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Cleanup of Clandestine Drug Laboratory Guidance

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Preface

Michigan Public Act 260 (MCL 33312103) and 258 (MCL 125.485a) of 2006 authorized the Michigan Department of Community Health (MDCH) to develop guidance for the assessment and cleanup of indoor environments that have been used as clandestine drug laboratories (CDLs). The CDL Stakeholder Group was convened to assist MDCH in these efforts. MDCH gratefully acknowledges the assistance of the following:

Mike Allen – Ingham County Health Department
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Mitchell Adelman - Michigan Department Environmental Quality
David O'Donnell - Michigan Department Environmental Quality

MDCH wishes to also acknowledge the technical assistance and support of Erik Janus in the development of this guidance.

Questions regarding cleanup of CDLs may be directed to the MI TOXIC Hotline at (800) 648-6942.

Resources and information about methamphetamine and other illicit drugs may be found at http://www.michigan.gov/meth.

Acronyms and Abbreviations

CIH - Certified Industrial Hygienist

CDL - Clandestine drug laboratory

COC - Contaminant of concern

cm^2 – square centimeter

EA – Enforcing agency

HAZWOPER – Hazardous Waste Operations and Emergency Response

HEPA – High efficiency particulate air

HVAC - Heating, ventilation, and air conditioning system

ISDS – Individual sewage disposal system

MCL – Michigan Compiled Laws

µg/100 cm^2 - Micrograms / 100 square centimeters

MIOSHA – Michigan Occupational Safety and Health Administration

MDCH – Michigan Department of Community Health

MDEQ – Michigan Department of Environmental Quality

MSP – Michigan State Police

P2P – Phenyl–2-propanone

PPE – Personal protective equipment

QA/QC – Quality assurance / quality control

DEA - U.S. Drug Enforcement Authority

VOCs – Volatile organic chemicals

Glossary of Terms

Certified Industrial Hygienist (CIH) - A person who has met the experience and education requirements and has passed the examination established by the American Board of Industrial Hygiene, and holds a current certification.

Chemical storage area - Any area where chemicals associated with the processing of controlled substances are stored or have come to be located.

Clandestine drug laboratory (CDL) - An illicit operation consisting of a sufficient combination of apparatus and chemicals that either has been or could be used in the manufacture or synthesis of controlled substances.

Clandestine drug laboratory determination - A written finding issued by MDCH regarding likely contamination and the resulting health and/or safety hazards present at a CDL.

Cleanup of clandestine drug laboratory report - A written report documenting all pre-assessment, decontamination, and post decontamination assessment actions taken at a CDL.

Cleanup criteria - The numerical value, established by MDCH that causes the consultant to determine if an area is compliant or noncompliant based on the results of sampling conducted in accordance with Appendix B of this guidance.

Consultant – A certified industrial hygienist, or other appropriate professional as approved by the enforcing agency, who is independent of the Contractor

Contaminant - A chemical, chemical residue or compound that may be present and may pose an immediate or long-term threat to human health and the environment.

Contamination or contaminated - The presence of chemical residues, which may present an immediate or long-term threat to human health or the environment.

Contractor - One or more individuals or commercial entities hired to perform decontamination work.

Cooking area - Any area where illicit drug manufacturing is occurring or has occurred.

Decontamination - The process of reducing the level of contamination to the lowest practical level using currently available methods. At a minimum, decontamination must reduce contamination of specified substances below either the extant regulatory limits or the concentrations provided in section 5.3 of this guidance.

Demolition - Wrecking or taking out any load-supporting structural member, including any related handling operations.

Disposal - Handling, transportation and ultimate disposition of materials removed from contaminated properties.

Documentation - Preserving a record of an observation through writings, drawings, photographs, or other appropriate means.

Dwelling – Any house, building, structure, tent, shelter, trailer or vehicle, or portion thereof, except railroad cars on tracks or rights-of-way, which is occupied in whole or in part as the home, residence, living or sleeping place of 1 or more human beings, either permanently or transiently, as provided at MCL 333.12103(3).

Enforcing Agency - The MDCH, local health department, or other local government agency that issues an order to vacate a CDL site.

Encapsulation - Applying a surface sealant to create a physical barrier intended to decrease or to eliminate the potential for exposure to residual contaminants that may exist beneath the physical barrier even after decontamination.

Functional space - A space where the spread of contamination may be expected to occur relatively homogeneously, compared to other functional spaces. The functional space may be a single room or a group of rooms, designated by a consultant who, based on professional judgment, considers the space to be separate from adjoining areas with respect to contaminant migration. Other typical examples of functional spaces include a crawl space, an attic, and the space between a dropped ceiling and the floor or roof deck above.

HEPA filtration – A filtering system capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles 0.3 microns in diameter or larger.

Illegal drug manufacturing site - A property or dwelling that is used or has been used for the manufacture of illegal drugs.

Independent - A person or business entity who is an employee, agent, representative, partner, joint venturer, shareholder, or parent of subsidiary company of another person or business entity.

Individual sewage disposal system - An absorption system of any size or flow or a system or facility for treating, neutralizing, stabilizing, or disposing of sewage which is not part of or connected to a sewage treatment works.

Methamphetamine - Dextro-methamphetamine, levo-methamphetamine, and unidentified isomers of the same, any racemic mixture of dextro/levo methamphetamine, or any mixture of unidentified isomers of methamphetamine. The term includes derivatives, conjugates, oxides, and reduced forms of the basic structure of Methamphetamine. For the purposes of this guidance, this term also includes amphetamine.

Methcathinone – (2-(methylamino)-1-phenyl-propan-1-one) A stimulant drug produced by the oxidation of ephedrine.

Micro vacuum sample or vacuum sample - A non-airborne dust sample collected from a known surface area of a porous surface or material using standard micro vacuum sampling techniques as described in Appendix X of these regulations.

Negative air unit - A portable exhaust system equipped with HEPA filtration and capable of maintaining airflow out of the contaminated area at an adequate rate to reduce pressure of the contained area relative to the remainder of the building, reducing cross-contamination from the controlled area.

Non-porous surface - A surface that does not readily admit the passage of gas, residue, or liquid through its pores or interstices.

Porous surface - A surface that readily admits the passage of gas, residue or liquid through its pores or interstices.

Preliminary assessment - An evaluation of a property to determine the current condition, including the nature and extent of observable or detectable contamination, chemical storage and disposal.

***Prima facie* evidence –** Evidence that is sufficient or adequate without further proof or reasoning.

Property – Real property: land and anything affixed to it including but not limited to dwellings, buildings and other structures.

Property owner - The person holding fee title to real property. "Property owner" also means the person holding ownership or title to a dwelling as defined at MCL 333.12103(3).

Real property – A legal term meaning land and anything affixed to it.

Type II landfill – A municipal solid waste landfill licensed under the 2005 Solid Waste Management Act Administrative Rules promulgated pursuant to Part 115 of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Waste disposal area -Any area where chemicals used or generated in the manufacture of illegal drugs are disposed or have come to be located.

Wipe sample - A surface sample collected by wiping a sample media on the surface being sampled in accordance with Appendix X and X of this guidance.

TABLE OF CONTENTS

List of Tables

List of Appendices

1. INTRODUCTION

The Michigan Department of Community Health (MDCH) developed this guidance document for the assessment and cleanup of Clandestine Drug Laboratories (CDLs) in the state of Michigan. The guidance contained in this document is based on current scientific information and other states' guidance documents, and will be updated as knowledge and decontamination practices advance.

A CDL is defined by the U.S. Drug Enforcement Authority (DEA) as "an illicit operation consisting of a sufficient combination of apparatus and chemicals that either has been or could be used in the manufacture or synthesis of controlled substances." CDLs can be found in private residences, motel and hotel rooms, apartments, house trailers, mobile trailers, commercial buildings, cars, boats, and outbuildings such as sheds or pole barns. They are often located in remote areas where telltale odors will not be detected, but they can also be found in multi-family dwellings and hotel or motel rooms where neighbors can be affected by chemical fumes and other contaminants.

The manufacture and use of illegal drugs results in the release of chemical precursors and the drug itself into the indoor air. These chemicals settle out onto walls, floors, other surfaces, furniture and personal belongings. Chemicals can also be spilled or otherwise released onto surfaces. People who enter or live in former CDLs can be exposed to this contamination through breathing the air or touching contaminated surfaces. Small children may be at particular risk of exposure because they engage in behavior that will transfer contaminants from objects or their hands to their mouths where the chemicals are swallowed.

CDL apparatus, chemicals, or waste products may also be found in outdoor environments, either at sites where illicit drugs have been manufactured or at dump sites. The determination regarding whether the property is likely to be contaminated and whether it constitutes a human health hazard must be made on a case-by-case basis.

PA 260 of 2006 [MCL 333.12103(3)] addresses dwellings or properties that have been used as a CDL. The law defines a "dwelling" as "any house, building, structure, tent, shelter, trailer or vehicle, or portion thereof, except railroad cars on tracks or rights-of way, which is occupied in whole or in part as the home, residence, living, or sleeping place of 1 or more human beings, either permanently or transiently."

Under this definition dwellings include, but are not limited to:

- Homes (conventional houses, manufactured houses, apartments, etc.).
- Hotel or motel room(s).
- Travel trailers and other recreation vehicles with sleeping quarters.
- Boats with sleeping quarters.

The term "property" means real property; land and anything affixed to it including, but not limited to, buildings or structures that are not used as dwellings (e.g. outbuildings such as sheds, pole barns, etc).

1.1. Illegal Drugs

Methamphetamine is not the only illicit drug manufactured at CDLs in Michigan, but it is currently the most common and is the focus of this guidance document. Other illegal drugs that

may be manufactured in Michigan include methcathinone and LSD (lysergic acid diethylamide). This guidance will be updated to address these and any additional illicit drugs as needed.

The potential health effects of methamphetamine depend upon how much a person is exposed to, how the chemical enters the body (dermal contact, inhalation, ingestion), how long a person is exposed and the characteristics of the exposed person (e.g. age, health status). Methamphetamine is a central nervous system stimulant. When taken in small doses, effects can include euphoria, increased alertness, paranoia, decreased appetite, and increased physical activity. At higher doses, methamphetamine can cause cardiovascular effects including increased heart rate, chest pain, hypertension, irreversible damage to blood vessels in the brain, and stroke.

Methamphetamine may be prescribed by a doctor for the treatment of narcolepsy, attention deficit disorder, and short-term use for obesity. There is no clinical reason to prescribe methamphetamine to children less than six years of age.

Most of the available information concerning the toxicity of methamphetamine comes from abuse or overdose scenarios. Psychological effects of long-term abuse of methamphetamine include paranoia, hallucinations, repetitive behavior patters, and delusions of parasites or insects on the skin. Abusers often exhibit violent tendencies. Systemic effects of an overdose include hyperthermia, tremors, metabolic acidosis, renal failure and aortic dissection.

Infants who are born to mothers that are abusing methamphetamine while pregnant may exhibit prenatal effects including growth retardation, prematurity, and birth defects. At birth, these infants may exhibit withdrawal symptoms and long lasting effects on behavior are possible. Methamphetamine is readily excreted in breast milk and nursing infants may be exposed as a result of their mother's environmental exposure. Children who crawl and/or play on the floor may be exposed to residual methamphetamine contamination by putting their hands or objects into their mouths.

1.2. Limitations

PA 260 of 2006 [MCL 333.12103(3)] provides authority only for dwellings and property as defined in this document that have been the site of the ***manufacture*** of illegal drugs. As a result, MDCH cannot apply this guidance to vehicles not used as dwellings (e.g. cars, storage trailers, etc.), or to dwellings or property where illegal drugs have been used but not manufactured. Scientific investigation suggests that contamination is likely to be present where illegal drugs have been smoked (Martyny 2004a). The procedures described in this guidance may be used voluntarily where PA 260 does not apply.

This document is limited to removal of residual contamination. Trained law enforcement personnel will perform the removal of gross hazardous materials to secure a CDL. *Guidelines for Law Enforcement for Cleanup of Clandestine Drug Laboratories* (DEA, 2005) discusses the detailed procedures for CDL removal.

2. NOTIFICATION, DETERMINATION, AND THE ORDER TO VACATE

2.1. Notice of an Illegal Drug Laboratory

PA 260 requires that the law enforcement agency that discovers a CDL notify MDCH and the local health department within 48 hours of discovery. If children are present at the scene, law enforcement will also notify the Department of Human Services (DHS) as required under the *Michigan Drug Endangered Children Response Protocol* (MDCH 2006). If local law

enforcement has the lead at the scene, they will inform the Michigan State Police (MSP). Likewise, MSP will inform local law enforcement where MSP has the lead.

The "Notification of Clandestine Drug Laboratory" Form (Appendix A) is used by law enforcement to provide written notification. The notification should include:

- Date of the seizure (i.e., "bust")
- CDL address, including city and county
- The property owner's name and address (if known)
- The name of the lead law enforcement agency with a contact name and phone number
- Police report number
- Evidence of recent manufacturing or smoking illegal drugs
- Type of drug manufactured
- Any evidence of environmental contamination
- Type of building or structure where the CDL was found
- The number of adults and children evacuated from the site
- List of hazardous materials found and whether or not they were removed

Additional information that would be helpful in determining if the site is contaminated includes:

- Production method last used, if known
- If the CDL was active when found
- Location of drug manufacture within the dwelling or on the property

2.2. Law Enforcement On-Site Actions

Following the discovery of a CDL, law enforcement officers with special training will secure the site and arrange for the removal of hazardous materials and laboratory equipment. After the law-enforcement agency completes their investigative work, access to the property must be limited to prevent untrained individuals from entering the area and to reduce cross-contamination to other areas. Law enforcement will post warning signs indicating that the dwelling and/or property is potentially contaminated. Only authorized personnel (i.e., law enforcement officers, health officials, consultants and/or contractors who were hired to assess or decontaminate the CDL) should enter the site. With permission of the MDCH or the local health department, property owners, an authorized agent, and/or former residents may enter the CDL to retrieve personal property.

Recreational vehicles, campers, and other mobile dwellings where a CDL has been discovered should be impounded pending determination of contamination and subsequent action (e.g., assessment and/or destruction).

2.3. CDL Determination

PA 260 requires that MDCH make the CDL Determination in cooperation with the local health department within 14 days after receiving a notice from law enforcement, or as soon thereafter as practically possible. The CDL Determination will include recommendations for further action including whether or not the dwelling and/or property should be vacated. The decision to vacate a property is dependent on if the:

- Property is likely contaminated, and
- Contamination poses a hazard to public health and/or safety.

MDCH must consider illegal drug manufacturing as *prima facie* evidence of likely contamination that may constitute a hazard to the health or safety of those who occupy those premises. MDCH will request additional information from the lead law enforcement contact person where necessary to make an informed decision.

MDCH will provide the CDL Determination to the local health department by electronic facsimile and by first class mail. MDCH will notify the property owner or an authorized property agent, if applicable, of the CDL Determination by certified mail. Additional copies will be sent by first class mail to MSP, the local law enforcement agency, and the Michigan Department of Environmental Quality (MDEQ) if environmental contamination is suspected.

2.4. Enforcing Agency (EA)

MDCH, the local health department or another local government agency may serve as the Enforcing Agency (EA). The EA is the state or local agency that issues an order to vacate a CDL. Local or regional health departments or other local agencies are encouraged to serve as the EA since they are closer to the scene and more familiar with local services. In the event no local agency assumes these responsibilities, MDCH is required to act as the EA. Law enforcement personnel should always escort EA personnel when performing any on-site activities at CDLs. EA personnel performing CDL inspections or assessments should have current Hazardous Waste Operations and Emergency Response Training (29CFR1910.120).

2.5. Order to Vacate

If the CDL Determination recommends that the dwelling or property be vacated, the EA will issue an order to vacate and the property owner will be served by certified mail or by an officer authorized to serve a warrant. The order to vacate will include:

- Information about the health or safety hazard present at the site.
- A summary of the owner's and occupant's responsibilities under this order.
- Information to assist the property owner in establishing that the risk of contamination no longer exists.

The order to vacate will also be posted on the dwelling or property. The posted notice will state that the site is an "Illegal Drug Manufacturing Site", may be dangerous to enter, and may not be entered unless authorization has been granted by MDCH or the local health department.

Under administrative rules promulgated to implement PA 260 it will be unlawful for anyone except MDCH or the local health department to remove the posted notice. With the exceptions of law enforcement officers, health officials or their agents, or consultants and contractors that are assessing or decontaminating the site, it will be unlawful for anyone to enter without permission from MDCH or the local health department.

The owner of the property or dwelling subject to an order to vacate will act promptly to vacate the occupants within 24 hours following the notice and will prevent by reasonable means the entry, re-occupancy or any other use of property or dwelling until the order is removed by MDCH or the local health department.

Under some circumstances, the CDL Determination may recommend further investigation in lieu of vacating the dwelling or property. These circumstances include:

- The CDL was believed to have been operated only in a structure not likely to be used as a dwelling (e.g. a lawn shed or a utility trailer). The CDL Determination will recommend assessment of the structure.
- The CDL was believed to have been operated outside of a structure and environmental contamination is possible.

When a CDL is discovered in a multi-family dwelling (e.g., apartment building the CDL Determination may recommend expanding the assessment of the surrounding units in addition to vacating the CDL site.

3. PRELIMINARY ASSESSMENT

A site-specific preliminary assessment is performed to determine the extent of CDL contamination and to identify appropriate decontamination procedures. At the discretion of the EA, an initial site inspection may be conducted to identify circumstances that will dictate the scope of the site assessment (see section 2.5).

3.1. Qualified Personnel

MDCH does not have the authority to qualify or certify companies to conduct the assessment or evaluation of CDLs. The State Of Michigan does not license, permit or recommend cleanup consultants or contractors.

A consultant will supervise the cleanup actions at illegal drug manufacturing sites including but not limited to, any of the following:

- Performing a preliminary site assessment
- Developing a cleanup plan
- Supervising decontamination
- Supervising site sampling
- Certification of decontamination

MDCH recommends that the consultant who conducts the preliminary site assessment be a Certified Industrial Hygienist (CIH). Other appropriate professionals who possess the acceptable qualifications and professional experience may be approved by the EA. At a minimum the following qualifications should be met:

- A four-year degree in science or engineering and/or a professional certification such as a Certified Industrial Hygienist
- 40-Hour Hazardous Waste Operations Training (HAZWOPER 29 CFR 1910.120)
- Illicit drug-related training.
- Additional specialized training such as supervisor training, confined space entry, sharps/pathogen.

3.2. CDL Site-Specific Assessment

Site assessment information to be collected will include, but is not limited to:

- Property description including the physical address, legal description, number and type of structures present, description of adjacent and/or surrounding properties, and any other observations made.

- Review of available law enforcement reports that provide information regarding the processing method, chemicals present, cooking areas, chemical storage areas, and observed areas of contamination or waste disposal.
- Identification of structural features that may indicate separate functional spaces, such as attics, false ceilings and crawl spaces, basements, closets and cabinets.
- Identification of manufacturing and processing methods presumed or suspected based on observations and law enforcement reports.
- Identification of chemicals used, based on observations, law enforcement reports, and knowledge of manufacturing method(s).
- Identification and documentation of areas of contamination. This identification may be based on visual observations, law enforcement reports, proximity to chemical storage areas, waste disposal areas, or cooking or processing areas, or based on professional judgment of the consultant. This identification may also be based on assessment sampling.
- Identification and documentation of chemical storage areas.
- Identification and documentation of waste disposal areas.
- Identification and documentation of cooking or other processing areas
- Identification and documentation of signs of contamination such as staining, etching, fire damage.
- Identification and documentation of environmental contamination including areas of dead vegetation, burn or trash pits, or discolored soil.
- Inspection of plumbing system integrity, and identification and documentation of potential disposal into the sanitary sewer or individual sewage disposal system (ISDS).
- Identification of adjacent units and common areas where contamination may have spread or been tracked.
- Identification and documentation of heating, ventilation, and air conditioning (HVAC) systems including common ventilation with adjacent units or common areas.
- Photographic documentation of property conditions, including cooking areas, chemical storage areas, waste disposal areas, and areas of obvious contamination.

3.3. Personal Property

Personal property such as clothing, toys, appliances, and furniture in a CDL may be contaminated as a result of manufacturing or use of illegal drugs. Personal property found in a CDL should not be removed without permission of the EA. Section 4.3 provides guidance on cleaning and/or disposing of personal property.

3.4. Outdoor Environmental Contamination

Hazardous substances from drug production may have been released directly to the outside environment by dumping onto the ground or indirectly through the wastewater system. Hazardous substances that have been released to soils or water may be regulated by the Michigan Department of Environmental Quality (MDEQ) under the authority of Part 201 and/or Part 31 of

the Natural Resources and Environmental Protection Act, 1994 P.A. 451, as amended. The MDEQ has developed land-use based cleanup criteria for many hazardous substances associated with CDLs. These criteria are available at the following link: www.michigan/gov/deq.

Prior to contacting the MDEQ, a consultant should perform an initial site inspection to identify areas of the property where hazardous substances may have been released. Areas of dead or stressed vegetation, stained soils, odors emanating from soils, etc. may be indicative of a release. A consultant should assess all existing private wells and septic systems (including the drain field) and collect samples when appropriate.

If it is determined that CDL activities have resulted in environmental contamination, the consultant will contact the Remediation and Redevelopment Division of the MDEQ to discuss notification and cleanup requirements. A map of office locations and district boundaries is available at www.deq.state.mi.us/documents/deq-rrd-officemap-EQP4410.pdf.

3.5. Utility Buildings

Utility buildings that are attached to a living space or could be easily converted into a living space, or areas where children would likely play (e.g., a tree house, or playhouse) are evaluated as a dwelling.

Unattached utility buildings that are not readily convertible into a dwelling are not subject to a full preliminary assessment, but should be inspected for hazardous waste storage areas, evidence of hazardous material spills or emissions, and/or environmental contamination consistent with section 3.4.

3.6. Mobile Structures

This category includes but is not limited to recreational vehicles, campers, trailers, boats, utility trailers, airplanes, and other habitable enclosures that move readily on wheels or skids. Most of these will fall under the definition of a dwelling provided at MCL 333.12103(3).

Utility trailers and other similar articles intended solely for the storage or transport of material should be assessed for bulk contamination that could affect the environment, but are not treated as dwellings.

Vehicles that are not used as dwellings do not fall under the authority of PA 260. However, local ordinances may require that vehicles that have been used as a CDL be impounded and assessed for further action (e.g., decontamination or demolition).

3.7. Pre-Decontamination Sampling

Pre-decontamination sampling is intended to answer the question: “Is there evidence of the presence of contamination in a specified area?” The assumption is that an area is clean and pre-decontamination sampling is conducted to provide support for this assumption. Any data that disproves this assumption, including police reports or visual observations, will lead to the conclusion that the area is contaminated and will require decontamination. Therefore, pre-decontamination sampling is not required in areas that are known or assumed to be affected and will be subsequently decontaminated. Pre-decontamination sampling is recommended only in areas that are thought to be unaffected by CDL activities.

Contaminants of concern (COCs) that are found at CDLs will vary with the type of illegal drug and the method of production. After the production of illegal drugs has been interrupted and law

enforcement agencies have removed bulk chemicals and production wastes, most chemical hazards are reduced. Volatile chemicals and solvents such as ammonia, methanol, ether, or acetone may still be present in indoor air, but will be readily removed by ventilation of the structure.

Some residual contamination from the manufacture of illegal drugs can persist after production has ceased. These chemicals can be aerosolized into the air and deposit onto structure surfaces and contents. At CDLs where methamphetamine is produced, persistent COCs may include the following:

Corrosives: Generally, pH levels less than 5 or greater than 9 are corrosive. Some corrosives commonly used at methamphetamine labs include hydrochloric acid, sulfuric acid, sodium hydroxide, anhydrous ammonia, phosphoric acid and muriatic acid. Surface pH testing is recommended to ensure that corrosives are not present at levels that pose a health hazard. All affected surfaces should be cleaned to a neutral pH of 6 to 8.

Volatile Organic Chemicals (VOCs): Commonly used VOCs (solvents) include acetone, benzene, ether, freon, hexane, isopropanol, methanol, toluene, and xylene. VOC testing should be conducted throughout the CDL for assessment purposes, as well as for the safety of site workers.

Phosphorus and Iodine: Removal of stained materials is recommended for contamination involving red phosphorus, iodine crystals, and tincture of iodine.

Mercury and Lead: These contaminants are typically only found where the pheyl-2-propanine (P2P) method was used to produce methamphetamine.

Methamphetamine: Residual methamphetamine may be present on all porous and non-porous surfaces including walls, floors, carpeting, furniture, window treatments, and personal property. The absence of methamphetamine on non-porous horizontal surfaces such as floors and/or vertical surfaces such as walls may be used as an indication that an area has not been affected by CDL activities. Rapid-detection immune assays are acceptable for use in a preliminary assessment and may be used on horizontal and vertical non-porous surfaces.

Research indicates that levels of methamphetamine contamination will increase on vertical surfaces from the floor to the ceiling. Therefore, pre-decontamination samples should be taken vertically higher within a room. Appendix B provides guidance for preliminary assessment sampling for methamphetamine.

3.8. Cleanup plan

The consultant will develop a cleanup plan using the information collected in the preliminary assessment including the results of any pre-decontamination sampling. The minimum information required in the cleanup plan includes:

- Site health and safety plan
- Delineation of the functional spaces and decontamination procedures required for each
- Listing of items that require decontamination or disposal
- Recommended decontamination technique for each functional space and item
- Recommended decontamination of the HVAC system, if needed
- Recommended decontamination of the plumping and waste water system, if needed

- Recommendations to address environmental contamination, if needed

The consultant will provide a copy of the cleanup plan to the EA, the decontamination contractor, and the property owner or an authorized property agent, if applicable. The consultant is required to maintain a hard or electronic back-up copy of this work plan for a minimum of seven years.

4. DECONTAMINATION PROCEDURES

Decontamination is the process of reducing the level of contamination to the lowest practical level using currently available methods. At a minimum, decontamination must reduce contamination of specified substances below either the available regulatory limits or the concentrations specified at section 5.3.

4.1. Qualified Personnel

Contractors who are independent from the consultant that prepared the cleanup plan will perform the necessary decontamination tasks. Contractors must have a complete worker safety and health program and be fully compliant with Michigan Occupational Safety and Health Administration (MIOSHA) regulations. General site workers should have completed the 24 Hour HAZWOPER training at minimum.

All site workers should be provided with appropriate personal protective equipment (PPE). Guidelines for recommended PPE for CDL site related activities are provided in Appendix B of the Minnesota Department of Health "Clandestine Drug Lab General Cleanup Guidance," which can be found at http://www.health.state.mn.us.

Property owners may perform some or all of the decontamination tasks under limited circumstances. However, property owners are not likely to have completed HAZWOPER safety training. In most cases, the property owner or representatives of the property owner should not perform decontamination tasks where:

- Negative air containment is required
- Respiratory protection more extensive than an N95 dust mask is needed
- Drugs other than methamphetamine were manufactured
- There was a methamphetamine-related fire in the dwelling
- Contamination is considered extensive
- The cleanup plan requires an extensive amount of demolition

In these situations, the property owner(s) or representative may be able to perform other labor-intensive non-hazardous activities (e.g., washing furniture).

4.2. Ventilation and Containment

Ventilation of affected structures is recommended before the preliminary assessment to remove VOCs from the indoor air. Open all windows and doors and use exhaust fans or blowers to dissipate VOCs. Indoor air should be monitored with a photoionization detector (PID) or another equivalent direct reading instrument for organic vapors after ventilation, frequently throughout the decontamination process to ensure worker safety, and after decontamination is complete. Accurate records of sampling locations and instrument readings must be maintained. A negative air unit equipped with a high efficiency particulate air (HEPA) filtration system will be used during extensive decontamination processes to reduce airborne particulates, and limit or prevent the transfer of airborne contamination from dirty to clean areas.

Containment is used during the decontamination process to isolate work areas within a structure and prevent the spread of contamination to clean areas. Containments are constructed in room openings with heavy plastic sheeting (6 millimeter thickness or greater) and duct tape. Tack strip framing may be used to strengthen the containment or provide a more suitable surface to attach the plastic sheeting. A zipper-wall is recommended if frequent re-entry will be necessary.

Containment should remain in place until post-decontamination sampling demonstrates that the site is in compliance with the cleanup criteria provided at Section 5.3.

4.3. Personal Property

Personal property such as clothing, household furnishings, kitchenware, toys, or other structural contents found in a CDL are presumed to be contaminated. All personal property (with some exceptions noted below) must be decontaminated or disposed of in a Type II landfill. Stained or etched items and items that cannot be effectively cleaned must always be made unusable and disposed of in a Type II landfill.

Household contents and guidance for their disposition are provided below. Contact the EA if additional guidance is needed.

Clothing, small rugs, curtains or other washable cloth items, washable shoes
These items may be decontaminated by double washing with detergent in either hot or warm water. This guidance is acceptable for any porous item that can be fully immersed in water in a standard washing machine.

Non-washable clothing and shoes
This category includes, but is not limited to, leather, woolen or other "dry clean only' items. No acceptable decontamination protocol is available. These items must be made unusable and disposed of in a Type II landfill.

Children's Toys
Stained or etched toys that have been affected by the production of methamphetamine should be made unusable and disposed of in a Type II landfill.

Stuffed toys are difficult to clean and most should be made unusable and disposed of in a Type II landfill. An exception can be made at the discretion of the EA for a child's security item if such item can be effectively washed as specified under the guidance for clothing.

Bicycles, wagons, or other toys made of metal may be washed in detergent and water. Wash water must be collected for disposal in a sanitary sewer or functioning septic system.

Professional discretion is required to determine if plastic toys can be decontaminated. Simple toys made from hard plastic can be washed in a conventional dishwasher using hot water and detergent. Toys that have crevices, electronic components, or that are made of softer plastic may be difficult to decontaminate and should be made unusable and disposed of in a Type II landfill.

Infant toys such as teethers, rattles, or pacifiers that a child will put in the mouth should always be made unusable and disposed of in a Type II landfill.

Upholstered fabric or leather furniture, mattresses
Conventional upholstery cleaning methods will not remove chemical contamination from these furnishings. These items should be made unusable and disposed of in a solid waste

landfill. An exception can be made at the discretion of the EA for high value items where CDL contamination is minimal and micro vacuum sampling is conducted.

Carpeting, large rugs
Conventional carpet cleaning methods will not remove chemical contamination from carpets or large area rugs. These items should be made unusable and disposed of in a Type II landfill. Following removal of carpeting or other floor covering, HEPA vacuuming is required to remove contaminated dust and other debris from floors.

Kitchen items, flatware, dishes, cookware, other non-porous household goods
Stained or etched items that have been affected by the production of methamphetamine should be made unusable and disposed of in a Type II landfill.

Metal flatware, ceramic dishes, glasses, cookware or other kitchen items may be washed in a conventional dishwasher using hot water and detergent.

Plastic infant bottles, bottle nipples, or other infant/toddler eating utensils and dishes should be made unusable and disposed of in a Type II landfill.

Other non-porous household items (e.g., non-wood picture frames, non-electric tools, ceramic articles, etc.) may be washed in a conventional dishwasher or by hand in detergent and water as appropriate.

Appliances and Electronic Goods
Kitchen appliances such as refrigerators and stoves may be double washed with detergent and water solution, followed by a clean water rinse. Power tools kept in outbuildings may be wiped clean.

Professional judgment is recommended for other electronic appliances such as televisions and stereos where CDL chemicals may have seeped into unsealed casings. When operated, these items become warm and may emit methamphetamine or VOCs into the indoor air.

Paper, photographs, books and magazines
There is no effective way to decontaminate paper goods and they should be made unusable and disposed of in a solid waste landfill. An exception can be made for photographs, family memorabilia, legal documents, or documents or books of historical value. If not heavily contaminated, these items can be aired out in an uninhabited area where chemical contamination can be allowed to dissipate to the ambient air.

4.4. Structural Features and Surfaces

Acoustic Ceiling Tiles must be removed for disposal in a Type II landfill.

"Popcorn" ceilings may contain asbestos. If testing indicates the presence of asbestos, leave the ceiling in place and seal it with a spray-on asbestos-encapsulating product. More information about asbestos removal can be found at http://www.michigan.gov/deq.

Walls, floors, woodwork, and non-textured ceilings must be double washed with cloth rags in hot water and detergent, and then rinsed with clean water. Change rags and water frequently. All cleaning and rinsing water must be collected for disposal in a sanitary sewer or functioning septic system.

Following removal of carpeting or other floor covering, high efficiency particulate air (HEPA) vacuuming is required to remove contaminated dust and other debris from floors. HEPA vacuuming may also be used on other surfaces to remove dust and debris.

Kitchen counter tops, bathroom fixtures must be double washed with detergent and rinsed with clean water. All cleaning and rinsing water must be collected for disposal in a sanitary sewer or functioning septic system. Wooden kitchen counters or other wooden food preparation surfaces must be removed for disposal in a Type II landfill.

Cement and cement block may be power washed. The water must be collected for disposal in a sanitary sewer or functioning septic system.

4.5. Encapsulation

Residual contamination that remains on walls, ceilings, floors, and woodwork after washing as required in section 4.5 may be encapsulated with paint or polyurethane. A primer coat will improve adhesion and should be followed by one or two additional coats of a good quality paint. Oil, urethane, and epoxy products may provide superior isolation of residual contamination, but are more difficult to apply than latex products.

Raw wood structural components or contents that have not been previously coated with paint or other sealant such as varnish or polyurethane finishes are difficult to decontaminate. Removal of these components may be necessary.

Encapsulation of porous structural surfaces composed of cement or brick is required in living spaces and recommended in other locations. Encapsulation may be used in garages and outbuildings without pre-washing of structural surfaces where contamination is minimal.

4.6. Ventilation Systems

Professional cleaning of a forced air heating system is generally required and should be conducted according to the procedures found in Appendix D.

At the discretion of the EA, the minimal cleaning procedures for a forced air heating system shown below may be used where sampling demonstrates that contamination is minimal and/or confined to a limited area.

- Remove the registers and return covers. Wash twice (by immersion if possible) with detergent in warm water. Change water frequently during washing. Rinse registers twice with clean water.
- Vacuum the ducts with a HEPA vacuum as far down as possible with a wand attachment. Wash twice with detergent solution on a sponge or cloth. All wash water must be collected for disposal in a sanitary sewer or functioning septic system.
- Thoroughly vacuum the registers used for hot water or steam heating systems with a HEPA vacuum. Wash all surfaces twice with detergent solution in warm water. Change water frequently during washing. Rinse surfaces twice with warm, clean water. All wash water must be collected for disposal in a sanitary sewer or functioning septic system.

4.7. Plumbing, Sanitary Sewer and Individual Sewage Disposal System

The intact traps of plumbing fixtures should be thoroughly flushed with water. If possible, remove the trap and its contents. Inspect the trap and piping for damage. Damaged traps or drain lines should be replaced and the trap filled with water. Workers performing these tasks should be equipped with chemical resistant PPE including face-splash protection.

Waste chemicals discarded in the sanitary sewer are usually flushed from the system within hours of disposal. Chemicals may remain in the system for longer periods of time if the sewer connection is on a low flow line. The municipal sewer department should be notified if it is suspected that large quantities of chemicals have been released to the system.

Individual Sewage Disposal Systems (ISDSs) should be addressed using the guidance provided in Appendix E.

5. POST-DECONTAMINATION SAMPLING AND REPORTING

Post-decontamination sampling is intended to answer the question: "Are there contaminant levels in excess of the cleanup criteria in a specified area?" The assumption is that an area is contaminated and post-decontamination sampling is conducted to provide support for this assumption. As the area becomes cleaner due to decontamination efforts, it becomes more difficult to support this assumption and the area can be found to be in compliance with the cleanup criteria.

5.1. Sampling

Post-decontamination sampling should be conducted in accordance with the protocols provided in Appendix B.

5.2. Analysis

Analysis of post-decontamination samples should be conducted in accordance with the guidance provided at Attachment C. Immune assays are <u>not</u> acceptable for post-decontamination sample analysis.

5.3. Cleanup Criteria

Table 1 summarizes cleanup criteria for contaminants of concern at CDLs. Cleanup criteria for other contaminants will be added to this list as needed.

Table 1. Acceptable Cleanup Criteria for CDL Related Contaminants

Contaminant	Sample Type	Cleanup Criteria
Methamphetamine	Wipe sample	0.5 µg/100 cm^2
Lead	Wipe sample	40 µg/ft^2
Mercury	Air sample	1 µg /m^3

5.4. Cleanup of Clandestine Drug Laboratory Report

The consultant will prepare a final report to describe the decontamination process and demonstrate the property meets the specified cleanup criteria. The final report must be completed and signed by the consultant and include, but not be limited to the following:

- Property description including physical address, legal description, ownership, number and type of structures present, description of adjacent and/or surrounding properties, and any other observations made.
- A description of manufacturing methods and chemicals used, based on observations, law enforcement reports and knowledge of manufacturing method.
- Copies of law enforcement reports (if available) providing information regarding the manufacturing method, chemicals, cooking areas, chemical storage areas, and areas of contamination or waste disposal.
- A description of chemical storage areas, with a drawing documenting location(s).
- A description of waste disposal areas, with a drawing documenting location(s).
- A description of manufacturing areas, with a drawing documenting location(s).
- A description of areas with signs of contamination such as staining, etching, fire damage, or outdoor areas of dead vegetation, with a drawing documenting location(s).
- The results of the inspection of plumbing system integrity and the identification of sewage disposal mechanism.
- If applicable, a description of adjacent units and common areas where contamination may have spread or been tracked.
- If applicable, an identification of common ventilation systems with adjacent units or common areas.
- A description of the sampling procedures used, including sample collection, handling, and quality assurance/quality control (QA/QC).
- A description of the analytical methods used and laboratory QA/QC requirements.
- A description of pre-decontamination sampling results (if collected) including a labeled drawing of the sample locations. .
- A description of the health and safety procedures used in accordance with MIOSHA requirements.
- A description of each area that was decontaminated and the decontamination procedures used.
- If applicable, a description of the removal procedures used, areas where removal was conducted, and the materials removed.
- If applicable, a description of the encapsulation procedures including the materials used and the location(s) where the encapsulation procedures were performed.
- A description of the waste management procedures used, including handling and final disposition of wastes.
- A description of post-decontamination sampling results including a labeled drawing of the sample locations.
- Photographic documentation of pre- and post-decontamination property conditions, including cooking areas, chemical storage areas, waste disposal areas, areas of obvious

contamination, sampling and decontamination procedures, and post-decontamination conditions.

- A statement from the approved consultant listing their qualifications, including professional certifications within the environmental profession and description of experience in assessing contamination associated with CDL.
- A signed certification statement in one of the following forms, as appropriate:
  - ✓ "I do hereby certify that I conducted a preliminary assessment of the subject property in accordance with the administrative rules and guidance developed by Michigan Department of Community Health (MDCH) for the cleanup of clandestine drug laboratories. I further certify that the property has been decontaminated in accordance with the procedures set forth by the MDCH and that the cleanup standards established by the MDCH have been met as evidenced by testing I conducted."
  - ✓ "I do hereby certify that I conducted a preliminary assessment of the subject property in accordance with the administrative rules and guidance developed by Michigan Department of Community Health (MDCH) for the cleanup of clandestine drug laboratories. I further certify under pain of perjury that the cleanup standards established by the MDCH have been met as evidenced by testing I conducted."

The property owner and consultant shall each retain a copy of the report for a period of seven years.

5.5. Review by Enforcing Agency

The EA will review the CDL Report within 14 days. The EA will determine if:

- All appropriate documents are attached
- All conditions discovered in the site-specific assessment were addressed in the remediation and verification
- The verification report is complete
- The sampling regime was appropriate and consistent with this guidance
- Laboratory data is attached
- The appropriate consultant signs the certification form

If the report does not meet these requirements, the EA will contact the consultant to request clarification or additional information, as appropriate.

If the *Cleanup of Clandestine Drug Laboratory Report* is accepted, the EA will provide a certified letter to the property owner and/or property agent stating the cleanup was acceptable and the residents may now re-inhabit the dwelling.

6. REFERENCES

Burgess, JL, and Chandler, D. 2003. Clandestine Drug Laboratories, in Occupational and Environmental Toxicology, ISBN 0-323-01340-6, Mosby Publ.

DEA, 2005, Guidelines for Law Enforcement for Cleanup of Clandestine Drug Laboratories, www.dea/gov/resources/redboook.pdf.

Colorado Department of Public Health and Environment. 2005. Regulations Pertaining to the Cleanup of Methamphetamine Laboratories, 6 CCR 1014-3, 2005.

Kalamazoo County Health & Community Services Department. Regulations Pertaining to the Cleanup of Methamphetamine Laboratories. www.kalcounty.com/eh/meth.htm.

Martyny, JW, Arbuckle, SL, McCammon, CS, Erb, N 2004a. Methamphetamine Contamination on Environmental Surfaces Caused by Simulated Smoking of Methamphetamine, National Jewish Medical and Research Center, www.njc.org/pdf/Meth%20smoking%20experiment.pdf.

Martyny, JW, Arbuckle, SL, McCammon, CS, Erb, N. 2004b. Chemical Exposures Associated with Clandestine Methamphetamine Laboratories Using the Anhydrous Ammonia Method of Production, National Jewish Medical and Research Center, www.njc.org/pdf/Ammonia%20Meth.pdf.

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Michigan Department of Community Health. 2006. Michigan Drug Endangered Children Response Protocol, , http://www.michigan.gov/documents/Michigan_DEC_Protocol_-_Final_169178_7.doc.

Minnesota Department of Health. 2006. Clandestine Drug Lab General Cleanup Guidance, Minnesota Pollution Control Agency, July 1.

Appendix A

Notice of Site of Illegal Drug Manufacturing

2006 Public Act 258/260

*****To complete this form electronically, use the Tab key (not the Enter key) to move from field to field.*****

Date of Incident: _____ **Current Occupant Name(s):** _____

Address/Location of Drug Lab: County: _____
Street: _____
City: _____ Township (if applicable): _____ Zip: _____

Property Owner (if known): Name: Phone:

Address of Property Owner (if different from Lab):
Street: _____
City: _____ State: _____ Zip: _____

Lead Law Enforcement Agency: **Contact Person:** _____
_____ Number: _____

Number and Ages of Minors on Site: _____

Type of Suspected Drug Lab:
☐ Methamphetamine ☐ Methcathinone ☐ LSD ☐ Other: _____

Is there evidence of recent manufacturing or smoking illegal drugs? ☐ Yes ☐ No
If yes, indicate which, or both, of the following: ☐ Evidence of manufacturing illegal drugs.
☐ Evidence of smoking illegal drugs.

Where did you observe evidence of manufacture, use, storage or disposal?
(Indicate specific areas or rooms) _____

Type of Dwelling (specific location(s) where clandestine lab was operating):
☐ Single-Family Home ☐ Duplex
☐ Multi-Family Apartments ☐ Hotel/Motel
☐ Utility Building (e.g. Barn/Garage) ☐ Other: _____

Is there evidence of spilling, leaking, pouring, emitting, discharge, dumping, or disposing of hazardous substances into the property? ☐ Yes ☐ No

Were Hazardous Substances Removed? ☐ Yes ☐ No
If yes, who removed the substances and when?

Were persons evacuated? _____ **If yes: Number of adults** _____ **Number of children** _____

What was removed?	**Amount (lbs or gallons):**
Acetone ☐	_____
Anhydrous Ammonia ☐	_____
Iodine ☐	_____
Solvents ☐	_____
Red Phosphorous ☐	_____
Ether ☐	_____
Other (please specify if known): _____ ☐	_____

Please fax or email this form to the Department of Community Health, by fax (517)335-9775 or by email to dykemal@michigan.gov. Send additional copies to:

- ***Local Health Department,***
- ***State Police (if performed by local law enforcement,***
- ***Local Sheriffs Office (if performed by State Police).***

Remarks: _____

Rev. (10/27/06)

APPENDIX B

SAMPLING METHODS FOR METHAMPHETAMINE LABORATORIES

PURPOSE

The purpose of this appendix is to provide a procedure for reducing variability in the collection of samples in the characterization of contaminants at illegal drug laboratories. Additional discussion of the sampling theory for sampling techniques described in this appendix are provided in the attachment at the end of this appendix.

Pre-Decontamination sampling

In pre-decontamination sampling, the assumption (hypothesis) is made that the area is clean (i.e. "compliant") and data will be collected to find support for the hypothesis. Data (such as samples) are collected to "prove" the area is compliant. Sampling, if it is performed, is conducted in the areas with the highest probability of containing the highest possible concentrations of contaminants. Any data that disproves the hypothesis, including police records, visual clues of production, storage, or use or documentation of drug paraphernalia being present, is considered conclusive, and leads the consultant to accept the null hypothesis and declare the area non-compliant.

Post-Decontamination sampling

In post-decontamination sampling, the hypothesis is made that the area is non-compliant, and data is collected to test the hypothesis. The role of the consultant in post decontamination sampling is not to demonstrate that the area is "clean," but rather, using biased sampling, to attempt to prove that the area is not clean. The lack of data supporting the hypothesis leads the consultant to accept the null hypothesis and conclude that the area is compliant.

Decision Statement

If, based on the totality of the circumstances, the consultant finds that insufficient evidence exists to support the hypothesis that any given area is non-compliant, that area shall be deemed to be compliant with the cleanup criteria provided at Section 5.3 of the State Of Michigan Cleanup of Clandestine Drug Laboratory Guidance and shall be released. If objective sampling data indicate contamination is less than the cleanup level, that data may be used as prima facie evidence that insufficient evidence exists to support the hypothesis that any given area is non-compliant.

Area Samples

Buildings and Structures

For CDLs whose structural floor plan is not greater than 1,500 square feet, surface sampling shall be collected according to the following protocol.

Exception: for pre-decontamination scenarios, any and all other data may be used in lieu of sampling to reject the hypothesis and deem the area to be contaminated.

- For any given functional space, at least 400 cm^2 of surface shall be sampled, unless the area is assumed to be non-compliant.
- At least 1,000 cm^2 of total surface area must be sampled within any CDL.
- An additional 100 cm^2 must be sampled for every additional 400 square feet of structural floor space.
- No fewer than four samples shall be collected from any CDL identified.

The required sample area shall be composed of no fewer than three discrete samples. Should composite samples be collected, each composite shall consist of no greater than five discrete samples collected in accordance with the procedures outlined in the section in this appendix on Composite Sampling.

Where the CDL is located in a structure other than a single-family dwelling, the potential of fugitive emissions must be considered. For example, if the functional space was located in a hotel room, and evidence of contamination extended into the corridor, the elevator, the lobby, and one adjacent room, there would be four separate functional spaces to evaluate: 1) the primary hotel room, 2) the corridor/elevator complex 3) the lobby, 4) the adjacent hotel room.

Each functional space shall be sampled, unless it is assumed to be contaminated based on other evidence. For example, where a single family dwelling meets the definition of a CDL, and an associated detached garage contains indications of contamination, the dwelling and the garage shall be evaluated separately.

Vehicles

The following guidance is to be used for vehicles that fall under the definition of a dwelling provided at MCL 333.12103(3) and may be used voluntarily or at the direction of a local health department for all other vehicles.

For CDLs in vehicles, surface sampling shall be collected according to the following protocol. Exception: for pre-decontamination scenarios, any and all other data may be used in lieu of sampling to reject the hypothesis and deem the area to be contaminated.

- A minimum of 500 cm^2 of surface shall be sampled, unless the area is assumed to be noncompliant.
- An additional 100 cm^2 must be sampled for every 50 square feet of structural floor space for any large vehicle, such as a recreational vehicle, motor home, trailer, or camper.
- No fewer than three samples shall be collected from any laboratory identified in a vehicle.

The required sample area shall be composed of no fewer than three discrete samples. Should composite samples be collected, each composite shall consist of no greater than five discrete samples collected in accordance with the procedures outlined in the section in this appendix on Composite Sampling.

Sampling Procedures

<u>Non-Porous Surfaces - Wipe Samples</u>

Wipe sampling shall be used to determine the extent of contamination on non-porous surfaces. Wipe samples shall be collected in accordance with the procedures set forth below for either discrete or composite samples. Rapid-detection immune assays (e.g., MethCheck 500) are acceptable for use in a preliminary assessment and may be used on horizontal and vertical non-porous surfaces.

Sample media may consist of one of the following:

- Gauze material, including Johnson & Johnson cotton squares or equivalent.
- Filter paper, including Whatman 40, 41, 42, 43, 44, 540, 541, Ahlstrom 54, VWR 454, S&S WH Medium, or other filter paper with equivalent performance.

The following procedure is for collecting discrete wipe samples from non-porous surfaces.

1. Attach disposable templates or masking tape to the area(s) to be sampled, being careful not the touch the area within the template. The sample area shall be 100 cm^2 (10cm by 10cm) or a multiple of 100 cm^2.
2. Prepare a rough sketch of the area(s) to be sampled.
3. The sample media should be wetted with distilled water or solvent (isopropyl alcohol or methanol) to enhance collection efficiency.
4. Use a new set of clean, non-powdered impervious gloves for each sample to avoid contamination of the sample media by previous samples and to prevent contact with the substance.
5. Press the sample media down firmly, but not excessively, with the fingers, being careful not to touch the sample surface with the thumb. Blot rough surfaces uniformly instead of wiping. Wipe smooth surfaces as described below.
6. Wiping may be done by one of the following methods:
    a. Square method: Start at the outside edge and progress toward the center of the surface area by wiping in concentric squares of decreasing size.
    b. "S" method: Wipe horizontally from side-to-side in an overlapping "S"-like pattern as necessary to completely cover the entire wipe area.
7. Without allowing the sample media to come into contact with any other surface, fold the sample media with the sampled side in.
8. Use the same sample media to repeat the sampling of the same area. If using the "S" method, the second pass shall be sampled by wiping with overlapping "S"-like motions in a top-to-bottom direction.
9. Fold the sample media over again so that the sampled side is folded in. Place the sample media in a sample container, cap and number it, and note the number at the sample location on the sketch. Include notes with the sketch giving any further description of the sample.
10. At least one sample media blank, treated in the same fashion but without wiping, should be submitted for every 10 samples collected.

When collecting composite samples, the procedure outlined above shall be used with the following exceptions:

1. A single pair of gloves may be used to collect each single sample that will be part of a composite sample. However, a new pair of gloves must be used for each set of composite samples.
2. All individual samples that make up a composite sample must be placed in one sample container.

Porous Surfaces - Vacuum Sampling

Vacuum sampling shall be used to determine the extent of contamination on porous surfaces, including carpeting, drapery, upholstery, clothing, and other soft goods. Vacuum samples shall be collected in accordance with procedures for sample collection described in section 9 of the American Society for Testing and Materials (ASTM) Method D5756-02, Standard Test Method for Microvacuum Sampling and Indirect Analysis of Dust by Transmission Electron Microscopy for Asbestos Mass Concentration. Vacuum samples will be analyzed for methamphetamine and/or derivatives in accordance with analytical methods described in Appendix B of this regulation.

Wipe sampling of porous surfaces may be conducted during the preliminary assessment, in lieu of vacuum sampling, in order to obtain a qualitative (absence or presence) identification of a chemical. Wipe sampling shall not be used to demonstrate that cleanup levels have been met on porous surfaces.

Outdoors

For CDLs where the laboratories were operated in the outdoor environment or where waste was disposed of outdoors the potential for soil and groundwater contamination must be evaluated. After gross contamination has been removed (e.g., solid wastes, obviously stained soils, ash and debris from burn piles or burial pits) soil sampling is necessary to determine if residual contamination remains. Generally for dumps, burn piles and lab locations a biased sampling strategy may be sufficient however for unknown or potentially large contamination areas other sampling strategies may need to be employed.

The Michigan Department of Environmental Quality (MDEQ) has established soil and ground water cleanup levels for contamination and provides guidance documents for sampling and analysis of sites of environmental contamination. These documents can be found on the MDEQ's web site at www.michigan.gov/deqrrd, under the heading Operational Memoranda, Cleanup Requirements, Forms, and Guidance.

For assistance with sampling strategies see S3TM - Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria under Guidance Documents for Part 201 or Part 213 programs.

For assistance with cleanup criteria and sampling and analysis guidance see MDEQ Operational Memoranda for Part 201 and Part 213 Programs.

Composite Sampling

Composite sampling is permitted, as described herein. The consultant may not use composite sampling unless in their professional judgment, contamination is expected to be relatively evenly dispersed throughout a given area, such that the sampling will accurately represent the conditions of the drug laboratory. If compositing is used, then the composite shall consist of no greater than five discrete samples. Any composite sampling must consist of like media, matrices or substrates. The mixing of media, matrices or substrates is not permitted. All individual samples (designated as g), from which any single composite is formed must be of equal volume (for liquids), equal surface area (for surface wipe sampling or vacuum sampling) or equal weight (for solids).

Composite sampling may be implemented using one of the following sampling designs. The consultant shall chose the sampling design based upon the specific conditions of the drug laboratory being assessed.

Simple Random Composite Sampling

Figure 1A below illustrates a simple random composite sampling design. In this figure, the sampled area could represent any surface or media about which a decision must be made (such as a series of walls, or carpeting or even contaminated soils).

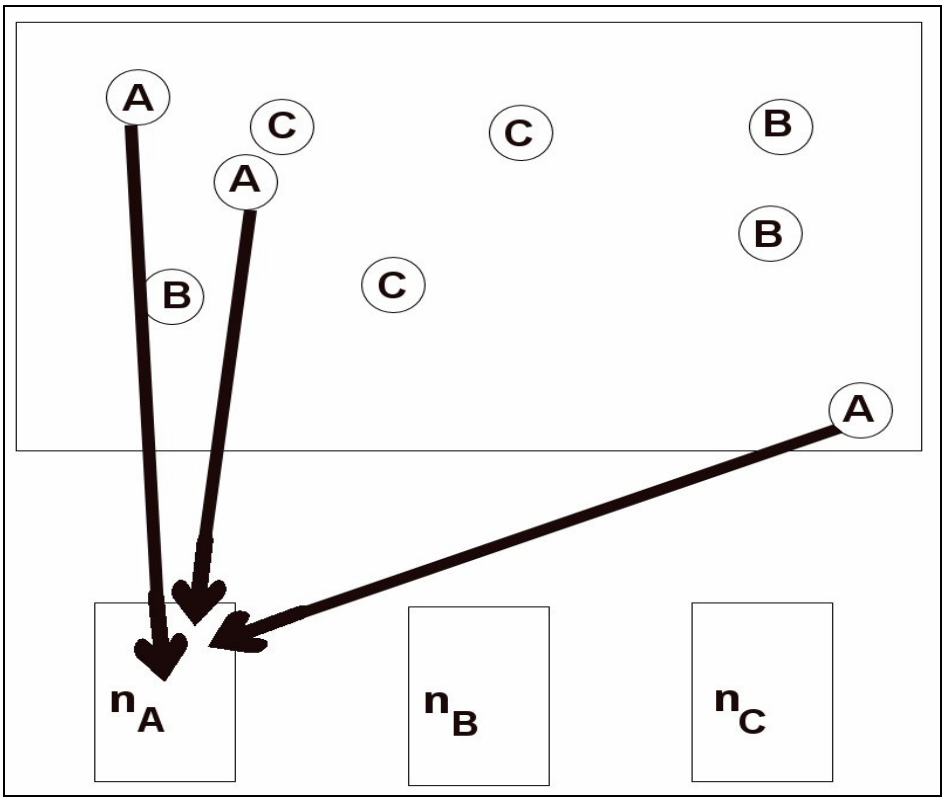

Figure 1A
Example of Random Sample Composites

In the above example, nine individual samples (n*g=9) are composited into three samples for submission to a laboratory (XA, XB, XC).

The individual sample locations can be selected by any number of methods such as those as described in American Society for Testing and Materials (ASTM) Method D6051-96 (2001), Standard Guide for Composite Sampling and Field Subsampling for Environmental Waste Management Activities. The "system of halves" as described in 40 CFR § 761.306 may also be used. An example of the "system of halves" is provided below and illustrated in Figures 1B and 1C.

1. Select the surface which represents the area of highest possible contamination
2. Delineate one square meter within the area
3. Divide the one square meter area in half with an imaginary line in any direction
4. Assign each half "heads" or "tails"
5. Flip a coin
6. Divide the "winning side" in half with an imaginary line in any direction
7. Flip a coin
8. Continue dividing the "winning" side until the winning side is between 100 cm^2 and 200 cm^2 and collect the wipe sample from that area
9. The method is repeated for each individual (g) of the composite

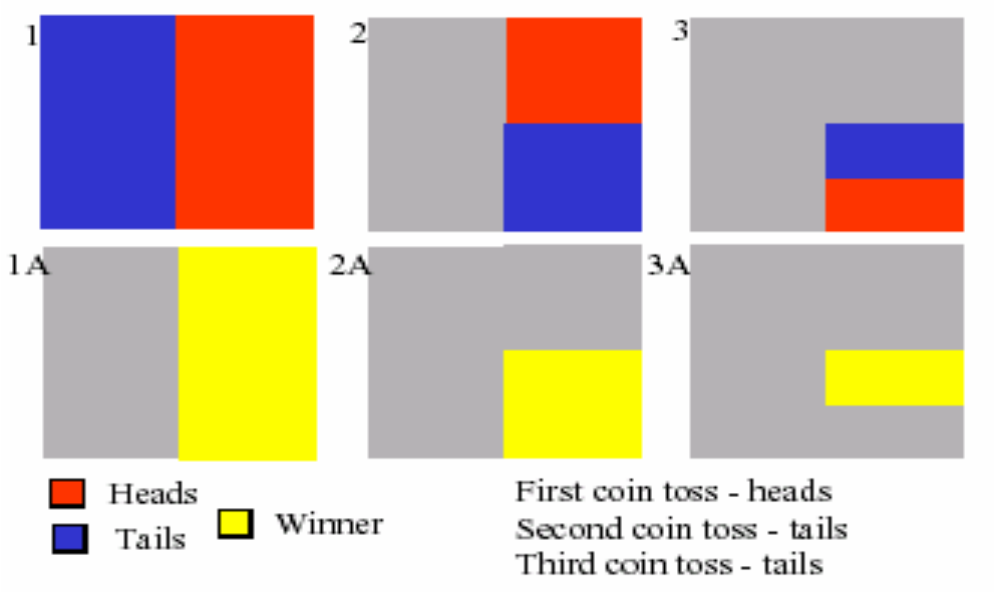

Figure 1B
Example of Random Sample Composites

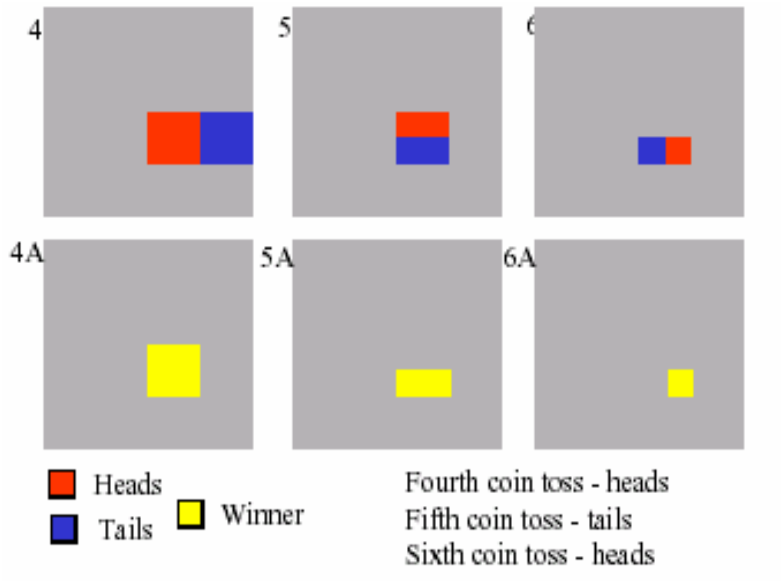

Figure 1C
Example of Random Sample Composites

Systematic Composite Sampling

A systematic composite sampling design is illustrated in Figure 2. Each field sample collected at the "A" locations is pooled and mixed into one composite sample. The process is then repeated for "B," "C," "D" locations and so on. The relative location and size of each individual field sample (such as "A") should be the same within each block.

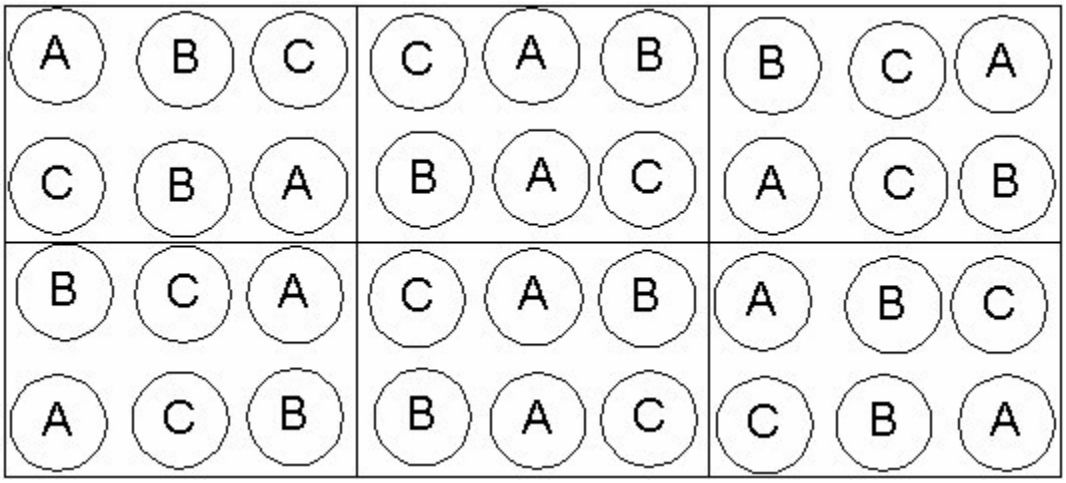

Figure 2
Example "A" of Systematic Sample Composites

A second systematic composite design is illustrated in Figure 3. This sample design involves collecting and pooling samples from within a grid (See Figure 3). Each field sample collected at the "A" locations is pooled and mixed into one composite sample. The process is then repeated for "B," "C," "D" locations and so on. The relative location and size of each individual field sample (such as "A") should be the same within each block.

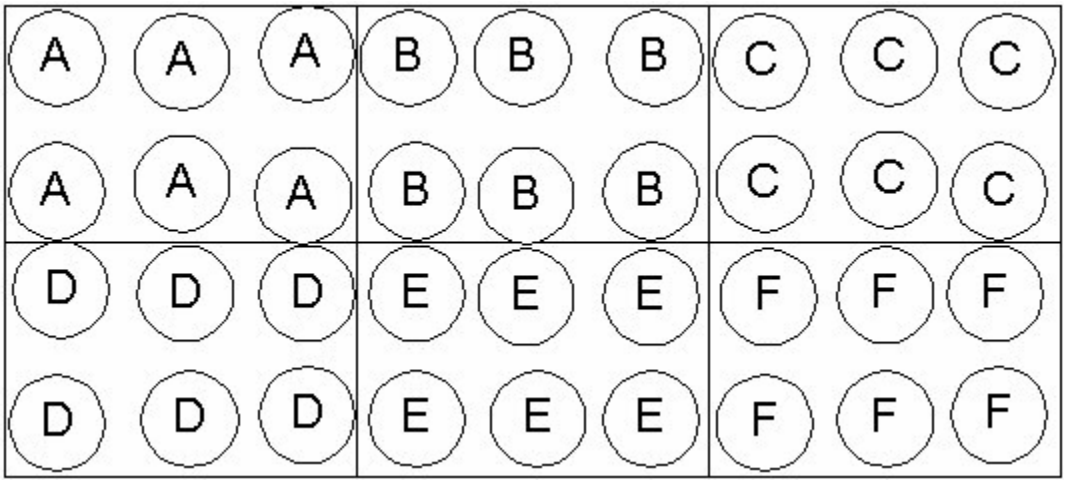

Figure 3
Example "B" of Systematic Sample Composites

For both assessment and post-decontamination sampling, either simple random composite sampling or systematic composite sampling may be used where contamination is expected to be relatively evenly dispersed throughout a given area, as described above, except the consultant shall selectively choose sample locations that represent the highest potential contamination, in accordance with the hypothesis being tested.

Composite Decision Level

If composite sampling is used, the following procedure shall be used for detecting hot spots to determine if one or more of the individual samples making up the composite could exceed the cleanup criterion, but remain undetected due to "dilution" that results from the compositing process.

The approach assumes the underlying distribution is normal and the composite samples were formed from equal-sized individual samples. In the following equations, CL represents the cleanup criterion that cannot be exceeded in any individual sample. It is assumed that the analytical limit of quantification, or quantitation limit (QL), is less than the cleanup criterion. For any laboratory result (Xi) from a composite sample formed from individual samples (g), the following rules shall be assumed:

1. If $Xi < \frac{CL}{g}$ then no individual sample (g) shall be deemed greater than the *CL*
2. If $Xi > CL$ then at least one sample must be, and as many as all individual samples may be greater than the *CL*

If it is determined that one or more individual samples making up the composite exceeds the cleanup criterion, all areas represented by the composite sample shall be considered to exceed the cleanup level unless a discrete sample of any individual area demonstrates that the cleanup criterion has been met in that area.

ATTACHMENT TO APPENDIX B
SAMPLING METHODS FOR METHAMPHETAMINE LABORATORIES
SAMPLING THEORY

SAMPLING THEORY

The type of sampling used for stationary structures and vehicles described in this protocol is a type of sampling recognized as "authoritative" sampling. Authoritative sampling is a nonstatistical sampling design that does not assign an equal probability of being sampled to all portions of the population. Consultants using this protocol will have a priori knowledge of the property to be sampled. The a priori knowledge, in the hands of a competent consultant, permits immediate inclusion/exclusion of sampling areas, based on professional judgment. As such, the weight of validity of the data gathered with authoritative sampling is largely dependent on the knowledge and competency of the sampler.

With authoritative sampling, it is not possible to accurately estimate the concentration variance within a property as a whole. Also, due to its subjective nature, the use of authoritative sampling to demonstrate compliance with a cleanup criterion is generally not advisable except in those cases that are anticipated to be well defined (small volumes of waste and where contaminants in the property under study is either well above or well below the cleanup level). The American Society for Testing and Materials (ASTM) Method D6311-98 (2003), Standard Guide for Generation of Environmental Data Related to Waste Management Activities: Selection and Optimization of Sampling Design, recognizes two types of authoritative sampling: judgmental sampling and biased sampling; both of these sampling theories are used in this protocol.

Judgmental Sampling

The goal of judgmental sampling is to use process or site knowledge to choose one or more sampling locations to represent the "average" concentration within the context of the sampling area. Judgmental sampling designs can be extremely useful and cost-effective if the consultant choosing the sampling locations has sufficient knowledge of the history of the drug laboratory under study. It is recognized that the sampling method is not entirely objective since the consultant choosing the sampling locations could possibly intentionally distort the sampling by a prejudiced selection, or if their knowledge in the drug laboratory in question is wanting. In those cases, judgmental sampling can lead to incorrect results being presented to the consultant.

Biased Sampling

Biased sampling is the type of authoritative sampling that intends not to estimate average concentrations or typical properties, but to estimate "worst" or "best" cases (as described in ASTM Method D6051-96 (2001), Standard Guide for Composite Sampling and Field Subsampling for Environmental Waste Management Activities. As described later in this protocol, the aim of the consultant performing post-decontamination sampling is to demonstrate the worst-case scenario in the drug laboratory. The term "biased," as used here, refers to the collection of samples with expected high concentrations. For example, a sample taken at the source of the actual "cook," known release, spill or storage area could serve as an estimate of the "worst-case" concentration found in the functional space. This information could be useful in identifying the contaminant and estimating the maximum level of contamination likely to be

encountered during a cleanup. Biased sampling, while having the ability to cost-effectively generate information, has similar philosophical disadvantages to that of judgmental sampling.

Establishing Hypothesis Testing

The foundation for the usefulness of any sampling protocol rests upon the establishment of appropriate data quality objectives (DQOs). Without such DQOs, sampling occurs in a vacuum and the strength of the results of the sampling may be extremely limited. The DQOs are, in turn, driven by a thought process that proceeds from defining the problem, then quantifying the degree of the problem, defining what decisions are to be made based on the resulting data, and the degree of quality needed to ensure that the decision goals can be met. All sampling has error; all analysis has error. No realistic sampling and analysis protocol has a 100% guarantee of definitively characterizing any area or condition. Therefore, a realistic sampling and analysis protocol is one that minimizes error, and optimizes cost effectiveness, while increasing the probability that the DQOs will be met.

This sampling protocol begins with the end in mind; it is based on asking specific questions, and conducting sampling and analysis to answer those questions. In general, this protocol will rely heavily on maximizing the use of existing law enforcement, investigation, analytical and historical information (including process knowledge), thus reducing unnecessary, costly data-gathering activities, while at the same time ensuring that building occupants and the public are not placed at unnecessary risk. The protocol is not a substitute for professional judgment, but must be utilized by cognizant professionals in the application of their professional skills. Neither is the method a "cook-book" recipe that if followed, decontamination is guaranteed, and risks are assumed to be zero. The evaluation of any specific area must necessarily be based on the totality of the circumstances.

This protocol has been divided into two distinct sets of DQOs; one for the preliminary pre-decontamination sampling) and one for the post-decontamination sampling. The essential difference between the two lies in the hypotheses that are being tested.

Pre-Decontamination sampling

In pre-decontamination sampling, the question that is being asked is "Is there evidence of the presence of methamphetamine production in this area?" The assumption (hypothesis) is that the area is clean i.e. "compliant," and data will be collected to find support for the hypothesis. Data (such as samples) are collected to "prove" the area is compliant. Sampling, if it is performed, is conducted in the areas potentially containing the highest possible concentrations of contaminants. Any data that disproves the hypothesis, including police records, visual clues of production, storage, or use or documentation of drug paraphernalia being present, is considered conclusive, and leads the consultant to accept the null hypothesis and declare the area non-compliant. The strength of evidence needed to reject the hypothesis is low, and is only that which would lead a reasonable person, trained in aspects of methamphetamine laboratories, to conclude the presence of methamphetamine, its precursors as related to processing, or waste products.

Post Decontamination sampling

In post decontamination sampling, the question that is being asked is "Does this area contain contaminants in excess of the regulatory standard?" The hypothesis is the area is non-compliant, and data is collected to test the hypothesis. In theory, the ability to prove the hypothesis necessarily becomes more difficult as the area becomes cleaner; and virtually impossible to prove in an area that is completely devoid of contamination. The lack of data supporting the hypothesis leads the consultant to accept the null hypothesis and conclude that the area is

compliant. Therefore, the role of the consultant in post decontamination sampling, is not to demonstrate that the area is "clean," but rather, using bias sampling, to diligently attempt to prove, that the area is not clean. The strength of evidence needed to accept the null hypothesis is great; and failure to support the hypothesis results in confidence that risks have been greatly reduced.

Decision Statement

If, based on the totality of the circumstances, the consultant finds that insufficient evidence exists to support the hypothesis that any given area is non-compliant, that area shall be deemed to be compliant with the cleanup criteria provided at Section 5.3 of the State Of Michigan Cleanup of Clandestine Drug Laboratory Guidance and shall be released. If objective sampling data indicate contamination is less than the cleanup level, that data may be used as prima facie evidence that insufficient evidence exists to support the hypothesis that any given area is non-compliant.

Composite Sampling

Composite sampling can be implemented as part of a statistical sampling design, such as simple random sampling and/or systematic sampling. The choice of a sampling design will depend upon the specific conditions of the drug laboratory being assessed.

Simple Random Composite Sampling

Figure 1 in Appendix A shows how composite sampling can be integrated into a simple random sampling design. In this figure, the sampled area could represent any surface or media about which a decision must be made (such as a series of walls, or carpeting or even contaminated soils). Randomly positioned field sample composites can themselves be randomly grouped together into composite samples. The set of composite samples can then be used to estimate the mean and the variance of the results. Because the compositing process is a mechanical way of averaging out spatial variabilities, we assume1 the resulting concentration data to be more normally distributed than individual samples2. This is especially advantageous because the assumption of the statistical tests in this protocol is that the underlying data approximate a Gaussian distribution.

The sample locations can be selected by any number of methods. The "system of halves" as described is one example discussed in Appendix A and illustrated in Figures 1B and 1C in that appendix.

Systematic Composite Sampling

An example of one kind of systematic composite sampling design is shown in Appendix A, Figure 2. The design can be used to estimate the mean concentration because each composite sample is formed from field samples obtained across the entire sampled unit (a wall, or a carpet, for example). Each field sample collected at the "A" locations is pooled and mixed into one composite sample. The process is then repeated for "B," "C," "D" locations and so on. The relative location and size of each individual field sample (such as "A") should be the same within each block.

A second type of systematic composite involves collecting and pooling samples from within a grid (See Appendix A, Figure 3). If there is spatial correlation between the grid blocks, compositing within grids can be used to estimate block-to-block variability or improve the estimate of the mean within a block if multiple composite samples are collected within each block. In fact, compositing samples collected from localized areas is an effective means to control "short-range" (small-scale) heterogeneity. When this type of compositing is used on

localized areas in lieu of “grab” sampling, it is an attractive option to improve representativeness of individual samples.

For post decontamination, any of the above may be used, except, the consultant will purposely attempt to “high-grade” the samples (selectively choosing sample locations that represent the highest potential contamination, in accordance with the hypothesis being tested).

Composite Decision Level

One disadvantage of composite sampling is the possibility that one or more of the individual samples making up the composite could be “hot” (exceed the “cleanup level” (CL)), but remain undetected due to “dilution” that results from the pooling process. If the sampling objective is to determine if any one or more individual samples is “hot,” composite sampling can still be used.

The procedure for detecting hot spots using composite sampling is provided in Appendix A. The approach assumes the underlying distribution is normal and the composite samples were formed from equal-sized individual samples. Let CL be the “cleanup level” that cannot be exceeded in any individual sample.

If compositing is used then the number of samples that make up the composite should be limited to avoid overall dilution below the analytical limit. It is possible for a composite sample to be diluted to a concentration below the quantitation limit if many of the individual samples have concentrations near zero and a single individual sample has a concentration just above the cleanup level. The maximum number of identically sized individual samples (g) that can be used to form a composite shall not exceed the cleanup (CL) divided by the quantitation limit (QL). As a practical matter, the number of individual samples used to form a composite should not exceed five discrete samples of equal area.

GLOSSARY OF TERMS

Biased: the systematic or persistent distortion of a measurement process which causes errors in one direction (i.e., the expected sample measurement is different than the sample's true value).

Data Quality Objectives (DQOs): qualitative and quantitative statements derived from the DQO Process that clarify assessment objectives, define the appropriate type of data, and specify the tolerable levels of potential decision errors that will be used as the basis for establishing the quality and quantity of data needed to support decisions.

Data Quality Objectives Process: a Quality Management tool based on the Scientific Method to facilitate the planning of environmental data collection activities. The DQO Process enables planners to focus their planning efforts by specifying the intended use of the data (the decision), the decision criteria (cleanup level) and the consultant's tolerable decision error rates. The products of the DQO Process are the DQOs.

Decision error: an error made when drawing an inference from data in the context of hypothesis testing, such that variability or bias in the data mislead the consultant to draw a conclusion that is inconsistent with the true or actual state of the population under study.

g: any individual sample collected for submission for analysis, either as a discrete sample or as part of a composite sample.

Hypothesis: a tentative assumption made to draw out and test its logical or empirical consequences.

Mean: (i) a measure of central tendency of the population (population mean), or (ii) the arithmetic average of a set of values (sample mean).

Measurement error: the difference between the true or actual state and that which is reported from measurements.

Null hypothesis: the default alternative conclusion that must be adopted if insufficient data exists to support the hypothesis.

Population: the total collection of objects, or media to be studied and from which a sample is to be drawn.

Sampling: the process of obtaining representative samples and/or measurements of a subset of a population. Sampling is a model; inherent in sampling is error, known or unknown.

Sampling design error: the error due to observing only a limited number of the total possible values that make up the population being studied. It should be distinguished from errors due to imperfect selection; bias in response; and errors of observation, measurement, or recording, etc.

Variance: a measure of (i) the variability or dispersion in a population (population variance), or (ii) the sum of the squared deviations of the measurements about their mean divided by the degrees of freedom (sample variance).

Xi: the laboratory analysis result for any discrete or composite sample submitted for analysis.

REFERENCES

The following documents were consulted and used in the preparation of this protocol.

American Society for Testing and Materials (ASTM) Method D5756-02 (November 2002), Standard Test Method for Microvacuum Sampling and Indirect Analysis of Dust by Transmission Electron Microscopy for Asbestos Mass Concentration.

American Society for Testing and Materials (ASTM) Method D6044-96 (2003), Standard Guide for Representative Sampling for Management of Waste and Contaminated Media.

American Society for Testing and Materials (ASTM) Method D6051-96 (2001), Standard Guide for Composite Sampling and Field Subsampling for Environmental Waste Management Activities.

American Society for Testing and Materials (ASTM) Method D6311-98 (2003), Standard Guide for Generation of Environmental Data Related to Waste Management Activities: Selection and Optimization of Sampling Design.

Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup, EPA-560/5-86-017 (May 1986).

Guidance for the Data Quality Objectives Process, EPA QA/G-4 EPA/600/R-96/055 (September 1994).

RCRA Waste Sampling Draft Technical Guidance Planning, Implementation, and Assessment, EPA530-D-02-002 (August 2002).

APPENDIX C

ANALYTICAL METHODS FOR METHAMPHETAMINE LABORATORIES

PURPOSE

The purpose of this appendix is to establish standard analytical methods and procedures for use in identifying and quantifying contaminants resulting from the manufacture, storage or disposal of methamphetamine related chemicals and wastes.

ANALYTICAL METHODS

The following analytical methods shall be used to determine the concentrations of chemicals in samples collected at properties used as drug labs:

1. Analysis of wipe samples and microvacuum samples for methamphetamine shall be conducted using a laboratory that uses Forensic applications employing an Isotopic Dilution approach with the d-5, d-8, or d-14 deuterated methamphetamine as an internal standard, and external calibration with authentic methamphetamine.
2. Analysis of wipe samples and microvacuum samples for iodine shall be conducted using Method 9021 or Method 6020 in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," EPA Publication SW-846.
3. Analysis of wipe samples for lead shall be conducted using NIOSH Method 9100
4. Clearance testing for mercury vapor air concentrations shall be conducted using a NIOSH 6009 method as modified by the U.S. EPA Environmental Response Team. Real time testing using a mercury vapor analyzer that employs atomic absorption spectrometry technology, such as the Lumex 915 or equivalent, may also be used.

The following analytical methods shall be used to characterize liquid wastes associated with methamphetamine labs:

1. VOCs using Method 8260B in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," EPA Publication SW-846.
2. Ignitability/flash point by a Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D-93-79 or D-93-80 (or Method 1010 in EPA SW-846), or Setaflash Closed Cup Tester, using the test method specified in ASTM standard D-3278-78 (or Method 1020A in EPA SW-846).
3. Corrosivity as determined by the pH electrometeric measurement Method 9040B in EPA Publication SW-846, by corrosivity by steel using Method 1110 in EPA Publication SW-846.
4. Reactivity using Method 9014/9034 in EPA Publication SW-846.

APPENDIX D

VENTILATION SYSTEM DECONTAMINATION ATMETHAMPHETAMINE LABORATORIES

PURPOSE

The purpose of this appendix is to establish minimum requirements for the decontamination of ventilation systems at buildings and structures that have been used as drug laboratories.

DECONTAMINATION PROTOCOL

Decontamination of ventilation systems shall be conducted by a ventilation contractor experienced in the decontamination of ventilation systems in structures used as drug laboratories. At a minimum, the ventilation contractor shall:

1. Perform a walk-through of the structure prior to initiation of the project to establish a specific plan for decontamination of the ventilation system.
2. Follow health and safety procedures, in accordance with OSHA requirements, to protect workers and others in the vicinity of the structure during the decontamination process.
3. Place protective coverings in areas where work is being performed, including plastic or drop cloths around each area where the duct is penetrated.
4. Shut off and lock out all air handler units before working on each air conveyance system.
5. Perform a visual inspection of the interior duct work surfaces and internal components.
6. Draw a negative pressure on the entire duct work, using HEPA exhausted vacuum filters, throughout the cleaning process.
7. Remove and clean all return air grills.
8. Beginning with the outside air intake and return air ducts, clean the ventilation system using pneumatic or electrical agitators to agitate debris into an airborne state. Additional equipment may be also be used in the cleaning process, such as brushes, air lances, air nozzles, and power washers. Controlled containment practices shall be used to ensure that debris is not dispersed outside the air conveyance system during cleaning.
9. Open and inspect air handling units, and clean all components.
10. Remove and clean all supply diffusers.
11. Clean the supply ductwork using the techniques described in item 8 above.
12. Reinstall diffusers and grilles after cleaning is complete.
13. Seal shut access points used for agitation purposes.
14. Bag and label all debris, including any filters, and properly dispose of at a landfill.

APPENDIX E

INDIVIDUAL SEWAGE DISPOSAL SYSTEMS AT METHAMPHETAMINE LABORATORIES

PURPOSE

The purpose of this appendix is to establish a protocol for field screening, sampling, and analysis of individual sewage disposal systems (ISDSs) to determine if wastes associated with clandestine drug laboratories (CDL) has been disposed of in the ISDS. The appendix provides further guidance regarding the proper characterization and disposal of the contents of septic tanks that contain wastes from CDLs.

BACKGROUND

The most common types of CDL wastes that might be expected in an ISDS include:

1. Solvents (e.g., toluene, xylene, alcohol, acetone);
2. Petroleum distillates (e.g., paint thinner, white gas);
3. Corrosives (e.g., sulphuric acid, muriatic acid, sodium hydroxide solutions); and,
4. Mixtures with residual ephedrine, methamphetamine, iodine or red phosphorus.

Field screening and sample collection shall be conducted to confirm or deny the presence of CDL waste, and to ensure proper disposal of any waste identified.

FIELD SCREENING

Field screening of septic tanks shall be conducted if there is evidence CDL wastes may have been disposed of into an ISDS. Evidence of disposal of CDL wastes into an ISDS includes, but is not limited to, the following:

1. Witness statements;
2. Stained or etched sinks, bathtubs, toilets;
3. Chemical odors coming from the ISDS plumbing or tank; or
4. Visual observations of unusual conditions within the septic tank (“dead tank”); or, stressed or dead vegetation in a drain field.

Initial field screening shall consist of the following:

1. Monitoring the septic tank for volatile organic compounds (VOCs) using a photo ionization detector (PID), a flame ionization detector (FID), colorimetric tubes or other appropriate meter or testing device.
2. Testing the pH of liquid in the septic tank using pH paper or a pH meter.

Additional field screening may be conducted, at the discretion of the contractor, to further investigate the possible presence of drug lab waste.

SAMPLE COLLECTION

If field screening indicates that the ISDS has been impacted by CDL wastes, samples shall be collected from the septic tank to determine if the liquids in the tank contain a hazardous waste. Samples shall be collected according to the requirements of the analytical method being used and the following protocol:

1. Prior to sampling, the septic tank must have been sufficiently excavated to indicate whether the tank consists of one or two chambers.
2. Samples from single chamber tanks shall be collected from the baffle on the outlet end of the tank.
3. Samples from dual chamber tanks shall be collected from the baffle on the outlet end of chamber one.
4. Samples must be representative of the wastes found in the septic tank. Sampling procedures may include the use of drum thieves, sludge judges or equivalent equipment. The instructions for the correct usage of the sampling device shall be followed.
5. Remove access cover from the first (or only) chamber and locate outlet baffle.
6. Move any floating surface matter away from the insertion point of the sampling device. Do not collect any matter in the sampling device.
7. Insert the sampling device into the tank, lowering it until it hits the bottom.
8. Trap the sample inside the sampling device.Remove the sampling device and fill the laboratory supplied sample containers. The specific volume and type of sample container will be determined based on the type of analysis desired. For VOC analysis, two 40ml vials shall be filled, leaving no headspace.
9. Replace access cover at the completion of sample collection.
10. Samples may be collected in laboratory preserved bottles, or in unpreserved bottles. If the samples are collected in unpreserved bottles, the laboratory must be notified that the samples are unpreserved.
11. Sample containers shall be placed in a cooler with enough ice or ice packs to maintain a temperature of 4° C.
12. A Chain of Custody Record shall be maintained from the time of sample collection until final disposition. Every transfer of custody shall be noted and signed for and a copy of the record shall be kept by each individual who has signed it. Samples shall be sealed, labeled, and secured. All samples collected shall be transported directly to the laboratory. All sample documents shall be retained for the project record.

WASTE CHARACTERIZATION

The contents of septic tanks that contain waste from drug labs are solid wastes. Prior to disposal, a hazardous waste determination must be made in accordance with these regulations. Methamphetamine wastes in septic tanks will typically not be considered to be listed hazardous wastes (P, U, or F-listed) because the solvents have been used and there is too much uncertainty about the types, sources and original concentrations of solvents discovered in septic tanks.

The following analysis shall be conducted to determine if an ISDS has been impacted by methamphetamine labs wastes, and if the septic tank contains a characteristic hazardous waste:

1. VOCs using Method 8260B in “Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods,” EPA Publication SW-846.
2. Ignitability/flash point by a Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D-93-79 or D-93-80 (or Method 1010 in EPA SW-846), or

3. Corrosivity as determined by the pH electrometeric measurement Method 9040 in EPA Publication SW-846, by corrosivity by steel using Method 1110 in EPA Publication SW-846.
4. Reactivity using Method 9014/9034 in EPA Publication SW-846.

WASTE DISPOSAL

Septic tank contents containing drug lab waste that have been determined to be a hazardous waste shall be disposed of in accordance with all applicable state and local requirements. Septic tank contents containing drug lab waste that have been determined not to be hazardous waste shall be disposed in accordance with all state and local requirements.

RELEASE INVESTIGATION AND REMEDIATION

If sampling provides evidence that hazardous waste has been disposed of in the ISDS, an investigation of potential environmental contamination shall be conducted.

APPENDIX F
METHAMPHETAMINE DECONTAMINATION CONSULTANTS & CONTRACTORS

Updated April 30, 2008

This list was compiled by the MDCH to assist property owners in identifying companies that conduct CDL cleanups. MDCH does not recommend or endorse the services or products of any listed company, nor does MDCH certify that these companies are qualified to conduct CDL cleanups.

Consultants	Contractors
DeLisle & Associates 5050 South Sprinkle Road Kalamazoo, MI 269-373-4500	Aftermath, Inc Plainfield, IL 60544 630-922-3880
Fibertech Industrial Hygiene Services 1914 Holloway Drive Holt, MI 48842 517-699-0345	Assured Decontamination Services P.O. Box 18622 Minneapolis, MN 55418 800-924-6384
Meth Lab Cleanup LLC 800-959-6384 www.methlabcleanup.com info@methlabcleanup.com	Extreme Clean Scene, Inc. 25851 Trowbridge Street Inkster, MI 48141 866-266-4590
NOVA Consultants, Inc. 21580 Novi Road, Suite 300 Novi, MI 48375 248-347-3512	VanDam & Krusinga 7588 Ravine Road Kalamazoo, MI 49009 269-276-9922
PM Environmental, Inc. 3340 Ranger Road Lansing, MI 48906 517-485-3333	Alladin's Bio-Scene Recovery Lapeer, Michigan 810-664-1705
Stolz Environmental Solutions, LLC 7175 Creekside Drive Portage, MI 49024 269-321-5020	The Clean Source Jennison, MI 866-219-4500
Villa Environmental Consultants 408 West Main Street Benton Harbor, MI 49023 269-927-2434	Youngs Environmental 4990 West River Drive NE Comstock Park, MI 49321 616-785-3374
Wonder Makers Environmental, Inc. P.O. Box 50209 Kalamazoo, MI 49005 269-382-4154	ALAM, Inc. 2505 Precision Street Jackson, MI 49202 517-788-8348
Environmental Health Resources, Inc. Grand Rapids, Michigan 616-735-1515	Meth Lab Cleanup LLC 800-959-6384 www.methlabcleanup.com, info@methlabcleanup.com
healthAIR Inc. 23937 Research Drive Farmington Hills, MI 48335 248-426-0165	

APPENDIX G

RESPONSE TO PUBLIC COMMENTS

The draft MDCH Cleanup of Clandestine Drug Laboratory Guidance was made available for review on March 15, 2007, and public comment was accepted through May 15, 2007. The comments received are provided below followed by MDCH's response. Similar comments have been compiled to reduce redundancy.

Several companies contacted the MDCH to request that they be listed as either consultants or contractors. Appendix F has been revised as appropriate.

Comment #1: Administrative rules need to be developed to make compliance with the Clean-up Guidance document mandatory rather than voluntary.

> **Response:** MDCH submitted draft rules to the State Office of Administrative Hearings and Rules (SOAHR) in September of 2006. SOAHR identified significant impediments to promulgation of effective administrative rules to implement PA 260 of 2006. Section 2 of PA 260 provides the authority for MDCH to develop cleanup criteria and guidance for clandestine drug labs, and to write rules to implement Section 3. Section 2 does not provide rulemaking authority for the guidance or the criteria. SOAHR indicated that the Michigan Administrative Procedures Act provides MDCH with only two options; either (1) write a rule that requires compliance with criteria and guidance, or (2) adopt a nation-wide standard by reference. MDCH was not given the authority to write rules that require compliance with either cleanup criteria or guidance, and no nation-wide standards for illicit drugs such as methamphetamine are currently available. In the absence of nation-wide standards, MDCH cannot promulgate effective rules without a legislative change.

Comment #2: The use of "Hand Held Field" testing kits need to be given an acceptable status when used in a dwelling that only has minor contaminations. The degree of contamination could be based on the police report and an initial evaluation conducted by the local Health Department. The field testing kits would need to be used by a Health Department, Governmental Housing Inspection Department or a Licensed Testing Company. This will reduce the cost for getting the dwelling back into a usable state.

> **Response:** Rapid detection immune assays such as the MethCheck kits or other hand held field kits are addressed in Section 3.7 Pre-Decontamination Sampling on page 15 of the guidance under **Methamphetamine**. Pre-decontamination sampling is recommended only in areas that are thought to be unaffected by CDL activities as determined by police reports and visual observations. Field test kits are allowed for pre-decontamination sampling to identify areas that do not require a cleanup. The Guidance does not permit the use of field tests for post-decontamination verification sampling because MDCH is aware of no studies comparing the accuracy of field tests to more rigorous laboratory analysis. MDCH will continue to monitor the scientific literature on this issue and will amend the guidance if it can be determined that the field tests are as reliable as laboratory analysis.

Comment #3: When a dwelling has met the clean-up requirements and approved to be reoccupied, the approval should qualify the dwelling to be completely removed from the State List of Meth Labs, not just indicated on the list that clean-up has occurred. If the home does not pose a public health concern and can be reoccupied, it should not appear on a list with dwellings

that still pose a threat. This is not only confusing to the public, but it gives less incentive to the property owner to cleanup the home.

> **Response:** PA 255 of 2006 requires that MDCH post the location of methamphetamine laboratories on the department internet website (section 2). MDCH is also required to keep that posting current and to "include in that information a statement as to whether or not the remediation of each laboratory site has been completed" (section 3). PA 255 does not provide the authority to remove a laboratory location from the posting and, in fact the language quoted from Section 3 indicates the legislative intent that remediated laboratories be retained on the internet list with the information that cleanup has been completed at this location. MDCH cannot remove locations from the posting unless PA 255 is amended.

Comment #4: Section 4.2 Ventilation and Containment appears to require the exclusive use of a PID, to the exclusion of other devices or instruments, for the measurement of volatile organic compounds (VOCs). I would suggest that the language be softened to allow the use of other acceptable technology that might also allow the prompt, accurate detection of VOCs in air.

> **Response:** MDCH has changed the language in this section to read, "Indoor air should be monitored with a photoionization detector (PID) or another equivalent direct reading instrument for organic vapors after ventilation, frequently throughout the decontamination process to ensure worker safety, and after decontamination is complete. Accurate records of sampling locations and instrument readings must be maintained."

Comment #5: Section 2.1 – Notification (page 9) Local health departments are still not receiving notification of a clandestine laboratory within the 48-hour time frame as specified in PA 260. On occasion, we will receive a faxed notification from the State Police but this does not occur consistently in all cases. In addition, local law enforcement agencies have never contacted us. Unfortunately, the local news media is still our primary way of being notified of an illegal laboratory.

> **Response:** The comment is noted and will be conveyed to the Michigan State Police.

Comment #6: - Section 2.2 – CDL Determination (page 10) states that if a laboratory is found in a vehicle, camper or mobile dwelling that it needs to be impounded. Nevertheless, the section does not outline who is to do the impounding.

> **Response:** Section 2.2 is entitled **Law Enforcement On-Site Actions.** It is expected that the law enforcement agency that discovers a CDL will take action to impound a contaminated vehicle or mobile dwelling.

Comment #7: - Section 2.3 – CDL Determination (page 10). The 14-day time frame for a CDL determination is unacceptable. By 14 days the property could already be re-occupied.

> **Response:** While PA 260 of 2006 allows 14 days for MDCH to make a determination of a public health or safety hazard, MDCH makes every effort to make these determinations as quickly as feasible. However, to make an accurate determination, MDCH must sometimes contact the law enforcement agency making the report for additional information. Law enforcement officers spend much of their time in the field and are not often at their desks, making it sometimes difficult to rapidly obtain accurate information.

Comment #8: In order to make the response more timely, the CDL determination should be faxed to the local health department and not mailed. This will save at least two days.

Response: The suggestion to fax determinations to local health departments will be implemented. Section 2.3 has been changed to read, "MDCH will provide the CDL Determination to the local health department by electronic facsimile and by first class mail."

Comment #9: It is important that the CDL determination matches the police report. In a recent case in Mason County, the CDL determination and the police report covered different areas of the property.

Response: MDCH makes every effort to obtain a copy of the police report for each CDL. However, police reports are not always filed in time to allow MDCH to make a determination within the 14-day time frame and personal communication must be relied on for additional information. Only one CDL has been reported in Mason County since July of 2006. The CDL determination for this property was based on information provided by the Mason County Sheriff Department in a phone conversation with an officer who was at the scene during the seizure.

Comment #10: - Section 2.5 – Order to Vacate. It is critical that the local building authority (building inspectors) be part of the guidelines. The authority of local health departments to control the occupancy of buildings varies widely throughout the state based on local sanitary codes. Some local health departments do not have the authority to condemn property. Some have no authority over garages or outbuildings that are not inhabited. Condemning a home for contamination of soils surrounding the home would not be permitted under local sanitary codes.

Response: Section 2.4 indicates that "MDCH, the local department, *or another local government agency* may serve as the Enforcing Agency (EA)" [italics added]. Section 2.5 indicates that "the EA will issue an order to vacate..." Nothing in the guidance document precludes a local building authority or inspector from serving as an EA. It should also be noted that PA 260 does not provide authority for an order to vacate if a CDL is located in an outbuilding. As indicated in Section 3.4 of the guidance, outdoor contamination (e.g., soils) are addressed by the Michigan Department of Environmental Quality.

Comment #11: - Section 3.1 – Qualified Personnel (page 12). The State of Michigan needs to develop a licensing, certification or registration program for clean-up consultants and contractors. Without such a program, the responsibility will fall to the local health departments, most of whom do not have the expertise to make such a determination.

Response: The comment is noted. However, MDCH has not been provided with the authority or resources to develop such a program.