ARTICLE IX: REGULATIONS PERTAINING TO THE CLEAN UP OF METHAMPHETAMINE LABORATORIES

CHAPTER 23a: PURPOSE

The Kalamazoo County Board of Commissioners has determined that it is necessary to ensure that dwellings that have been used as illegal methamphetamine labs are "safe" to reoccupy and has authorized the Kalamazoo County Health and Community Services Department to establish standards for the cleanup of illegal methamphetamine laboratories used to manufacture and/or use methamphetamine. Pursuant to these regulations, property owners or any person seeking to inhabit a dwelling or to lease/rent/sell a dwelling for habitation, are required to meet all of the requirements set forth in these regulations before permitting the human habitation of a dwelling used as an illegal methamphetamine laboratory, except that a property owner may elect instead to demolish the contaminated property.

CHAPTER 24a: APPLICABILITY

The requirements of this section apply: (1) when an owner of property has received notification from the Kalamazoo County Health & Community Services Department that chemicals, equipment, or supplies indicative of an illegal methamphetamine laboratory are located at the property, or (2) when an illegal methamphetamine laboratory is otherwise discovered, and the owner of the property where the drug laboratory is located has received notice.

CHAPTER 25a: DEFINITIONS

SECTION 25a.01: "Building" means a structure that has the capacity to contain, and is designed for the shelter of, man, animals, or property, or place adapted for overnight accommodations of persons or animals, whether or not a person or animal is actually present. "Building" also includes manufactured homes and mobile homes.

SECTION 25a.02: "Chemical Investigation Site" means a building, property, structure, or a portion thereof, identified by a law enforcement agency, the MDEQ, the MDCH or the Department as a suspected illegal methamphetamine laboratory.

SECTION 25a.03: "Chemical Manifest" means the form used for identifying the quantity, composition, or origin, routing, and destination of hazardous waste during its transportation from the point of generation to the point of disposal, treatment, or storage.

SECTION 25a.04: "Chemical storage area" means any area where chemicals used in the manufacture of methamphetamine are stored or have come to be located.

SECTION 25a.05: "Cleanup level" means the numerical value, established in section 30a of this regulation, that causes the consultant to determine if an area is compliant or noncompliant based on the results of sampling conducted in accordance with the sampling procedures presented in Appendix A of these regulations.

SECTION 25a.06: "Consultant" means an Environmental Professional, (as described in SECTION 25a.18 of these definitions), who is not an employee, agent, representative, partner, joint venture participant, shareholder, parent or subsidiary company of the contractor.

SECTION 25a.07: "Contaminant" means 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.

SECTION 25a.08: "Contamination" or "Contaminated" means the presence of chemical residues, which may present an immediate or long-term threat to human health or the environment.

SECTION 25a.09: "Contractor" means one or more individuals or commercial entities hired to perform decontamination work in accordance with the requirements of this regulation.

SECTION 25a.10: "Cooking area" means any area where methamphetamine manufacturing is occurring or has occurred.

SECTION 25a.11: "Decision level" means that concentration, relative to the cleanup level, that shall be used to distinguish between compliant and non-compliant areas. The calculation for the decision level for composite samples is found in Appendix A, Composite Decision Level.

SECTION 25a.12: "Decontamination" means the process of reducing the level of contamination to a level as low as reasonably achievable (ALARA) using currently available methods. At a minimum, decontamination must reduce contamination of specified substances below the concentrations described in SECTION 30a of these regulations.

SECTION 25a.13: "Demolition" means the wrecking or taking out of any load-supporting structural member, including any related handling operations.

SECTION 25a.14: "Department" means the Kalamazoo County Health & Community Services Department

SECTION 25a.15: "Disposal" means handling, transportation and ultimate disposition of materials removed from contaminated properties.

SECTION 25a.16: "Documentation" means preserving a record of an observation through writings, drawings, photographs, or other appropriate means.

SECTION 25a.17: "Encapsulation" means 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.

SECTION 25a.18: Environmental Professional means a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions, recommendations and conclusions regarding contamination conditions indicative of the use or manufacture of methamphetamine on, at, or in a structure sufficient to meet the objectives and performance factors of these regulations.

SECTION 25a.19: "Functional space" means 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.

SECTION 25a.20: "HazMat" means Hazardous Materials.

SECTION 25a.21: "HEPA filtration" means 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.

SECTION 25a.22: "Illegal Methamphetamine Laboratory" means a building, property, structure or vehicle that is used or has been used for the illegal manufacturing or storage of methamphetamine.

SECTION 25a.23: "Independent" means that a person is not an employee, agent, representative, partner, joint venturer, shareholder, or parent or subsidiary company of another person.

SECTION 25a.24: "Media" means the physical material onto which a sample substrate is collected. Media includes cotton gauze, glass fiber filters, MCE membranes, etc.

SECTION 25a.25: "Methamphetamine" means dextro-methamphetamine, levo-methamphetamine, and unidentified isomers of the same, any racemic mixture of dexto/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 regulation, this term also includes amphetamine, ephedrine, and pseudoephedrine.

SECTION 25a.26: "Microvacuum sample" or "Vacuum sample" means a non-airborne dust sample collected from a known surface area of a porous surface or material using standard microvacuum sampling techniques as described in Appendix A of these regulations.

SECTION 25a.27: "Negative air unit" means a portable exhaust system equipped with HEPA filtration and capable of maintaining a constant high velocity airflow out of the contaminated area, resulting in a constant low velocity air flow into the contaminated area from adjacent uncontaminated areas.

SECTION 25a.28: "Non-porous Surface" means a surface that does not readily admit the passage of gas, residue, or liquid through its pores or interstices.

SECTION 25a.29: "Porous Surface" means a surface that readily admits the passage of gas, residue or liquid through its pores or interstices.

SECTION 25a.30: "Publicly owned treatment works" or "POTW" means a publicly owned domestic wastewater treatment facility.

SECTION 25a.31: "Preliminary assessment" means an evaluation of a property to determine the current condition, including the nature and extent of observable or detectable contamination, chemical storage and disposal.

SECTION 25a.32: "Property" means anything that may be the subject of ownership or possession, including, but not limited to, land, buildings, structures, vehicles and personal belongings.

SECTION 25a.33: "Property owner" for the purpose of real property, means the person holding fee title to real property. "Property owner" also means the person holding title to a manufactured home. With respect to personal property, the term means the person who lawfully owns such property.

SECTION 25a.34: "Removal" means the taking out or stripping of material or surfaces to eliminate the potential for exposure to contaminants on or in the material or surfaces.

SECTION 25a.35: "Sewage Disposal System" or "SDS" means 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.

SECTION 25a.36: "Substrate" means the material being collected. Substrates may include soils, water, painted surfaces, carpet debris, unidentified powders, dust, etc.

SECTION 25a.37: "Vehicle" means any motorized/non-motorized object including, but not limited to; automobiles, recreational vehicles, campers, buses, trailers, trailer coaches and motor homes.

SECTION 25a.38: "Waste disposal area" means any area where chemicals used or generated in the manufacture of methamphetamine are disposed or have come to be located.

SECTION 25a.39: "Wipe sample" means a surface sample collected by wiping a sample media on the surface being sampled in accordance with Appendix A and B of these regulations.

CHAPTER 26a: CONDEMNATION PROCEDURES

Whenever the Department receives written notice from the Michigan Department of Environmental Quality, (MDEQ), the Michigan Department of Community Health, (MDCH) or from a local law enforcement agency about the existence of any property, dwelling, structure or vehicle that is or has been identified as a suspected illegal methamphetamine laboratory, the Department shall institute the procedures set forth in these regulations. Written notification from a law enforcement agency, the MDEQ, and/or the MDCH should include:

i. Property location by street address and other identifiable locators

ii. Owner's and Occupant's identities including the identities of any children pregnant women or vulnerable adult found or known to be associated with the site

iii. A copy of the search warrant affidavit and police report, if one exists

iv. A copy of the chemical manifest as provided by the HazMat responder, if one exists

If the notice does not include any of the above-listed items, the Department shall contact the law enforcement agency that discovered the suspected illegal methamphetamine laboratory and secure the necessary information.

SECTION 26A.01: The Department shall not be responsible for the initial removal and inventory of all chemicals found at a suspected illegal methamphetamine laboratory.

SECTION 26a.02: After a law enforcement agency completes its investigative work and prepares to leave a suspected illegal methamphetamine laboratory, it shall leave a KCHSD Condemnation sign conspicuously posted on the entrance of the affected part of the structure, if a written agreement is in place between the law enforcement agency and the Department for the posting of a condemnation sign identifying the property of structure as a Chemical Investigation Site. If no such agreement is in place between the law enforcement agency and the Department, the Department shall post the condemnation sign on the entrance of the affected property or structure as a Chemical Investigation Site. The condemnation sign shall be of a size and contain information sufficient to alert visitors or returning occupants to the site that the area is a Chemical Investigation Site, may be dangerous to enter, and should be vacated in conformance with the provisions of these regulations. Once this sign is posted, it shall be unlawful for any person to enter the site except by permission of the Department. This proscription shall not apply to law enforcement officers, health officials, or their agents or the owners consultants and/or contractors who have been hired to assess or decontaminate the illegal methamphetamine laboratory. It shall be unlawful for any person, other than the Department to remove this sign.

SECTION 26a.03: After the Department receives information from a law enforcement that it has identified a suspected illegal methamphetamine laboratory and posted the appropriate condemnation sign, or after the Department has posted the condemnation sign, the Department shall contact the Owner, Occupant and Property Agent, if applicable, by certified mail, to inform the Owner and Occupant of their responsibilities relative to the condemnation notice. The Department shall issue a notice for removal and abatement of a Public Health Nuisance and an Order requiring the Owner and Occupant to have the Public Health Nuisance removed or abated pursuant to this regulation. The Department shall include the following in the notice and order:

i. Information about the Public Health Hazard and Public Health Nuisance

ii. A summary of the Owner's and Occupant's responsibilities under this Ordinance

iii. Information that can assist the Owner and Occupant to locate appropriate services necessary to abate the Chemical Investigation Site Public Health Nuisance, (see Appendix E for list of Consultants & Contractors)

SECTION 26a.04: Notice for Abatement or Removal must be served on the Owner, Occupant and Property Agent, if applicable, in one of the following ways:

i. By registered or certified mail using the last know address of record;

ii. By an officer authorized to serve a warrant

SECTION 26a.05: If the Owner of the property is unknown or absent and has no known representative upon whom notice can be served, the Department shall post a written or printed notice on the property stating that, the site is a Chemical Investigation Site, may be dangerous to enter, and may not be entered except by authorization of the Department. Once this sign is posted, it shall be unlawful for any person to enter the site except by permission of the Department. This proscription shall not apply to law enforcement officers, health officials, or their agents, or to consultants that are conducting preliminary assessement or decontaminating the site.

SECTION 26a.06: The Department shall send written notice about the Chemical Investigation Site Public Health Nuisance declaration within three (3) business days of service of a notice of abatement describing the condition of the property and the action required to the following parties:

i. Neighbors in proximity that can be reasonably affected by the conditions found

ii. The respective township/municipality in which the house resides

iii. Local law Enforcement Agency

iv. The Michigan Department of Community Health

v. The Michigan Department of Environmental Quality

vi. The Michigan Human Services Department (Formally Family Independence Agency), if applicable

SECTION 26a.07: Pursuant to this regulation, Owner(s) and/or Occupant(s) provided with a notice, including posted notice informing them about the suspected illegal Methamphetamine Laboratory, shall promptly act to vacate the Occupants within twenty-four (24) hours.

CHAPTER 27a: PRELIMINARY ASSESSMENT

A preliminary assessment shall be conducted by the consultant, in accordance with this regulation, prior to the commencement of property decontamination. Information gained during the preliminary assessment shall be the basis for property decontamination and clearance sampling. Contractors and consultants shall use appropriate personal protective equipment during the preliminary assessment. Access to the property shall be limited to those with appropriate training and personal protective equipment. The preliminary assessment report must be completed and signed by the Environmental Professional as defined in Section 25a.18 of these regulations. Information collected during the preliminary assessment shall include, but not be limited to, the following:

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

ii. Review of available law enforcement reports that provide information regarding the manufacturing method, chemicals present, cooking areas, chemical storage areas, and observed areas of contamination or waste disposal.

iii. Identification of structural features that may indicate separate functional spaces, such as attics, false ceilings and crawl spaces, basements, closets, and cabinets.

iv. Identification of manufacturing methods based on observations and law enforcement reports.

v. Identification of chemicals used, based on observations, law enforcement reports, and knowledge of manufacturing method(s).

vi. Identification and documentation of areas of contamination. This identification may be based on visual observation, law enforcement reports, proximity to chemical storage areas, waste disposal areas, or cooking areas, or based on professional judgment of the consultant; or the consultant may determine that assessment sampling is necessary to verify the presence or absence of contamination.

vii. Identification and documentation of chemical storage areas.

viii. Identification and documentation of waste disposal areas.

ix. Identification and documentation of cooking areas.

x. Identification and documentation of signs of contamination such as staining, etching, fire damage, or outdoor areas of dead vegetation.

xi. Inspection of plumbing system integrity and identification and documentation of potential disposal into the sanitary sewer or a sewage disposal system (SDS). If the consultant determines that field screening and/or sampling of an SDS is necessary to determine if methamphetamine lab wastes have been disposed of into a SDS, such field screening and/or sampling shall be conducted in accordance with method identified in Appendix D of these regulations.

xii. Identification of adjacent units and common areas where contamination may have spread or been tracked.

xiii. Identification and documentation of common ventilation systems with adjacent units or common areas.

xiv. Photographic documentation of property conditions, including cooking areas, chemical storage areas, waste disposal areas, and areas of obvious contamination.

xv. All assessment sampling shall be conducted as part of the preliminary assessment to characterize the presence, nature and extend of contamination. Assessment sampling and laboratory analysis shall be conducted in accordance with Chapter 29a and Appendices A, B, C and D of theses regulations.

The property owner has the option of waiving the assessment sampling portion of the preliminary assessment process. In the event that the property owner elects to waive the assessment sampling portion of the preliminary assessment process, a written request shall be submitted to the Department indicating that the homeowner has elected to waive this portion of the preliminary assessment process. In addition, the remaining information described in Chapter 27a, (Preliminary Assessment) items i.-xiv. shall be submitted to the Department for review prior to beginning the decontamination process.

CHAPTER 28a: DECONTAMINATION PROCEDURES

If the results of the Preliminary Assessment identify that the building or structure is contaminated as a result of illegal methamphetamine activity or if the property owner elects to waive the preliminary assessment, decontamination shall be conducted to reduce the concentration of contaminants to the levels specified in Chapter 30a of this regulation. Decontamination shall be conducted in accordance with procedures designed to protect workers, future occupants, neighbors and the general public, and shall include, but not be limited to, the following:

SECTION 28a.01: A negative air unit, equipped with a HEPA filtration system, shall be used throughout the decontamination process to reduce airborne particulates.

SECTION 28a.02: Detergent water washing of non-porous, porous and semi porous surfaces that are contaminated, or that are reasonably expected to be contaminated, that will not be removed. It is strongly recommended that all carpet and padding suspected of being contaminated be removed and discarded.

SECTION 28a.03: Removal of all contaminated material that will not or cannot be decontaminated to cleanup levels specified in Chapter 30a of this regulation. If sampling cannot demonstrate that cleanup levels have been met on any contaminated material, said material shall be removed and properly disposed of in accordance with these regulations. Any removal of asbestos or lead based paint must be conducted in accordance with all applicable Federal, State and local requirements.

SECTION 28a.04: Encapsulation of porous and semi-porous surfaces may be conducted after detergent water washing and after clearance sampling has demonstrated that cleanup levels have been achieved.

SECTION 28a.05: Decontamination of ventilation systems by a contractor that is trained and equipped to comply with the protocol for ventilation system decontamination, presented in Appendix C of these regulations. It is recommended that the contractor use the National Air Duct Cleaners Association (NADCA) Guidelines for the decontamination of ventilation systems.

SECTION 28a.06: Water flushing of plumbing systems connected to the sanitary sewer to eliminate any residual chemicals.

SECTION 28a.07: Inspection of sewage disposal systems (SDS) and, if warranted, testing in accordance with the protocol presented in Appendix D of these regulations, to determine if the SDS has been impacted by methamphetamine lab derived chemical wastes.

SECTION 28a.08: Personal Property

i. Personal property must either be decontaminated to the cleanup levels specified in Chapter 30a of this regulation, or properly disposed in accordance with these regulations.

ii. Personal property that will not be disposed of must be sampled in accordance with procedures described in Appendix A of these regulations.

iii. Composite samples may be collected in accordance with the following procedure. Composite samples must be taken from items constructed of like materials that are contained within the same individual functional space (e.g.,

clothing from a bedroom closet may be sampled as a composite, fabric furniture within a living room may be sampled as a composite, draperies within an individual room may be sampled as a composite, non-porous goods such as wood or metal tables, shelves, cabinets, etc. in the same room may be sampled as a composite, etc.). A composite sample is considered representative of contaminant levels on all personal property of that type material within the same functional space. No more than 4 individual items may be included in any one composite sample. Should analysis of composite samples from multiple items indicate methamphetamine levels in excess of the cleanup level, all items comprising the composite sample will be considered to be in excess of cleanup levels.

SECTION 28a.09: Debris and contaminated material generated during methamphetamine lab decontamination shall be managed as solid waste, with notification provided to the landfill for methamphetamine lab contaminated material. Wash water can be containerized for offsite disposal, or disposed to the sanitary sewer with approval from the POTW. Wastes removed from SDS shall be disposed of as either solid or hazardous waste based on results of laboratory analysis as described in Appendix D of these regulations.

SECTION 28a.10: Any demolition, removal and disposal of all or part of a structure shall be conducted in accordance with all local, State and Federal requirements.

CHAPTER 29a: POST-DECONTAMINATION SAMPLING AND ANALYTICAL PROCEDURES

SECTION 29a.01: It is recommended that assessment sampling be conducted as part of the preliminary assessment to characterize the nature and extent of contamination. Assessment sampling and laboratory analysis shall be conducted in accordance with Appendices A, B, C and D of these regulations.

SECTION 29a.02: The consultant may determine that some areas should be deemed to be contaminated based on data other than assessment sampling. Areas that are deemed to be contaminated do not need to be sampled as part of the preliminary assessment.

SECTION 29a.03: Post-decontamination clearance sampling shall be conducted to verify that cleanup standards have been met. Sample collection and laboratory analysis shall be conducted in accordance with the procedures set forth in Appendices A, B, C and D of these regulations.

SECTION 29a.04: Locations of samples shall be based on information gathered during the preliminary assessment. Samples shall be collected from:

i. Areas expected to have the highest levels of contamination, such as cooking areas, chemical storage areas, and waste disposal areas.

ii. Areas where contamination may have migrated, such as adjacent rooms or units, common areas, and ventilation systems.

SECTION 29a.05: The number and type of samples shall be based on the size of the area or material, the chemical or contaminant being tested for, and the purpose of the sample (i.e., initial assessment or final clearance).

i. Discrete sampling is required in all cases

ii. Composite sampling may only be conducted in situations where contamination is expected to be relatively evenly dispersed throughout a given area, and composite sampling will provide an accurate representation of the area sampled, as described in Appendix A.

SECTION 29a.06: Sample handling, including labeling, preservation, documentation, and chain-of-custody, shall be conducted in a manner consistent with the requirements of the analytical method being used.

SECTION 29a.07: Analytical methods shall be based on the compound being sampled for. Sample analysis shall be conducted in accordance with the method requirements presented in Appendices A, B, C and D of these regulations.

SECTION 29a.08: If the property has a SDS, evaluation and potential sampling of the SDS may be conducted in accordance with Appendix D of these regulations. The investigation and cleanup of soil, surface water and groundwater contamination resulting from disposal of methamphetamine lab wastes into a SDS shall be conducted in accordance with all applicable rules and requirements imposed by the Michigan Department of Environmental Quality-Remediation and Redevelopment Division

SECTION 29a.09: Quality Control/Quality Assurance (QA/QC) samples, including sample blanks, matrix spike and matrix spike duplicates, shall be collected and/or analyzed as specified in the sampling and analysis protocols presented in Appendix A of these regulations. Laboratory QA/QC shall be conducted in accordance with method requirements as specified in Appendix B of these regulations.

SECTION 29a.10: To prevent any real or potential conflicts of interest, consultants conducting preliminary assessments and post-cleanup assessments must be independent of the company or entity that will subsequently conduct the drug lab cleanup.

CHAPTER 30a: CLEAN UP LEVELS

The following cleanup levels shall be used to determine if a property has been adequately decontaminated. They may also be used during the preliminary assessment to demonstrate that a property, or portion of a property, is not contaminated. All properties must meet the cleanup level for methamphetamine. Additional cleanup levels that may be applied to a property shall be based on information gained during the preliminary assessment.

SECTION 30a.01: Surface wipe samples and vacuum samples for methamphetamine shall not exceed a concentration of 0.5 μg /100 cm^2.

SECTION 30a.02: The investigation and cleanup of outdoor contamination, including soil, surface water and groundwater, shall be conducted in accordance with the Michigan Department of Environmental Quality-Remediation & Redevelopment Division.

CHAPTER 31a: POST-DECONTAMINATION REPORTING

A final report shall be prepared by the consultant to document the decontamination process and demonstrate that the property has been decontaminated to the cleanup levels listed in Chapter 30a of these regulations. The final report shall be complete and signed by the Environmental Professional and include, but not be limited to, the following:

SECTION 31a.01: 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.

SECTION 31a.02: Description of manufacturing methods and chemicals used, based on observations, law enforcement reports and knowledge of manufacturing method.

SECTION 31a.03: If available, copies of law enforcement reports that provide information regarding the manufacturing method, chemicals present, cooking areas, chemical storage areas, and observed areas of contamination or waste disposal.

SECTION 31a.04: A description of chemical storage areas

SECTION 31a.05: A description of waste disposal areas

SECTION 31a.06: A description of cooking areas

SECTION 31a.07: A description of areas with signs of contamination such as staining, etching, fire damage, or outdoor areas of dead vegetation, with a figure documenting location(s).

SECTION 31a.08: The results of inspection of plumbing system integrity and identification of sewage disposal mechanism.

SECTION 31a.09: If applicable, a description of adjacent units and common areas where contamination may have spread or been tracked.

SECTION 31a.10: If applicable, an identification of common ventilation systems with adjacent units or common areas.

SECTION 31a.11: A description of the sampling procedures used, including sample collection, handling, and QA/QC.

SECTION 31a.12: A description of the analytical methods used and laboratory QA/QC requirements.

SECTION 31a.13: A description of the location and results of initial sampling (if any), including a description of sample locations and a figure with sample locations and identification.

SECTION 31a.14: A description of the health and safety procedures used in accordance with OSHA requirements.

SECTION 31a.15: A description of the decontamination procedures used and a description of each area that was decontaminated.

SECTION 31a.16: If applicable, a description of the removal procedures used and a description of areas where removal was conducted, and the materials removed.

SECTION 31a.17: If applicable, a description of the encapsulation procedures used and a description of the areas and/or materials where encapsulation was performed.

SECTION 31a.18: A description of the waste management procedures used, including handling and final disposition of wastes.

SECTION 31a.19: A description of the location and results of post-decontamination samples, including a description of sample locations and a figure with sample locations and identification.

SECTION 31a.20: 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.

SECTION 31a.21: Consultant statement of qualifications, including professional certifications or qualifications within the Environmental Profession and description of experience in assessing contamination associated with illegal methamphetamine labs.

SECTION 31a.22: Certification of procedures and results, and variations from standard practices.

SECTION 31a.23: 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 Kalamazoo County Illegal Methamphetamine Cleanup Regulations. I further certify that the property has been decontaminated in accordance with the procedures set forth in the Kalamazoo County Illegal Methamphetamine Cleanup Regulations and that the cleanup standards established by Kalamazoo County 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 the Kalamazoo County Illegal Methamphetamine Cleanup Regulations. I further certify that the cleanup standards established by Kalamazoo County have been met as evidenced by testing I conducted."

SECTION 31a.24: Signature of the Environmental Professional.

SECTION 31a.25: The property owner and consultant shall each retain a copy of the report for a period of seven years.

CHAPTER 32A: REFERENCE MATERIALS

List of Materials Incorporated by Reference

American Society for Testing and Materials (ASTM) Method D3278-96e1 (October 1997), Standard Test Methods for Flash Point of Liquids by Setaflash Closed Tester.

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 D93-02a (December 2002), Standard Test Methods for Flash Point by Pensky-Martens Closed Tester.

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

National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services (DHHS), NIOSH Manual of Analytical Methods (NMAM), 4th. Ed., DHHS (NIOSH) Publication No. 94-113 (August, 1994), 1st supplemental publication 96-135 (1996), 2nd supplement publication 98-119 (1998):

Method 6009, Mercury (Issue 2, August 1994).

Method 9100, Lead in Surface Wipe Samples (Issue 2, May 1996).

Regulations Pertaining to the Cleanup of Methamphetamine Laboratories, Colorado Department of Public Health and Environment, Department of Public Health and Environment, 6 CCR 1014-3, (Adopted January 19, 2005)

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846 [Third Edition (November 1986), as amended by Updates I (dated July 1992), II (dated September 1994), IIA (dated August 1993), IIB (dated January 1995), III (dated December 1996) and IIIA (dated April 1998)]:

Method 1010, Pensky-Martens Closed-Cup Method for Determining Ignitability (Revision O, September 1986).

Method 1020A, Setaflash Close-Cup Method for Determining Ignitability (Revision 1, July 1992).

Method 1110, Corrosivity Toward Steel (Revision O, September 1986).

Method 6020, Inductively Coupled Plasma – Mass Spectrometry (Revision O, September 1994).

Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (Revision 2, December 1996).

Method 9014, Titrimetric and Manual Spectrophotometric Determinative Methods for Cyanide (Revision O, December 1996).

Method 9021, Purgeable Organic Halides (POX) (Revision O, December 1996).

Method 9034, Titrimetric Procedure for Acid-Soluble and Acid Insoluble Sulfides (Revision O, December 1996).

Method 9040B, pH Electrometric Measurement (Revision 2, January 1995).

APPENDIX A

METHAMPHETAMINE LABORATORIES

SAMPLING METHODS AND PROCEDURES

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 diligently 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 Chapter 30a of these regulations and shall be released. If objective sampling data indicates 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

Wipe Sample and/or Vacuum Sample

For illegal methamphetamine laboratories, as defined in these regulations whose structural floor plan is not greater than 1,500 square feet, surface sampling shall be collected according to the following schedule.

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 cm2 of surface shall be sampled, unless the area is assumed to be non-compliant.

- At least 1,000 cm2 of total surface area must be sampled for any single laboratory identified pursuant to these regulations

- An additional 100 cm2 must be sampled for every additional 400 square feet of structural floor space.

- No fewer than four samples shall be collected from any laboratory 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 illegal methamphetamine laboratory 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 an 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 exhibiting indicia of contamination shall be sampled. For example, where a single family dwelling meets the definition of an illegal methamphetamine laboratory, and an associated detached garage contains indications of contamination, the dwelling and the garage shall be evaluated separately.

Vehicles

Wipe Sample and/or Vacuum Sample

For illegal methamphetamine laboratories in vehicles, surface sampling shall be collected according to the following schedule. 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 cm2 of surface shall be sampled, unless the area is assumed to be noncompliant.

- An additional 100 cm2 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

Non-Porous Surfaces - Wipe Samples

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.

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 cm2 (10cm by 10cm) or a multiple of 100 cm2.

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 n 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 andIndirect 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 laboratories with outdoor components, or laboratories which are exclusively outdoors, the following sampling shall be performed when conditions indicate the potential for soil contamination. Sampling shall be conducted in accordance with the grid sampling method as described in the Midwest Research Institute's publication titled "Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup" (referenced in 40 CFR § 761.130), which is incorporated herein by reference. Surface samples shall be taken to a depth of no greater than 8 cm. Sample volume should be at least 100 cm3 and no more than 250 cm3. (Guidance on soil sampling can be found in ASTM D5730, ASTM E1727, ASTM D4700, and the EPA Environmental Investigations Standard Operating Procedures and Quality Assurance (EISOPQA) Manual. Additional subsurface samples may be required.

Other outdoor surfaces should be evaluated based on best professional judgment. Wipe samples and destructive samples may be required.

Composite Sampling

Composite sampling is permitted by this regulation, 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).

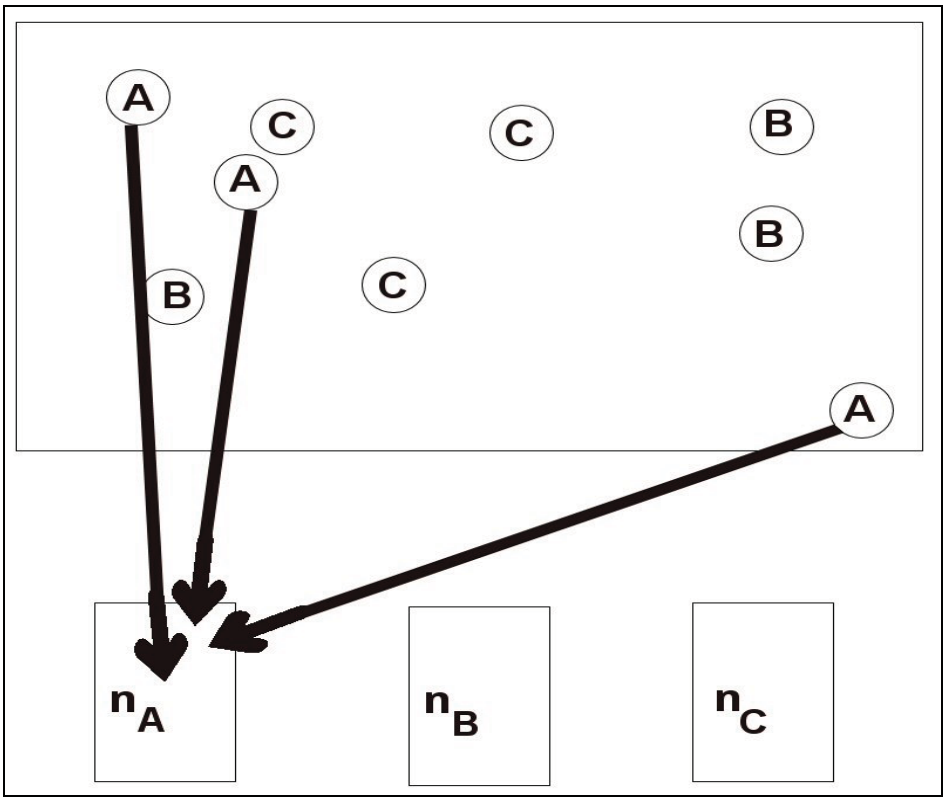

Figure 1A
Example of Random Sample Composites

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 cm2 and 200 cm2 and collect the wipe sample from that area
9. The method is repeated for each individual (*g*) of the composite

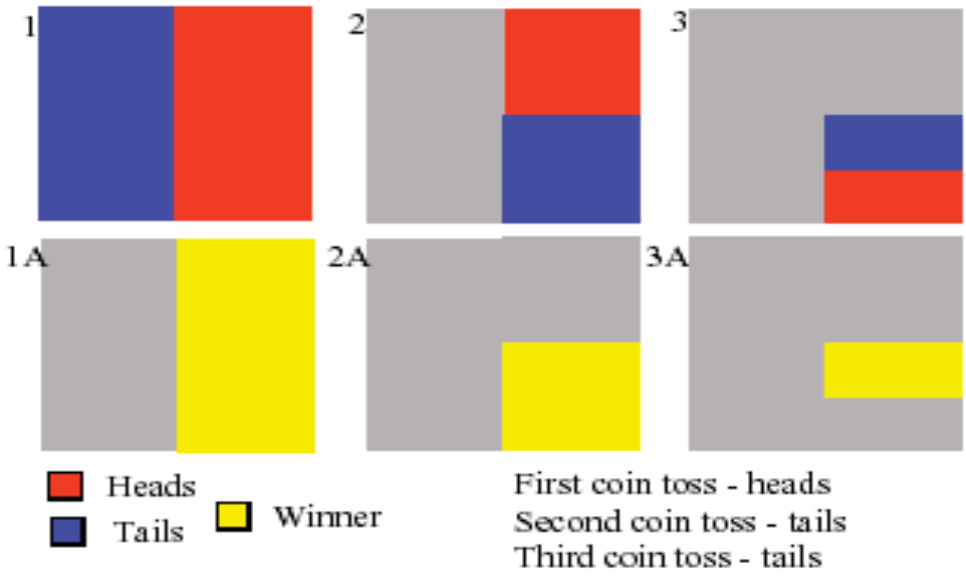

Figure 1B
Example of Random Sample Composites

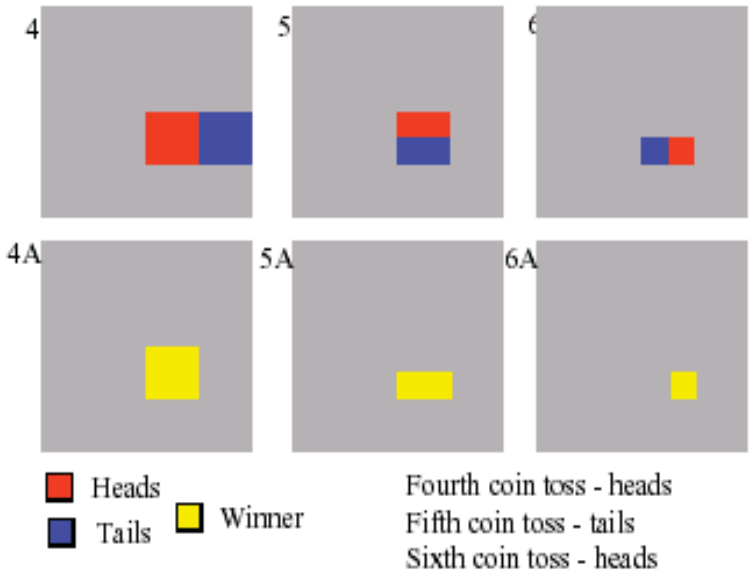

Figure 1C
Example of Random Sample Composites

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.

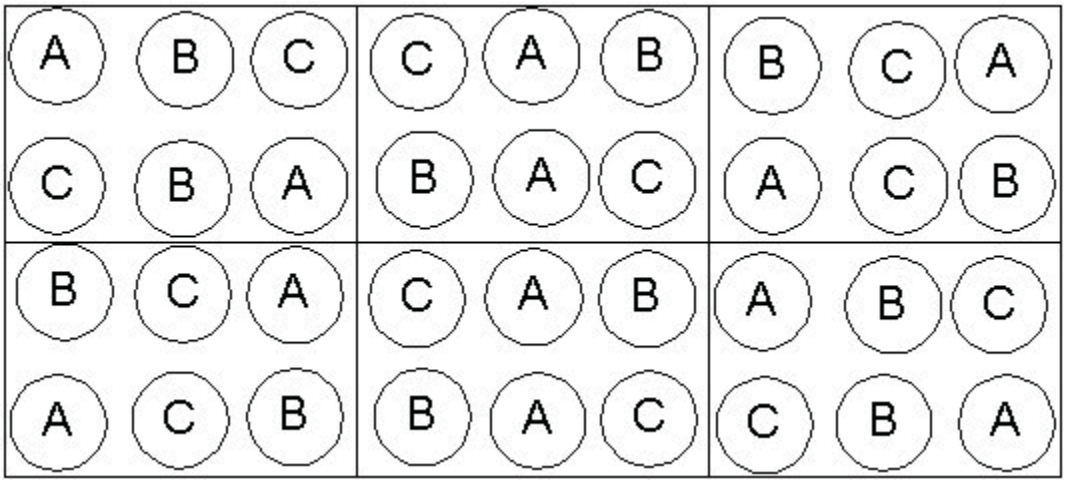

Figure 2
Example "A" of Systematic Sample Composites

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.

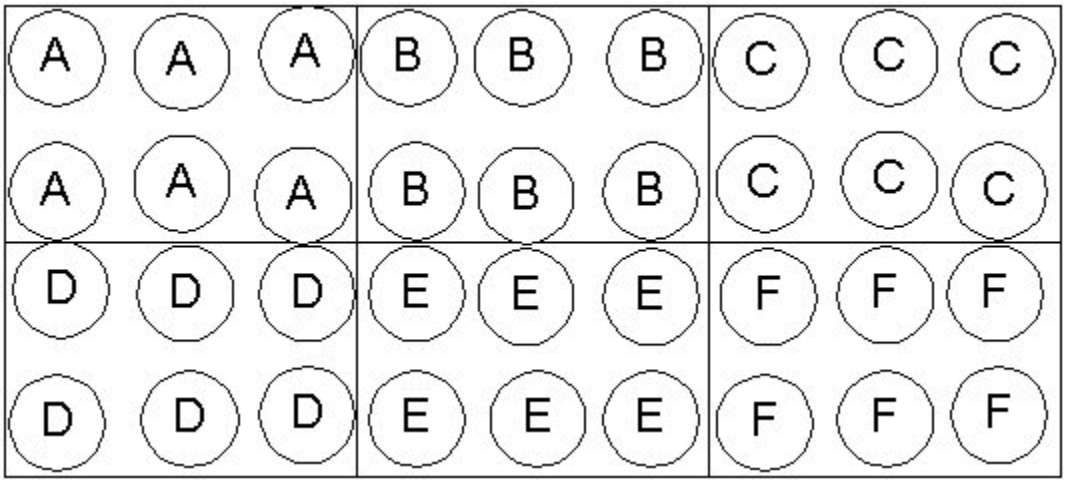

Figure 3
Example "B" of Systematic Sample Composites

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 level, 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 level 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 level. 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 level, 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 level has been met in that area.

ATTACHMENT TO APPENDIX A

METHAMPHETAMINE LABORATORIES

SAMPLING METHODS AND PROCEDURES

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 regulatory standard 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 Chapter 30a of these regulations and shall be released. If objective sampling data indicates 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 assume$_1$ the resulting concentration data to be more normally distributed than individual samples$_2$. 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).

X*i*:
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).

1 Based on the central limit theorem which states that if a population is repeatedly sampled, the means of all the sampling events will tend to form a normal distribution, regardless of the shape of the underlying distribution.

2
Exner JH, Keffer WD, Gilbert RO, Kinnison RR. A Sampling Strategy for Remedial Action at Hazardous Waste Sites: Clean-up Soil Contaminated by Tetrachlorodibenzo-p-Dioxin ” Hazardous Waste & Hazardous Materials 2(2):503-21, 1985.

APPENDIX B

METHAMPHETAMINE LABORATORIES

ANALYTICAL METHODS

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 one of the laboratories listed in this appendix, or 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. Analysis of vapor samples for mercury shall be conducted using NIOSH Method 6009. Real time monitoring by cold vapor atomic absorption or jerome gold film technologies 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 C

METHAMPHETAMINE LABORATORIES

VENTILATION SYSTEM DECONTAMINATION

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 D

METHAMPHETAMINE LABORATORIES

INDIVIDUAL SEWAGE DISPOSAL SYSTEMS

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 illegal methamphetamine laboratories 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 methamphetamine labs.

Background

The most common types of methamphetamine lab 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 methamphetamine waste, and to ensure proper disposal of any methamphetamine waste identified.

Field Screening

Field screening of septic tanks shall be conducted if there is evidence that illegal methamphetamine lab wastes may have been disposed of into an ISDS. Evidence of illegal methamphetamine lab wastes disposal 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 drug lab 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.

9. 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.

10. Replace access cover at the completion of sample collection.

11. 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.

12. Sample containers shall be placed in a cooler with enough ice or ice packs to maintain a temperature of 4° C.

13. 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 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 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. The investigation and cleanup of soil, surface water and groundwater contamination resulting from disposal of methamphetamine lab wastes into an SDS shall be conducted in accordance with all applicable state and local requirements. Specific investigation requirements shall be determined through consultation with the Michigan Department of Environmental Quality.

APPENDIX E

METHAMPHETAMINE DECONTAMINATION CONSULTANTS & CONTRACTORS

Purpose

The purpose of this appendix is to provide the home/structure owner of a potentially or confirmed methamphetamine contaminated home or structure with a list of potential contractors that can perform both preliminary and post-decontamination sampling as well as provide decontamination services.

The following decontamination companies have provided information relative to experience and credentials to be able to adequately perform the above-referenced services:

Consultants

DeLisle & Associates
5050 South Sprinkle Road
Kalamazoo, MI
269-373-4500

Fibertech Industrial Hygiene Services
1914 Holloway Drive
Holt, MI 48842
517-699-0345

Meth Lab Decon Services, Inc.
625 Auburn Street
Plymouth, MI 48170
734-277-0489

PM Environmental, Inc.
3340 Ranger Road
Lansing, MI 48906
517-485-3333

Stolz Environmental Solutions, LLC
7175 Creekside Drive
Portage, MI 49024
269-321-5020

Villa Environmental Consultants
408 West Main Street
Benton Harbor, MI 49023
269-927-2434

Wonder Makers Environmental, Inc.
P.O. Box 50209
Kalamazoo, MI 49005
269-382-4154

Contractors

Aftermath, Inc.
10200 Mandel Road, Unit C
Plainfield, IL 60544
630-922-3880

Assured Decontamination Services
P.O. Box 18622
Minneapolis, MN 55418
800-924-6384

Extreme Clean Scene, Inc.
25851 Trowbridge Street
Inkster, MI 48141
866-266-4590

VanDam & Krusinga
7588 Ravine Road
Kalamazoo, MI 49009
269-276-9922

Youngs Environmental
4990 West River Drive NE
Comstock Park, MI 49321
616-785-3374

These regulations were approved by the Kalamazoo County Board of Commissioners at a regular meeting on October 17, 2000.

Lorence Wenke, Chairperson
Kalamazoo County Board of Commissioners

10/17/2000
Date

Timothy A. Snow, County Clerk/Register

10/17/2000
Date

These regulations were amended at a regular meeting of the Kalamazoo County Board of Commissioners on May 15, 2001. Article I, Chapter 2, Section 2.01 was amended; Article I, Chapter 3, Section 3.30 was amended; Article I, Chapter 3, Section 3.31 was amended; Section 3.36a was added to Article I, Chapter 3; Section 3.46a was added to Article I, Chapter 3; Article IIIa, "Public Swimming Pool Water Quality Testing" was added.

These regulations were amended at a regular meeting of the Kalamazoo County Board of Commissioners on October 7, 2003. Article IIIb, "Water Supply Regulations – Restricted Zones" was added. Article IIIb becomes effective November 6, 2003.

These regulations were amended at a regular meeting of the Kalamazoo County Board of Commissioners on May 16, 2006. Article IX, "Regulations Pertaining to the Clean Up of Methamphetamine Laboratories was added. Article IX becomes effective May 16, 2006.