

David F. Peterson
Courtesy Firenuggets.com

Clandestine, or illegal, drug laboratories are not a new hazard to the response community but their numbers are growing at an alarming rate, especially in center of the country. The State of Missouri, for example, has seen these "clan-labs" numbering in the hundreds over the past several years and now neighboring states are also seeing the same activity. Awareness of this growing problem is extremely important because of the inherent danger to all first responders.

To help raise your awareness consider the following true case studies;

- **Washington**
In April, 1996 an oven exploded as two people were using acetone, hydrochloric acid, and sodium hydroxide to make methamphetamine "meth" in an apartment laboratory. One person received chemical burns and was taken to a hospital where three unknowing hospital employees were also exposed. They began vomiting and became incapacitated. Additionally, three ambulance personnel and two police officers received eye irritation and respiratory distress from their exposures. None of these people were wearing any personal protective equipment.
- **Oregon**
In February, 1999 a firefighter was exposed to hydrochloric acid and consequently received chemical burns at a fire in a methamphetamine lab. After the fire was extinguished drug manufacturing equipment was found in the residential laboratory. The firefighter was wearing turnout gear at the time of the exposure and was decontaminated on site. He was treated and released at the local hospital.
- **Iowa**
In March, 1999 three police officers had respiratory irritation after being exposed to anhydrous ammonia during a raid at a meth lab. They were decontaminated at the site and treated at the local hospital.
- **Wisconsin**
A meth lab was discovered in Grant County in March of 2000 by the Southwestern Wisconsin Meth Task Force. While no responders were injured the local hazmat team dressed in protective clothing and looked through the country house for hazards that needed to be contained. It was discovered that many chemicals were on-site and the operator had been "cooking" the drugs in nearly every room and the basement of the residence. The site was so contaminated from chemical residue that it had to be razed.
- **Missouri**
A fast moving fire with several explosions caused by a faulty electrical strip killed three children and injured three others. A meth lab was discovered in a back room and authorities knew of drug activity in the apartment before the fire.

Recently released data from the Centers for Disease Control (CDC) also echoes the fact that first responders are at risk when they respond to clandestine labs. From the Morbidity and Mortality Weekly Report (MMWR 49-page 1021-1024) the CDC reports in the article "Public Health Consequences Among First Responders to Emergency Events Associated with Illicit Methamphetamine Laboratories, 1996-1999" many noteworthy findings involving clan labs. This report accesses statistics from the Agency for Toxic Substances and Disease Registry's (ATSDR) Hazardous Substance Emergency Events Surveillance (HSEES) program.

From 1996 to 1999 there were 23,327 total incidents involving hazardous substances as reported by 16 states. HSEES also reports that 112 events (0.5%) were associated with methamphetamine (meth) labs with all of these events occurring in the five following states; Iowa, Minnesota, Missouri, Oregon, and Washington. Additionally, these 112 events at meth labs produced 155 total injuries with 79 occurring to first responders. In other words, 51% of all injuries at meth labs happened to first responders.

The breakdown of 79 injuries to first responders is as follows;

- 55 (69.6%) - Police
- 9 (11.4%) - Emergency Medical Technicians/Paramedics
- 8 (10.1%) - Firefighters
- 7 (8.9%) - Hospital Employees

The majority of the injuries were respiratory irritation (54.1%) and eye irritation (10.8%). No personal protective equipment (ppe) was worn on 85.1% of the first responder victims at these meth labs with police officers accounting for 78.9% of this total. The most common hazardous materials that caused injury were anhydrous ammonia (33.3%) and hydrochloric acid (30.6%). Analysis of this data reveals that firefighters were least likely to be injured at meth labs because they were likely wearing ppe during these events. More information on this report can be obtained at www.cdc.gov/niosh/npg/pgdstart.

It is a cold, hard reality that these drug labs are here and maybe right under our own noses. Your next response may be to one of these dangerous clan-labs so it is imperative to become prepared. As the data show first responders are at risk for injury during events at illicit meth labs. Even though meth lab events account for a small percentage of total incidents they were more likely to result in injuries. It is also noteworthy that while most illegal labs are discovered by Drug Enforcement Administration (DEA) personnel or local law enforcement efforts, 20 to 30% are found because of explosions.

A clandestine laboratory is any laboratory that manufactures illegal, controlled drugs or substances. These labs have been found in single and multiple family dwellings, motel rooms, campgrounds, mini-storage buildings, and motor vehicles, especially rental trucks. Commonly, they are found in remote areas because the odors that emanate from these labs reveal their operation.

It is important to realize that there are many illegal drugs that are produced at clan labs. Examples include; LSD, PCP (Angel Dust or Crystal), Phenyl-2-Propanone (P2P), MDA/MDPP ("ecstasy"), Methaqualude, Methcathinone ("Cat") and Fentanyl. Perhaps the most common illegal drug that is made in clan labs is methamphetamine which is a central nervous system stimulant. Meth users may become agitated and feel "wired". Their behavior may be very unpredictable and they may not sleep for days at a time while on a meth binge.

One batch of meth can provide several thousand dollars to the maker and the raw ingredients cost only about \$200 per batch.

Many of the hazards associated with making illegal drugs are derived from the ingredients, many of which are hazardous substances. Some are raw products or pure chemicals but many ingredients come from over-the-counter products such as cold medicine, dietary supplements, and even Drano. When these products are released they can harm responders through inhalation or skin contact. Common chemicals used to manufacture meth include;

Toluene	found in paint thinner
Methanol	found in gas tank anti-freeze "Heet"
Ethyl Ether	found in starting fluid
Anhydrous ammonia	found at farmer's co-ops
Hydrochloric acid	found in hardware stores
Ephedrine	found in cold medicine or dietary supplements
Sodium hydroxide	found in "Drano" or Red Devil Lye
Sulfuric acid	found in battery acid or drain cleaners
Iodine crystals	found in iodine crystals or tincture of iodine
Red phosphorous	found in striker plates
Lithium	found in camera batteries

As you can see substances that are used in meth labs are corrosive, flammable, or toxic. Equipment used to make these drugs include jars, chemical bottles, propane tanks with green fittings (from ammonia reaction with brass fitting), cans of Coleman Fuel, glass cookware, heating plates, coffee filters, and glass or plastic tubing.

There are three common methods of making meth, and some are more dangerous than others. A common by-product of making meth is hydrogen gas which is very flammable and can explode if the gas is confined. The dangers of making meth is described in a very interesting book written by Dale Brown in 1998 entitled "Tin Man". Even though it is fiction Brown details, with great accuracy as a result of his research, the process of manufacturing methamphetamine. The prologue of the book describes the "pour and run" where diet pills containing ephedrine are dissolved in chloroform and thionyl chloride to produce sulphur dioxide and hydrogen sulfide gas along with chloropseudoephedrine, which is a white solid. This material is then hydrogenated by mixing it with palladium black and hexane in a pressurized tank. This final step evolves hydrogen gas and the crystal powder known as meth or "speed", or "crank". The crystal is then washed with ether for purification and is then ready to be sold. A very dangerous process indeed. In the book the portable cooker explodes as a result of the hydrogen gas being ignited by the heating equipment used in the process. If this actually happened in your jurisdiction this is where you come in!

As was stated earlier, clandestine drug labs are not new problems to first responders. A very informative article entitled, "The Fire Service should know about Clandestine Drug Labs", appeared in the November 1970 issue of the National Fire Protection Association's (NFPA) Fire Command magazine that was authored by Wilbur Walls. Over 30 years ago the first responder community was warned of the dangers of these illicit operations by the above article.

While many of the early labs were discovered on the West coast in the 1960's and 1970's their numbers have gradually increased and moved East. We now know the most prolific state for illegal drug labs over the last several years is Missouri but there is evidence of drug lab production in the Mid-Atlantic states and even as far North as New England. As recent as 1998 meth labs were discovered in New Jersey, Delaware, and Massachusetts. According to the U.S. Department of Justice-Drug Enforcement Agency (DEA) there were 1,654 total clandestine drug lab seizures in 1998 with over 98% being meth labs. Missouri led the list with 371, followed by Arizona and California with 228 and 164 respectively. (For a complete report of DEA drug lab seizures go to the following website; www.dea.gov).

In addition to the chemical and process hazards at a clandestine lab responders need to also be aware of anti-personnel devices (APD) or "booby traps". These devices are designed to protect the lab owners investment while they are away and also to serve as warning devices to aid in the owner's or operator's escape. Unfortunately, they are also designed to incapacitate responders.

Weapons are common at illegal labs and explosives have even been found connected to trip wires which are usually made of monofilament fishing line. Be alert to dangerous animals such as guard dogs that have been trained to kill or even venomous snakes. Additionally, physical hazards such as holes in the floor that have been concealed, spring devices with exposed nails or sharp objects, and buckets of gun powder filled with nails set to ignite and explode after trip wires are activated, have all been found at clan-lab seizures.

There are also chemical APD's such as acid containers propped up over doorways, pipe bombs, grenades, aluminum foil balls containing explosive mixtures, and even acid jars that tip their contents onto potassium cyanide crystals when personnel enter through closed doors. (This chemical reaction produces hydrogen cyanide gas).

With all of the above in mind and given the fact that these types of labs are cropping up at an increased rate it is only a matter of time before you may encounter such an incident. Preparation is the key and that includes a clear idea of your actions before the incident occurs.

Obviously, the first step in your preparation is providing proper training to all response personnel. This should include an awareness of the hazards and risks associated with clandestine drug labs. All personnel need to be aware of the signs of a potential drug lab (security, guard dogs, odors, recent explosions, etc.) before an entry is made. Identification of the type of incident is imperative. Proper personal protective equipment is also very important before any entry. Decontamination considerations before any entry, especially in case of a responder emergency, needs to be thought out carefully. If a drug lab is suspected local police should be alerted and the area should be secured.

If a drug lab is found upon entry into a structure (or at a transportation incident) alert other responders on-scene without delay, and do not touch anything including light switches. Back out immediately and watch out for trip wires and other anti-personnel devices. Take mental notes of what you see to relay to legal authorities. Items such as types of containers and quantities, labels, active processes, etc. should be noted. Remember, you have happened upon an illegal activity which is a crime scene and preservation of the scene and the evidence is important in order to properly try and convict the drug lab operators. The chain of evidence is extremely important and so is your presence of mind. Avoid panic at all cost.

For first responders who encounter a clan-lab first, and identify it as such, regular hazardous material response procedures or guidelines should be followed. Most hazmat guidelines dictate that hazard zones be set-up, all response personnel and vehicles be positioned up-wind and all other people be kept out of the area. Local police need to be called for assistance with traffic and site control. Refer to the Department of Transportation Guidebook for assistance with response actions. If your jurisdiction has a hazardous material response team they also need to be summoned to the scene. Upon their arrival brief them with your findings and actions. Support and assist them as needed.

As far as hazmat team involvement there are several considerations before taking action. First of all, is it an emergency that requires the action of your team? If it is in fact a drug lab with possible APD's your entry may be precluded due to undue risk to your personnel. Also, have your team members had proper training to respond safely to a drug lab? The old adage applies here; if you have not had the proper training to do the job safely you should not do it. Have your team members had training in methods of preserving the evidence trail? Unless you can answer all of the three questions above with an unqualified "yes" you would be better off not committing to a drug lab response. Call and wait for more qualified personnel.

To assist you with these questions an excellent document from the Tempe, Arizona, Fire Department can be viewed at www.tempe.gov/fire/docs/208.01G.htm. In this policy and procedure it states, "Tempe Fire Department personnel will not participate in any law enforcement agency entry into a known and unsecured clandestine drug laboratory. Tempe Fire Department HIRT (hazmat) personnel may make an entry into a secured clandestine drug laboratory if an emergency situation involving hazardous materials develops and if the safety of Tempe Fire Department personnel is not placed in jeopardy." This department has encountered hundreds of drug lab incidents and its experience is exceptional.

So what are the alternatives to responders across the country? The United States is divided into DEA regions in which private response companies are contracted for clandestine lab seizures. These contractors, with fully trained personnel, respond at the DEA's request to properly package chemicals at the lab and assist in the evidence collection efforts. Quite often, these contractors are called to the drug lab scene without local hazmat teams even being aware of the operation. All contractor personnel must have background checks in order to qualify as a DEA contractor. These private responders have extensive experience and have provided the service for the DEA for many years. They can be called to the scene through the DEA.

Because incidents involving clandestine drug labs will become more common (especially in the central United States) it behooves us to be prepared. We must provide all first responders with proper training to include clan-lab awareness and hazards and especially what to do when confronted with a clan-lab incident. Safe and prudent standard operating guidelines need to be developed and conveyed to all personnel. Work with local police authorities and DEA officials along with the region's DEA contractor to better effect a safe outcome at clandestine drug lab incidents. Until next issue-lets be careful out there!

Resources:

- United States Drug Enforcement Agency
- Koch Crime Institute
- Willow Springs, Missouri Police Department
- "Kitchens of Death" video by California Attorney General's Office (916-638-8383)

Also See: Firenuggets.Com

Related: Hazardous Materials Archives

About the Author - David F. Peterson, CHMM

David is a 21-year veteran firefighter who is currently a lieutenant with the Madison, Wisconsin, Fire Department where previously he was the Hazmat Training Coordinator for the Level A Regional Response Team. He is a certified hazmat IAFF Master Trainer who has trained over 40 private and public hazmat response teams and several thousand first responders. He is a National Fire Academy instructor, an Emergency Management Institute presenter, and a FDIC presenter. He has authored numerous articles for fire service periodicals, newsletters, and websites and is the founder and past president of the Wisconsin Association of Hazardous Materials Responders, Inc. David can be contacted at hazmatpetie@aol.com