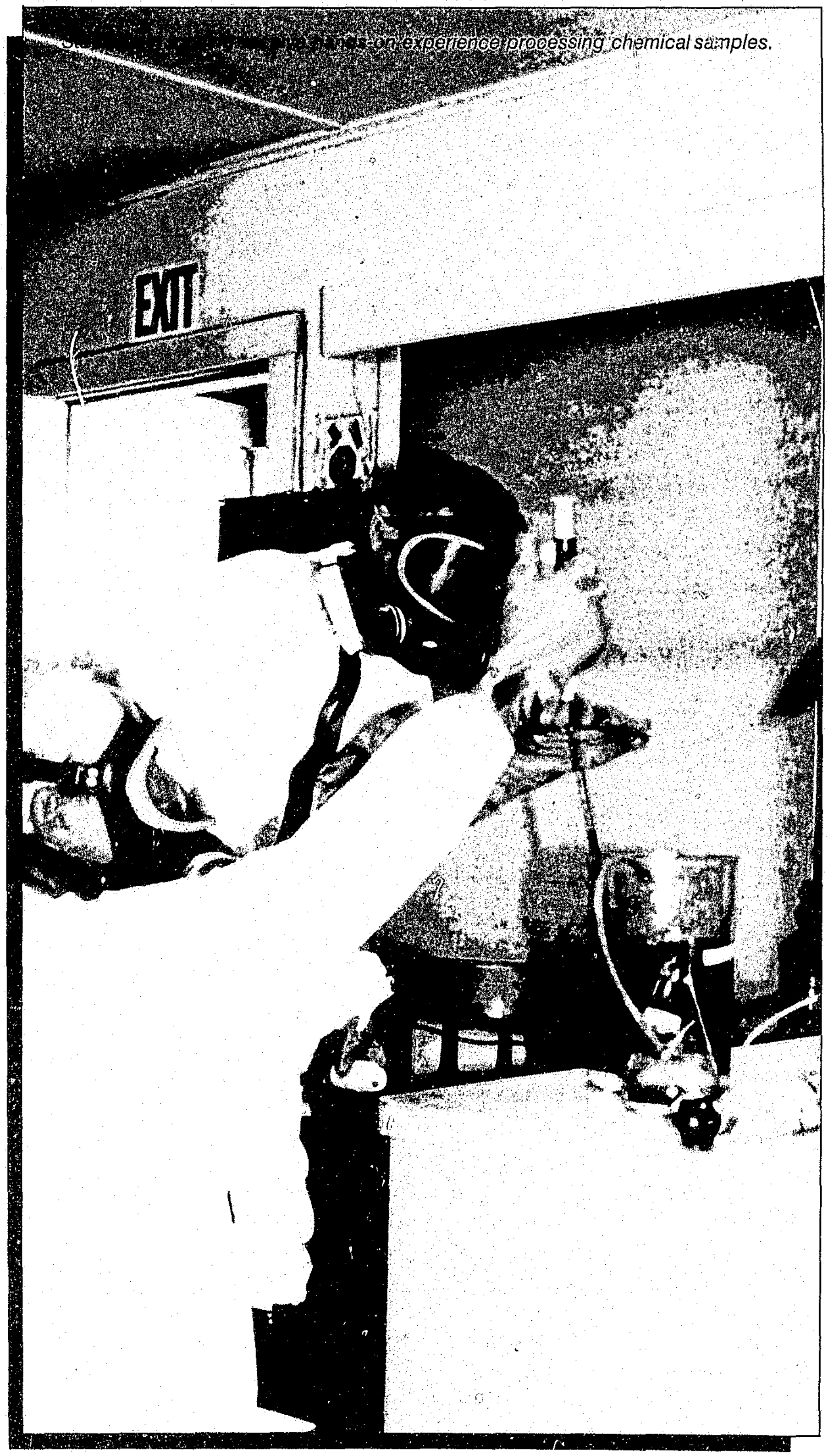
A 24-hour inservice training course is conducted annually at the field level. Every 3 months, each participant receives 6 hours of instruction, which includes a review of what was taught in the initial course and an introduction to new material.

Members of the assessment team wear fire protective clothing, chemical resistant suits, and self-contained breathing devices for respiratory orotection.

Medical Monitoring

The medical monitoring element of the safety program has two separate objectives. The first is to determine if the individuals selected for certification are physically fit to use the safety equipment and undergo training. The second is to determine if a participant has developed any adverse health effects as a result of working with hazardous chemicals.

The initial medical assessment takes place prior to an employee entering the training program. Future monitoring includes annual examinations, which continue for the duration of employment, even if the participant leaves the program. In the event a participant is exposed to or affected by hazardous chemicals, he or she will undergo additional examinations to identify and measure adverse health effects.



... hands-on experience processing chemical samples.

The general medical history and examination focus on the skin, lungs, liver, and neurological system. Special attention is given to problems which may arise from using respiratory protective gear, physical capabilities, contact with chemicals, and heat injury.

In addition to a general medical examination, a number of specific tests are performed. Since safety equipment and protective clothing place a strain on the respiratory and cardiovascular systems, a spirometry test, which is a lung function measurement, and an electrocardiogram are required. Exercise stress tests are done if there is some indication they are needed, and laboratory tests (urinalysis, blood counts, and blood chemistries, including liver and kidney function tests) are given to determine if a participant has developed any health problems from being exposed to chemicals.

The importance of medical monitoring cannot be overstated. Whether an individual enters the program or the length of participation in it is determined through medical assessments.

CONCLUSION

In the first 2 years of the Clandestine Laboratory Safety Program, DEA has trained and certified a total of 510 special agents, task force agents, and chemists from its 19 domestic field divisions and field laboratories. DEA will continue this certification program and is working with other Federal agencies to help State and local law enforcement agencies develop clandestine laboratory safety programs of their own. FBI