PERSPECTIVES FROM THE FIELD

Meth Labs: Your Neighborhood Hazardous Waste Facility

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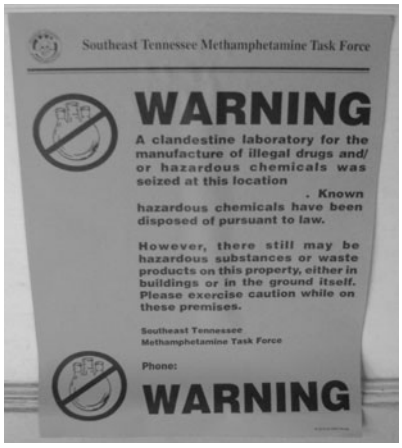
Most of us became aware of meth labs several years ago when local and regional law enforcement personnel began to compare notes and realized we had an epidemic in most of the United States (US). Meth labs can be found in many types of properties ranging from single-family homes to parks or automobiles. Like the fumes and chemicals that are emitted from meth labs, the impacts associated with them also permeate and contaminate a broad area. This includes home owners, neighbors, landlords, mortgage companies, law enforcement personnel, and many others. These meth labs have many negative impacts on our communities, including health impacts to the meth cooks, residents, and neighbors; social impacts on children and other family members; and impacts on government, including children and family services, law enforcement, prisons, and health care providers. "In 2004, 8,000 meth labs were seized in the US, and child welfare workers removed more than 3,000 children from the labs."[1]



> Meth abuse imposes serious costs to the criminal justice system. For example, in 2005, the National Association of Counties (NACO) released results from a survey of law enforcement officials from 45 states reporting that Meth-induced crime was increasing, and more than half reported that Meth was their county's greatest drug problem. Based on its 2007 survey results, NACO reported Meth is still the number one drug problem and according to their survey, 47% of county sheriffs report that Meth is their number one drug problem. That is more than cocaine (21%) and marijuana (22%) combined. Criminal justice costs associated with enforcing Meth laws represent the second largest category of costs at $4.2 billion.[2]

These meth-induced crimes place a burden on our prison systems. "In North Dakota, an estimated 60% of the male prison population are meth users and 80–90% of the female prison population were incarcerated for meth related offenses."[3]

Our health care facilities are also feeling the impacts of methamphetamine abuse. "Of an approximated 108 million emergency department admissions in the U.S. during 2005, the Drug Abuse Warning Network (DAWN) estimates that methamphetamine was involved in 108,905 of these drug-related emergency department admissions."[4]

> The RAND Corporation's report "The Economic Cost of Methamphetamine Use in the United States, 2005," estimates the national cost of Meth abuse is $23.4 billion. This study represents the first time that a comprehensive assessment of the annual costs of methamphetamine abuse has been analyzed on a national scale. The RAND study found that methamphetamine use imposes a significant and disproportionate burden on both individuals and society in money spent on treatment, healthcare, and foster care services, as well as the costs of crime and lost productivity associated with the drug. The $23.4 billion in costs translates into $26,614 for each person who used methamphetamine in the past year or $73,692 for each Meth dependent user.[5]

Additional costs and risks are present when a meth lab is abandoned and left unremediated. This results in neighborhoods and property values beginning to decline. The key focus of this article are these abandoned meth labs, the magnitude of the problem, and how they relate to brownfields.

When an environmental professional hears the word *brownfield*, the image that most often comes to mind is an abandoned industrial facility that has potential contaminants. Based on this, we are tempted to ask whether a meth lab truly is a brownfield. To answer this question, let's review the US Environmental Protection Agency's (EPA's) definition of a brownfield:[6] A real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of hazardous substances, pollutants, contaminants, controlled substances, petroleum or petroleum products, or is mine scarred land. Based on this definition, a meth lab qualifies as a brownfield in several ways. Due to growing national concern, Congress made properties contaminated by controlled substances such as meth eligible for brownfield funding and wrote in the "controlled substances" portion of the definition.

To develop an understanding of the magnitude of the problems associated with meth labs, we will take Tennessee as an example, for a couple of reasons: (a) It has aggressive law enforcement against meth labs, and (b) it is one of only 22 states that have a state-run program governing the remediation of

doi:10.1017/S1466046610000062

these meth labs. Beginning in the late 1990s and early 2000s, the state realized it had a big problem on their hands with meth labs and decided to meet it head on. When Tennessee recognized this epidemic, they were proactive in addressing it by developing the Southeast Meth Task Force, a law enforcement task force with the sole purpose of locating and busting meth labs. Additionally, the state developed a program that regulates the remediation of meth labs that is managed through the Tennessee Department of Environment and Conservation (TDEC). Both of these organizations have been collecting data related to meth lab remediation for several years now. The TDEC maintains a database of meth labs that are not remediated within 60 days of being quarantined. A review of this database shows that, as of October 2, 2009, 359 quarantines have been issued by law enforcement and subsequently placed on this list; but that only 88 of those have been remediated.[7] That means that about two thirds of these meth labs have not been remediated and remain abandoned today.

A review of some of the chemicals used in the production of methamphetamine provides us with a backdrop of the potential environmental and health concerns associated with these facilities. These production and by-product chemicals include volatile organic compounds such as acetone, methanol, benzene, toluene, and ether. Additionally, strong acids and bases and other hazardous chemicals are used, including sulfuric acid, sodium hydroxide, red phosphorus, phosphine gas, iodine, and methamphetamine. The potential impacts to human health from these chemicals and other hazards include reproductive disorders, birth defects, kidney failure, cancer, respiratory failure, blindness, blood borne diseases, and death.

"Over five pounds of waste is produced for every one pound of meth manufactured."[8] There are significant potential adverse health effects associated with the handling and disposal of these chemicals. This is often exacerbated by improper disposal, such as chemicals being poured into sink drains, sewer, or septic systems, or dumped on the property. Other hazards potentially at these former meth labs, in addition to these chemical hazards, include needles, sharps, and associated biohazards, as well as explosive and fire hazards from pressurized storage of anhydrous ammonia and the presence of flammable organic compounds. Many times, meth producers use booby traps to protect their operations from theft, and if these are not discovered and disarmed by law enforcement, they could remain at the site and present a hazard to anyone in the immediate area.

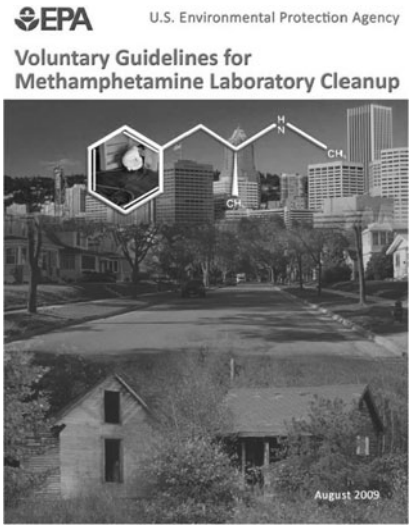
Environmental health concerns can extend to all who enter the immediate vicinity of a meth lab, including municipal and utility workers and neighborhood residents. The residents who are most often at greatest risk are children, who often play throughout the neighborhood, are often curious about their natural surroundings, and typically are highly susceptible to lower chemical concentrations. There are numerous potential exposure pathways for these chemicals and hazards, including direct exposure to chemicals and hazards in and around the structure, vapors emanating from the structure, and soil and groundwater contaminated by improper disposal. If a meth lab in a rural setting uses septic systems and drinking-water wells, these drinking-water sources may become contaminated, thereby presenting significant exposure risk to nearby residents.

Like the environmental and health impacts associated with these meth labs, financial impacts associated with them are also significant and far reaching. Most insurance agencies do not cover environmental contamination; therefore, the property owner faces not only the cost associated with the remediation of the property but also its reduced value. A quarantine notice recorded on the deed of a property can impact that property's long-term value. Often the property owner has either been arrested or is a landlord who cannot afford to remediate the property. This most often results in the financial liability being passed to the mortgage company through foreclosure. When the property containing the meth lab is financially impacted, this produces a ripple effect that lowers the property values of the surrounding neighborhood. This is exacerbated when the structure remains vacant for an extended period.

Meth labs, like other brownfields, result in long-term environmental and financial impacts to the main property, the surrounding properties, and the community as a whole. The solution to minimizing the impacts of these labs is to establish structured remediation guidelines and oversight and to develop a funding source for municipalities to remove these blights from their neighborhoods. In August 2009 the EPA began to develop a structured process for the remediation of meth labs by releasing their *Voluntary Cleanup Guidelines for Methamphetamine Laboratory Cleanup*:

> This document begins with background information on quantitative meth remediation standards from across the United States. Next, this document presents users with a possible sequence of remediation activities from securing the site to delivering the final report. Once the process is understood users will find best practices on how to clean specific items and/or materials found within a former meth lab (e.g., walls, floors, appliances, electronics, fabrics, toys). Finally, this document provides detailed information on sampling techniques and methods.[9]

The EPA acknowledges that additional research should be completed to better define the full impact of meth labs and has set a goal of releasing draft federal health-based guidelines for remediation by January 2011.



https://doi.org/10.1017/S1466046610000062 Published online by Cambridge University Press

In addition to developing remediation guidelines for meth labs as for other brownfields, the EPA has made meth lab sites eligible for federal grants. This provides communities a funding mechanism to start to address the problem of meth labs and put these neighborhoods back on track toward becoming safe and productive places to live. Although brownfield program funding may not be the primary solution to the meth lab problem, some communities may find the funding and technical assistance beneficial in combating the meth problem in their area.

Environmental professionals are charged with protecting human health and the environment. Meth labs pose significant risks to their immediate neighborhood and to surrounding communities. Therefore, we have a responsibility to become involved by educating the public and by lobbying local and state governments to develop regulations that will protect our communities and neighbors.

Notes

1. Shadow of Meth (Prairie Public Productions, Fargo, ND), http://www.shadowofmeth.com/statistics.html (accessed March 31, 2010).
2. Wyoming Meth Project (Meth Project Foundation, Palo Alto, CA), http://www.wyomingmethproject.org (accessed February 5, 2010).
3. Shadow of Meth.
4. Meth Treatment (Meth Treatment Services), http://www.methamphetamine-addiction.net (accessed February 5, 2010).
5. Wyoming Meth Project.
6. For the legal definition that includes all these components, see *Brownfields and Land Revitalization* (EPA, Washington, DC), http://www.epa.gov/brownfields/overview/glossary.htm (accessed March 31, 2010).
7. Tennessee Department of Environment and Conservation (TDEC), Division of Remediation (2009, October) Clandestine Methamphetamine Lab (CML) Quarantine Statistics and TDEC Registry of Properties under Order of Quarantine (TDEC, Nashville, TN), 15 pp., http://www.tennessee.gov/environment/dor/pdf/quarantined.pdf (March 31, 2010).
8. US Environmental Protection Agency (EPA) (2005, October) *MethFields Brownfields Funding and Technical Assistance to Address Clandestine Drug Labs* (EPA, Washington, DC), http://www.epa.gov/brownfields/policy/methlab_brochure.pdf (accessed February 5, 2010).
9. US Environmental Protection Agency (EPA) (2009, August) *Voluntary Guidelines for Methamphetamine Laboratory Cleanup* (EPA, Washington, DC), 45 pp., http://www.epa.gov/oem/meth_lab_guidelines.pdf (accessed March 31, 2010).

Submitted 2009; revised 2009; accepted 2009.

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