



**FORENSIC APPLICATIONS CONSULTING TECHNOLOGIES, INC.**

March 9, 2006

Mr. Dan Swallow  
Chief Building Official  
City of Evans  
Department of Public Works  
Building Inspections Division  
1100 37<sup>th</sup> Street  
Evans, Colorado 80620-2036

Dear Mr. Swallow:

The following PDF file is the text of the Preliminary Assessment and Industrial Hygiene Evaluation of a Suspected Methamphetamine Laboratory at 3509 Montrose Street, Evans, CO.

The file contains only the text of the preliminary assessment and none of the mandatory field observation documents such as the ventilation inspection, the plumbing inspection, inventory of law enforcement documents, property description, drawings and so forth. Furthermore, it does not contain the two dozen or so of my signatures on various pages, affirming inclusion of various mandatory documents, and it does not contain a signature page or the decision statement.

Therefore, it should be distributed with caution to those who understand that the text of the body of the assessment does not constitute the actual assessment.

If you have any questions, please let us know.

Sincerely,

Caoimhín P. Connell  
Forensic Industrial Hygienist



**FORENSIC APPLICATIONS CONSULTING TECHNOLOGIES, INC.**

**Preliminary Assessment and  
Industrial Hygiene Evaluation  
of a  
Suspected Methamphetamine Laboratory  
3509 Montrose Street, Evans, CO**

Prepared for:

City of Evans  
Department of Public Works  
Building Inspections Division  
1100 37<sup>th</sup> Street  
Evans, Colorado 80620-2036

Prepared by:

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This document is not complete. It contains the TEXT ONLY to the assessment and is not and cannot be used as a substitute for the actual assessment.

This version of the text is for INFORMATION ONLY as an internal document.

March 6, 2006

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## EXECUTIVE SUMMARY

On July 5, 2005, law enforcement agents conducted a search at the residence located at 3509 Montrose Street, (the subject property) pursuant to a signed search warrant. At that time, indications of a clandestine drug laboratory, as that term is defined in Colorado State statutes §25-18.5-101, were discovered.

Sampling performed on four separate occasions by three independent organizations conclusively confirmed the presence of widespread methamphetamine contamination in the subject property.

Following initial sampling, several decontamination activities occurred in the property, by the property owner, that were in violation of Colorado State regulations.<sup>1</sup>

On February 23, 2006, a court order was issued requiring the property owner to permit an independent authorized Industrial Hygienist to enter the property and perform sampling, and other activities, necessary to bring the property into compliance with State regulations. On February 24, 2006, Forensic Applications, Inc. performed an industrial hygiene review of the activities at the residence which included sampling. That review found continued widespread and significant contamination and violations of State regulation.

Pursuant to Colorado State regulations,<sup>2</sup> a “preliminary assessment” must be performed to characterize extant contamination, and to direct appropriate decontamination procedures. This document has become the *de facto* “preliminary assessment” pursuant to those regulations.

The preliminary assessment indicates widespread and significance contamination throughout the entire residential structure (and all items contained in the house), including the crawlspace, the garage (and all items contained in the garage), the shed (and all items contained in the shed), and the heating system, (including all associated ductwork), and the Ford Pickup Truck (and all items contained in that vehicle).

Based on our objective data, the entire occupiable structure (including the crawlspace, garage and shed) and all contents contained therein requires decontamination by a qualified contractor. The furnace system and all associated ductwork must be decontaminated by a *qualified, trained, experienced*<sup>3</sup> contractor or the system must be entirely removed. The Ford Pickup and all contents contained therein requires decontamination by a qualified contractor.

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<sup>1</sup> Department Of Public Health And Environment, 6 CCR 1014-3, State Board Of Health Regulations Pertaining to the Cleanup of Methamphetamine Laboratories (Adopted January 19, 2005, effective March 30, 2005)

<sup>2</sup> Ibid.

<sup>3</sup> 6 CCR 1014-3, Mandatory Appendix C



## HISTORY

- July 5, 2005: Law enforcement agents conducted a search of the subject property pursuant to a signed search warrant, and discovered indicia of a clandestine methamphetamine laboratory as that term is defined in State statutes.
- July 6, 2005: Members of the City of Evans Building Inspection Division performed a “dangerous building investigation,” and determined the building as dangerous and not fit for occupancy.
- July 21, 2005: The Weld County Department of Public Health and the Environment performed sampling in the residence. Sampling indicated widespread and significant methamphetamine contamination. (Appendix B)
- August 3, 2005: Forensic Applications, Inc. (FACTs) began to perform a preliminary assessment at the subject property. Samples collected by FACTs indicated widespread and significant methamphetamine contamination of all chattels, and structures.
- August 4, 2005: Legal counsel for the property owner demanded deviations from State regulations and issued Forensic Applications written instructions not to communicate with law enforcement, and other instructions which interfered with the assessment process. FACTs declined to acquiesce to instructions which were contrary to State regulations.
- August 12, 2005: Legal counsel for the property owner severed the client relationship with FACTs and informed FACTs they would not honor the signed agreement, thus terminating client privileges with FACTs.
- August 23, 2005: The property owner contacted Century Environmental Hygiene, LLC. (CEH) to perform a preliminary assessment.
- August 25, 2005: CEH entered the subject property and collected samples. Results of these samples supported widespread and significant methamphetamine contamination in the structure.
- At some point prior to February 13, 2006, the property owner began to remove items from the residence in violation of State regulations and State statutes.<sup>4</sup> At some point prior to February 13, 2005, the property owner began to remediate the property in a manner which was in violation of State regulations.<sup>5</sup>
- February 13, 2006: CEH issued a report purporting to be a preliminary assessment.

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<sup>4</sup> Colorado Revised Statutes §25-18.5-103(3)

<sup>5</sup> Section 7 of 6 CCR 1014-3



- February 17, 2006: The City of Evans independently contracted FACTs to review the CEH report. A letter issued February 17, 2006 by FACTs to the City of Evans Building Division (Appendix C) found the CEH report was fatally flawed and failed to meet minimum mandatory requirements as detailed in State regulations for a preliminary assessment.
- February 21, 2006: The City of Evans Building Division, and FACTs personnel visit the subject property. City of Evans requested entry to perform testing; the property owner exercised her right to decline to give permission.
- February 23, 2006: The City of Evans obtained a court order compelling the property owner to permit entry of City of Evans and authorized consultants in to the residence to perform sampling.
- February 24, 2006: The City of Evans personnel, and their independent consultants (FACTs) entered the property to perform an assessment. FACTs performed sampling which indicated widespread and significant methamphetamine contamination; and determined decontamination activities being conducted in a manner which was in violation of State regulations.

## **INTRODUCTION**

On Friday, February 24, 2006, FACTs performed contract work at the residence located at 3509 Montrose Street, Evans, CO (the subject property). The work was performed at the request of the City of Evans, Department of Public Works. The objective of the work was to perform an industrial hygiene assessment of the property and determine the mandatory course of action needed to abate a public nuisance in the context of methamphetamine contamination.

Due to the unusual nature of this project with regard to the sequence of events, i.e. events normally separated by sequential responses were circumvented and occurred out of order. As such, the occurrence of the preliminary assessment have become slightly confused, in that decontamination efforts occurred prior to the actual existence of a preliminary assessment. The discussion therefore, in an effort to accurately reflect the sequence of events, at places appears disjointed.

### ***Background***

FACTs performed interviews with various organizations and involved parties. According to information obtained from the home owner, the home owner's attorney, the Weld County Department of Health (WCDH), the Weld County Sheriff's Office (WCSO) and the Evans Police Department (EPD), members of the EPD and the WCSO discovered evidence of methamphetamine related activities at the subject property, which included at least one vehicle at the property (a Greed Ford Pickup). According to available police records, on July 5, 2005, law enforcement agents conducted a search of the property pursuant to a signed search warrant. According to the home owner, Patrice Wayne, she and others had smoked methamphetamine "several times" inside the residence.



According to the WCDH, samples they collected from the property indicated concentrations of methamphetamine in excess of the mandatory State of Colorado methamphetamine limit.<sup>6</sup>

### **Regulatory Application**

The Colorado State Board Of Health Regulations Pertaining to the Cleanup of Methamphetamine Laboratories become applicable when an owner of a property has received notification from a peace officer that chemicals, equipment, or supplies indicative of a “drug laboratory” are located at the property, or when a “drug laboratory” is otherwise discovered, and the owner of the property where the “drug laboratory” is located has received notice. In turn, “drug laboratory” is defined in Colorado Revised Statutes §25-18.5-101 as the areas where controlled substances have been manufactured, *processed*, cooked, disposed of, *or stored* and all proximate areas that are likely to be contaminated as a result of such manufacturing, processing, cooking, disposing, or storing. The term “processed” includes smoking of methamphetamine.

As such, based on the available information, cognizant authorities with WCDH, WCSO and the EPD determined that the subject property met the definitions of a drug laboratory. On July 6, 2005, pursuant to CRS §25-18.5-104, the Chief Building Official with the City of Evans issued a no-occupancy, no-entry order for the residence and the small shed located on the property.

## **INDUSTRIAL HYGIENE ASSESSMENT**

All assessment activities were performed in a manner consistent with State and Federal OSHA regulations.

### **Observations**

During our February 24, 2006 visit to the subject property, we observed several activities which were being performed in violation of State regulations. Primarily, the decontamination process must be conducted in accordance with state of the art and standard industry practices, and minimum protective procedures as specified in State regulation must be followed by the decontamination contractor.

### **Decontamination Procedure Violations**

Listed below are some of our observations which indicated work was progressing in violation of State regulations.

§5.1. A negative air unit, equipped with a HEPA filtration system, shall be used throughout the decontamination process to reduce airborne particulates.

No negative air unit was being employed, thus increasing the risk of fugitive emissions to all occupants and to surrounding properties and passersby.

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<sup>6</sup> 6 CCR 1014-3, Regulations Pertaining to the Cleanup of Methamphetamine Laboratories §7.0



§ 5.4. 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.

Porous materials in the den and in the bathroom were being encapsulated with building materials in violation of State requirements.

§5.5. 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.

We did not find any evidence that the property owner was “trained and equipped” to comply with the protocol for ventilation system decontamination as specified in Appendix C of the regulations.

§5.8.1 Personal property must either be decontaminated to the cleanup levels specified in section 7.0 of this regulation, or properly disposed in accordance with these regulations.

§5.8.2 Personal property that will not be disposed of must be sampled in accordance with procedures described in Appendix A of this regulation. Discrete samples must be collected from each individual item, except as provided in 5.8.3.

In violation of the regulations, personal property was being removed from the subject property without having been sampled and determined to be decontaminated. That property was transported in an uncontrolled fashion to unknown locations; thus contaminating that transport and those locations.

§5.9. Waste management shall be conducted in accordance with the Colorado Hazardous Waste Regulations (6 CCR 1007-3) and the Colorado Solid Waste Regulations (6 CCR 1007-2). 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.

We did not see any evidence that notification had been provided to a landfill for the receipt of methamphetamine contaminated material.

We did not see any evidence that the POTW had given permission for wash water to be discarded into the sanitary sewer.

5.10. Any demolition of all or part of a structure shall be conducted in accordance with all local State and Federal requirements.

Demolition of portions of the den and reconstruction was taking place in the absence of notification to the building division. Debris were not being disposed of as methamphetamine contaminated wastes.

Appendix C: The ventilation decontamination 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.

We did not see any evidence of a specific decontamination plan.

3. Place protective coverings in areas where work is being performed, including plastic or drop cloths around each area where the duct is penetrated.

No protective coverings were being employed.

4. Shut off and lock out all air handler units before working on each air conveyance system.

The air handling system was not locked out and was in full and normal operation during the decontamination process.

6. Draw a negative pressure on the entire ductwork, using HEPA exhausted vacuum filters, throughout the cleaning process.

The ducts were not maintained under negative pressure, and indeed were being maintained under positive pressure, in violation of State regulations. No HEPA filtration units were on site or were being used.

7. Remove and clean all return air grills.

All air grills remained in place and had not been removed.

9. Open and inspect air handling units, and clean all components.

The air handling units had not been opened.

10. Remove and clean all supply diffusers.

All supply diffusers remained in place and had not been removed.

## **Sampling**

In spite of the extant violations and overt evidence of contamination, the City of Evans directed FACTs to err in favor of the property owner, and collect samples in a manner consistent with the regulations which may demonstrate that the property owner was effectively decontaminating the property.

Our sampling, described later, indicated that widespread and significant contamination continued to exist on February 24, 2006. Contamination levels greater than 2,000 times regulatory thresholds were observed. The samples collected on February 24, 2006 are discussed with the other samples collected from the property in a later section.



## Ancillary Observations

Based on our observations, and based on the continued presence of positive indicators, including yellow staining, debris in the duct work, and the lack of documentation of decontamination of removed items, we concluded that a “decision statement” in favor of compliance was impossible. Therefore, a preliminary assessment, being otherwise absent, was prepared.

## Preliminary Assessment

According to 6-CCR 1014-3, following the discovery of a methlab, a “preliminary assessment” must be made of the property. The preliminary assessment must be made according to specified requirements.<sup>7</sup> Pursuant to that regulation, no sampling whatever is *required* during the preliminary assessment phase, rather the decision to sample or not sample is made by the authorized Industrial Hygienist.

During the preliminary assessment, the hypothesis is made that the subject area is clean and data will be collected to find support for the hypothesis. Any reliable data that disproves the hypothesis, including police records, visual clues of illegal production, storage, or use or documentation of drug paraphernalia being present, is considered conclusive, and compels the Industrial Hygienist to accept the null hypothesis and declare the area non-compliant.<sup>8</sup> 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 meth laboratories, to conclude the *presence* of methamphetamine, its precursors as related to processing, or waste products.

Sampling, if it is performed at all, is conducted in the areas with the highest probability of containing the highest possible concentrations of contaminants. According to the mandatory regulations:<sup>9</sup>

*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.*

Pursuant to the regulations, information obtained in the preliminary assessment and those findings enter the public domain, and are not subject to confidentiality.<sup>10</sup>

If the Industrial Hygienist performing the assessment finds *evidence* of contamination, the property owner is required to either remediate the property or demolish the property.<sup>11</sup>

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<sup>7</sup> Section 4 of 6 CCR 1014-3

<sup>8</sup> Appendix A (mandatory) of 6 CCR 1014-3

<sup>9</sup> Section 4.6 of 6 CCR 1014-3

<sup>10</sup> Section 8.26 of 6 CCR 1014-3

<sup>11</sup> Colorado Revised Statutes §25-18.5-103



After the subject property has been remediated, an Industrial Hygienist must perform sampling to quantify the remaining contamination or verify that the remediation has reduced the contamination in the property to below statutory limits. If, based on the totality of the circumstances, the Industrial Hygienist fails to find sufficient evidence to support the hypothesis that any given area is non-compliant, that area shall be deemed to be compliant and shall issue a decision statement releasing the property. If objective sampling data indicates contamination is below the cleanup levels, those data may be used as *prima facie* evidence that insufficient evidence exists to support the hypothesis that any given area is non-compliant.<sup>12</sup>

### Initial Statement on Hypothesis Testing

Insufficient information existed to support the hypothesis that contamination was absent from all portions of the subject property and, therefore, we collected limited samples to demonstrate that the areas were clean.

### Elements of the Preliminary Assessment

Specific mandatory information must be presented as part of the complete documentation. This discussion, in its totality, contains the mandatory information for a preliminary assessment as follows:

Form	DOCUMENT	Included
ML1- App. A	FACT Property description field form	
ML2- App. A	Plumbing inspection field form (plumbing system integrity and identification of sewage disposal mechanism)	
ML2- App. A	Ventilation inspection	
ML3- App. A	FACTs Functional space inventory field form	
ML4- App. A	FACTs Law Enforcement documentation field form	
ML5- App. A	FACTs Field Observations field forms	
ML6- App. A	FACTs Contamination migration field form	
ML7- App. A	FACTs ISDS field form	
CD	FACTs Pre-remediation photographs	
ML8- App. A	FACTs Pre-remediation photograph log sheet field form	
ML9- App. A	FACTs Post-remediation photograph log sheet field form	
ML10- App. A	FACTs Drawing of Cook area(s) field form	
ML12- App. A	FACTs Drawing of Storage area(s) field form	
ML12- App. A	FACTs Drawing of Waste area(s) field form	
ML12- App. A	FACTs Drawing General site field form	
Report	FACTs description sampling procedures, handling, and QA/QC	
Report	FACTs health and safety procedures used in accordance with OSHA	
Report	FACTs Analytical Laboratory Documentation Form	
ML14- App. A	FACTs Certification of procedures, results, and variations from standard practices.	
ML15- App. A	FACTs SOQs	

**Table 1  
Inventory of Mandatory Information**

<sup>12</sup> No guarantee is ever made or implied that the property is completely free of contamination. Rather, a reasonable, standardized approach to decontamination is executed.



Appendix D	FACTs Analytical Laboratory Reports	
NA	Available Law Enforcement documents – (Excluded)	
ML18- App. A	FACTs Field Data Sheets	
CD	A description of the analytical methods used and laboratory QA/QC requirements.	

**Table 1 (cont)**  
**Inventory of Mandatory Information**

Pursuant to the regulations, “Property” means anything that may be the subject of ownership or possession, including, but not limited to, land, buildings, structures, vehicles and personal belongings. Further, pursuant to Colorado Revised Statutes §25-18.5-101, the definition of a "drug laboratory" includes all proximate areas that are likely to be contaminated as a result of such manufacturing, processing, cooking, disposing, or storing. As such, we believe the two personal vehicles associated with the property would be reasonable extensions of the property. As such, they have been included in this preliminary assessment.

Although presumed-contaminated chattels were found in the back yard of the subject property, we found no evidence that would suggest contamination extended to the outside soils *per se*. We have no reason to believe, at this point, that the immediate surrounding outdoor soils are “contaminated” as that term is defined in State regulation.

Included with this discussion is a read-only CD. The CD contains mandatory information and photographs required by State regulation for a preliminary assessment, and therefore, this document is not complete without the CD. Also included with this assessment is all pertinent documentation associated with the assessment.

**Sample Collection**

Wipe samples were collected in a manner consistent with State regulations. The wipe sample medium was individually wrapped commercially available Johnson & Johnson™ gauze pads. Each gauze material was assigned a lot number for quality assurance and quality control (QA/QC) purposes and recorded on a log of results. Each pad was moistened with Safeway™ brand USP 99% isopropyl alcohol. Each batch of alcohol was assigned a lot number for QA/QC purposes and recorded on a log of results. The sampling media were prepared in small batches.

The sample media were prepared in a clean environment and inserted into individually identified polyethylene centrifuge tubes with caps. For QA/QC purposes, the field blank was randomly selected from the batch, randomly inserted in the sampling sequence and submitted along with the samples for analysis. To ensure the integrity of the blank, FACTs personnel were unaware, until the actual time of sampling, which specific samples would be submitted as a blank. To ensure the integrity of the blanks, laboratory personnel are never informed which specific samples were blanks. The history of the FACTs field blank media has demonstrated a media and solvent contamination level below the analytical detection limit for the method. For the purposes of the data quality objectives associated with this preliminary assessment, no duplicates were required, and none were collected.



Prior to the collection of each specific sample, the Industrial Hygienist donned fresh surgical gloves, to protect against the possibility of cross contamination.

Each proposed sample area was delineated with a measured outline.

Each wipe sample was collected by methodically wiping the entire surface of the selected area with moderate pressure; first in one direction and then in the opposite direction, folding the gauze to reveal fresh material as necessary. Each sample was returned to its centrifuge tube and capped with a screw-cap.

The vacuum samples were collected in accordance with standard industrial hygiene microvacuum sampling procedures.<sup>13</sup> After an area had been selected and measured, a commercially available 25 mm diameter extended-cowel cassette fitted with mixed cellulose ester (MCE) membrane was attached to a commercially available personal sampling industrial hygiene pump. The pump was adjusted to draw approximately four liters of air per minute. The cassette was opened to present an “open face” and the selected area was vacuumed with the cassette.

Samples were maintained in our control at all times, and submitted via FedEx to Analytical Chemistry, Inc. in Tukwila, Washington, under chain of custody.

## **Sample Results**

A total of four sample suites were conducted:

- July 21, 2005: Weld County Department of Public Health and the Environment performed sampling at the subject property. (Appendix B)
- August 3, 2005: FACTs performed sampling at the subject property.
- August 25, 2005: CEH performed sampling at the subject property. (Appendix E)
- February 24, 2006: City of Evans personnel, through their independent consultant (FACTs), performed sampling at the subject property.

Although all the sampling performed conclusively indicates widespread contamination, in the tables below, we have exclusively presented only those data collected by FACTs.

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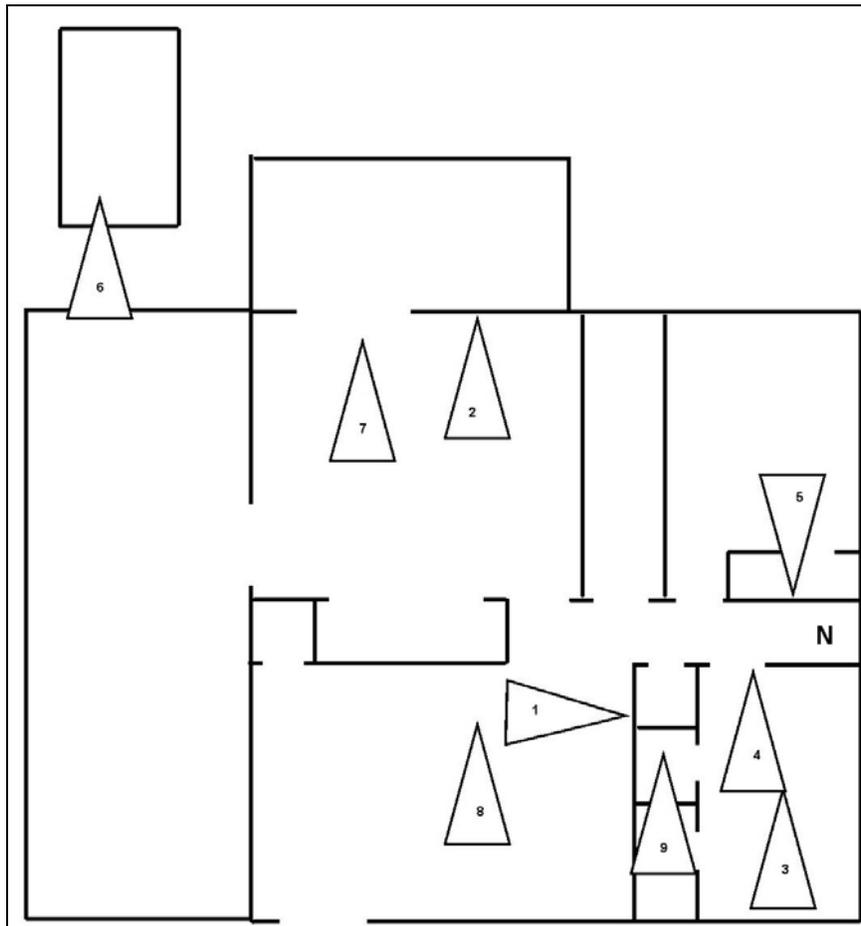
<sup>13</sup> For example, see ASTM Method D 5756-02



**August 3, 2005**

Sample ID	Sample Location	Total $\mu\text{g}$	$\mu\text{g}/100\text{cm}^2$	Regulatory Threshold $\mu\text{g}/100\text{cm}^2$
MM080305-01	Living Room north wall	0.515	0.1	0.5
MM080305-02	Kitchen west wall	0.332	0.1	0.5
MM080305-03	Ceiling fan blade in northeast bedroom	26.6	17.2	0.5
MM080305-04	Northeast Bedroom west wall	2.18	0.5	0.5
MM080305-05	Northwest Bedroom east wall in closet	18.1	4.4	0.5
MM080305-06	Fluorescent light fixture hanging in shed	3.03	2.6	0.5
MM080305-07	Ventilation duct in kitchen	72.5	1123.8	0.5
MM080305-08	Living room carpet	19.7	1.0	0.5
MM080305-09	Clothing hanging in NE Bedroom closet	25	2.7	0.5

**Table 2**  
**Summary of Preliminary Sampling Conducted on August 3, 2005**



**Figure 1**  
**Drawing of August 3, 2005 Sample Locations**



## August 3, 2005 Quality Assurance/Quality Control

The following section is required by regulation and is not intended to be understood by the casual reader. All abbreviations are standard laboratory use: MDL was 0.004 µg; LOQ was 0.03 µg; MBX <MDL; LCS 2.00 µg (recovery =100%); Matrix spike 0.020 µg (recovery 0.021 µg, 105%); Matrix spike Dup 0.020 µg; (recovery 0.023 µg, 115%); Surrogate recovery (all samples): High 118% (Sample 7), Low 93% (Sample 2); FACTs reagents: IPA lot #A0502 (all samples) <MDL for n=7; Gauze lot G0502 (samples 1 and 6) <MDL for n=4; Gauze lot G0501 (samples 2, 3, 4, 5, and 7) <MDL for n=3.

The QA/QC indicate the data met the data quality objectives, and the results appear to be biased slightly high (that is, the samples may have contained slightly, but not significantly, less methamphetamine than reported by the laboratory).

## February 24, 2006

Sample ID	Location	Total µg	µg/100cm <sup>2</sup>	Regulatory Threshold µg/100 cm <sup>2</sup>
EM022106-01A	Living room North wall			
EM022106-01B	Hallway wall east wall north end			
EM022106-01	Functional space 1 composite	0.412	0.022	0.25
EM022106-02A	NE Bed Room SE upper corner			
EM022106-02B	NE Bed Room closet interior			
EM022106-02	Functional space 2 Composite	0.39	0.021	0.25
EM022106-03A	NW Bed Room N central wall			
EM022106-03B	NW Bed Room Closet			
EM022106-03	Functional Space 3 composite	3.38	0.182	0.25
EM022106-04	Bathroom top of white cabinet	27.8	3.056	0.50
EM022106-05A	Kitchen west wall above sliding door			
EM022106-05B	Den E wall SE corner			
EM022106-05	Functional Space 5 Composite	3.67	0.198	0.25
EM022106-06A	Crawlspace black iron			
EM022106-06B	Crawlspace galvanized duct			
EM022106-06C	Crawlspace galvanized duct			
EM022106-06	Functional Space 6 Composite	40.6	2.718	0.17
EM022106-07	Garage light fixture	23.1	4.973	0.50
EM022106-08	Shed light fixture	17.8	1.533	0.50
EM022106-09	North Living Room furnace duct	37.7	292.176	0.25
EM022106-10	BX	0.029	0.029	0.25
EM022106-11	NW BR closet IODINE (Archived)			
EM022106-12	Kitchen IODINE (Archived)			

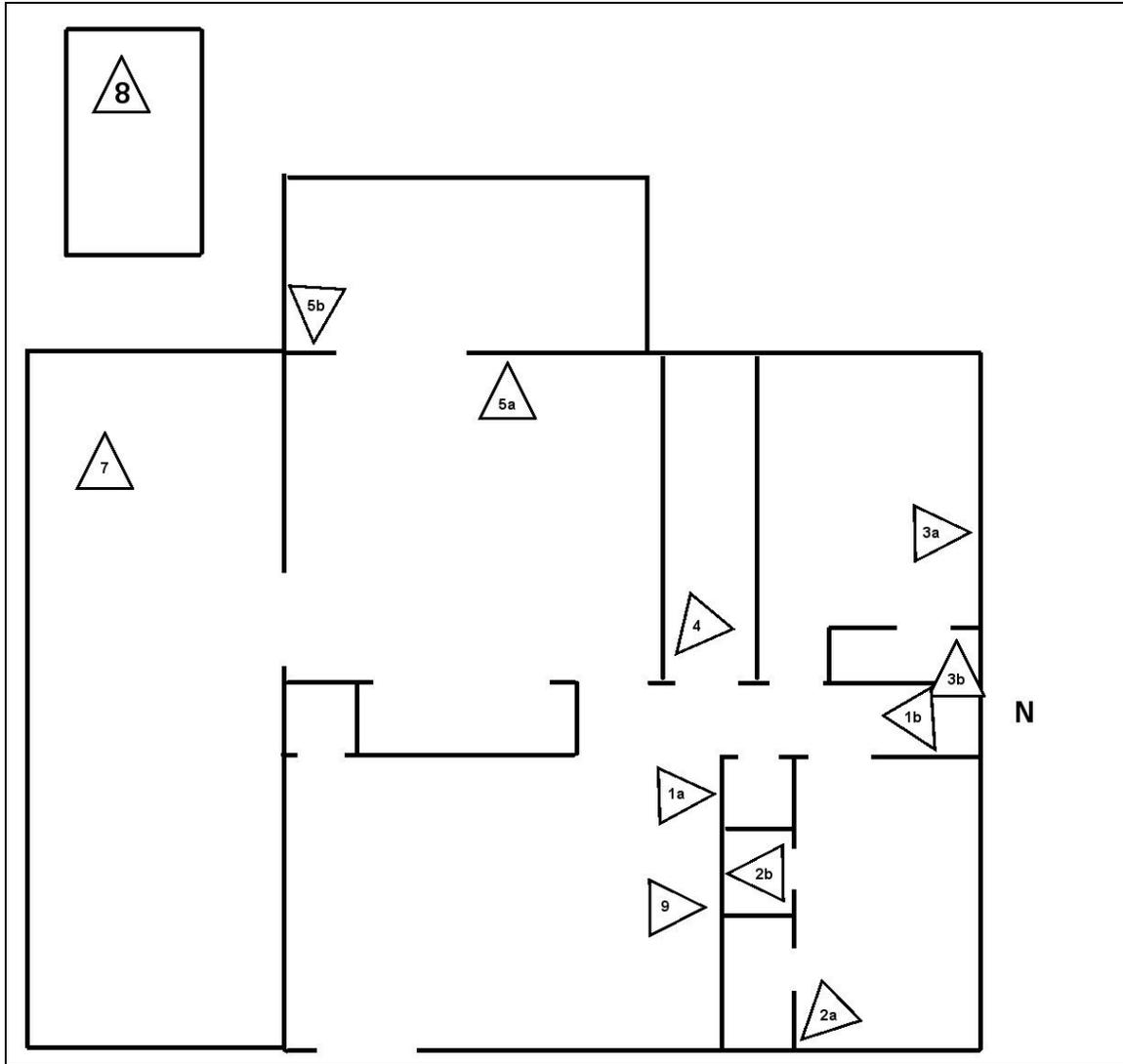
**Table 3**

### Summary of Preliminary Sampling Conducted on February 24, 2006

Although samples were collected for iodine, those samples were archived pending the results of the methamphetamine analysis. Since the wipe samples for methamphetamine

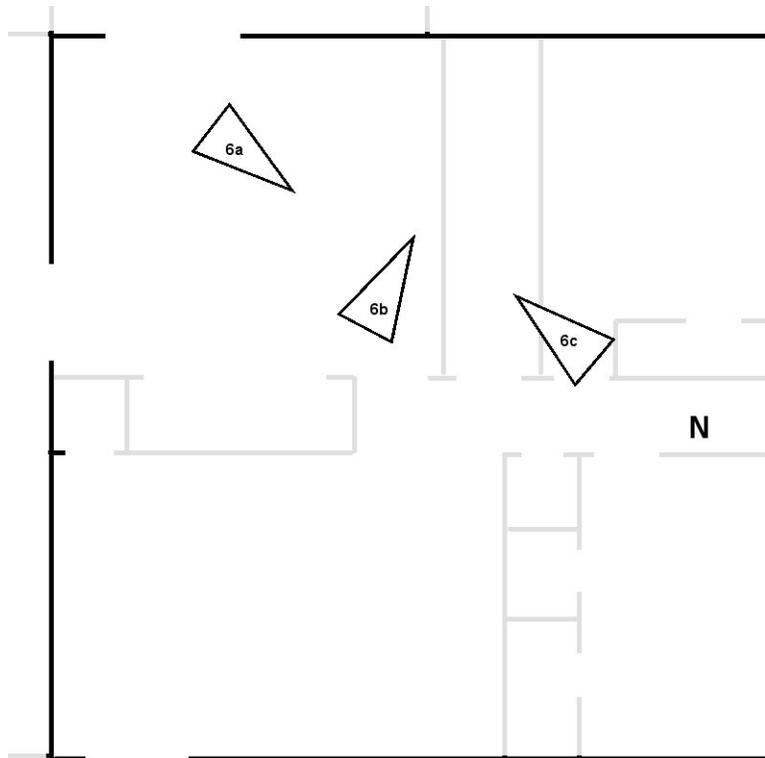


conclusively demonstrated widespread presence, it is not necessary for the iodine samples to be submitted.



**Figure 2**  
**Drawing of February 24, 2006 Sample Locations (Main Floor)**





**Figure 3**  
**Drawing of February 24, 2006 Sample Locations (Crawlspace)**

**February 24, 2006 Quality Assurance/Quality Control**

The following section is required by regulation and is not intended to be understood to the casual reader. All abbreviations are standard laboratory use: MDL was 0.004 µg; LOQ was 0.03 µg; MBX <MDL; LCS 2.00 µg (recovery =95%); Matrix spike 0.020 µg (recovery 0.020 µg, 100%); Matrix spike Dup 0.020 µg; (recovery 0.020 µg, 100%); Surrogate recovery (all samples): High 105% (Sample 8), Low 94% (Sample 1); FACTs reagents: IPA lot #A0502 (all samples) <MDL for n=8; Gauze lot G0503 (all samples) <MDL for n=3. The QA/QC indicate the data meet the data quality objectives, and the results do not appear to exhibit bias.

**FUNCTIONAL SPACE SUMMARY**

The following Functional Spaces have been identified and are addressed below.

- Structure 1; Functional Space 1: Living Room and Hallway to Bedrooms
- Structure 1; Functional Space 2: North East Bedroom
- Structure 1; Functional Space 3: North West Bedroom
- Structure 1; Functional Space 4: Bathroom
- Structure 1; Functional Space 5: Kitchen and Den
- Structure 1; Functional Space 6: Crawlspace
- Structure 1; Functional Space 7: Garage
- Structure 1; Functional Space 8: Ford Pick-up Truck
- Structure 1; Functional Space 9: Silver/Gray Jeep Cherokee



Structure 1; Functional Space 10: Attic  
Structure 1; Functional Space 11: Outdoor Property  
Structure 2, Functional Space 1: Shed

### ***Functional Space 1: Living Room and Hallway to Bedrooms***

Functional Space 1 was delineated by the walls of the living room and hallway, and by the limit and extent of the brown carpet (removed in violation of regulation sometime between the August, 2005 and the February, 2006 FACTs visits) surrounded by those walls. The functional space included all belongings and the closets extending from that space.

Samples from this space included a vacuum sample from the carpet and four wipe samples; comprising of two distinct samples (one a two-part composite). All of the samples conclusively indicated the presence of methamphetamine. The wall samples indicated concentrations of 0.12 and 0.02  $\mu\text{g}/100\text{ cm}^2$  and the carpet indicated a methamphetamine concentration of 1.02  $\mu\text{g}/100\text{ cm}^2$ . A wipe sample from the duct in the living room contained methamphetamine at a concentration of 292  $\mu\text{g}/100\text{ cm}^2$ .

Additionally, the carpet contained approximately 152 micrograms of methamphetamine per gram of removable debris (152  $\mu\text{g}/\text{g}$ ). Sampling evidence alone from this functional area conclusively indicates contamination in excess of that permitted by the State.

### ***Functional Space 2: North East Bedroom***

This functional space was delineated by the walls that describe the room, and included all belongings and the closets located within the room. Most of the belongings were removed (sometime between the August, 2005 and the February, 2006 FACTs visits) in violation of State regulation.

Law enforcement documentation contain evidence which demonstrates to an Industrial Hygienist “trained in aspects of methamphetamine laboratories<sup>14</sup>” that this room was used for the storage of waste products, and was potential cook area. This functional space is considered to be a storage area and a potential cook area.

At least six samples were collected in this room; five by FACTs (including a two part composite), and one sample by WCDH (a three part composite). The samples collected by FACTs included four wipe samples and one vacuum sample of the clothing in the closet of the room. All of the samples collected from this area indicated methamphetamine contamination.

The FACTs wall samples contained 0.53  $\mu\text{g}/100\text{ cm}^2$ ; and 0.02  $\mu\text{g}/100\text{ cm}^2$ ; the ceiling fan blade (later removed) contained 17  $\mu\text{g}/100\text{ cm}^2$ ; the clothing contained 2.7  $\mu\text{g}/100\text{ cm}^2$ ; and the WCDH composite wipe sample contained 12.6  $\mu\text{g}/100\text{ cm}^2$ . Sampling evidence alone from this functional area conclusively indicates contamination in excess of that permitted by the State.

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<sup>14</sup> *Pre-decontamination Sampling*, Mandatory Attachment to Appendix A, 6 CCR 1014-3



### ***Functional Space 3: North West Bedroom***

The northwest Bedroom functional space was delineated by the walls that describe the room, and included the closet and all belongings located within the room (all of which had been removed in violation of State regulations, sometime between the August, 2005 and the February, 2006 FACTs visits).

Law enforcement documentation and staining of walls provide evidence which demonstrates to an Industrial Hygienist “trained in aspects of methamphetamine laboratories<sup>15</sup>” that this room was used for the storage of waste products, and was potential cook area. This functional space was considered to be a storage area and a potential cook area based on that evidence.

A wipe sample was collected from the yellow-stained walls in the closet of this room. The sample indicated a methamphetamine concentration of 4.4  $\mu\text{g}/100\text{ cm}^2$ ; exceeding the maximum concentration permitted by State regulations. The second sample, a two part composite, contained 0.18  $\mu\text{g}/100\text{ cm}^2$ . Sampling evidence alone from this functional area conclusively indicates contamination in excess of that permitted by the State.

### ***Functional Space 4: Bathroom***

This functional space was originally delineated by the walls defining the room, and due to the fact that there was no floor in the bathroom (as observed during the August, 2005 FACTs visit), but free communication with the crawlspace, the crawlspace could also have been included in the functional space. During the February, 2006 visit, we observed that, in violation of State regulations, construction activities had taken place in the room, sealing off the crawlspace.

One sample, collected from the top of the cabinet in the bathroom contained methamphetamine at a concentration of 3.06  $\mu\text{g}/100\text{ cm}^2$ . One composite wipe sample consisting of three separate surfaces was collected by the WCDH from this area. The sample indicated a methamphetamine concentration of 14.3  $\mu\text{g}/100\text{ cm}^2$ . Sampling evidence alone from this functional area conclusively indicates contamination in excess of that permitted by the State.

### ***Functional Space 5: Kitchen and Den***

The kitchen is delineated by the walls that define the rooms, and conceivably the crawlspace which opened directly into the den via an open access. FACTs collected four samples from this area, all wipe samples. One of the samples from the west wall, indicated a methamphetamine concentration of 0.08  $\mu\text{g}/100\text{ cm}^2$  and another sample collected from the ventilation duct in the kitchen indicates a concentration of 1,124  $\mu\text{g}/100\text{ cm}^2$ . A two part composite was also collected from the den and kitchen and indicated a methamphetamine concentration of 0.2  $\mu\text{g}/100\text{ cm}^2$ .

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<sup>15</sup> *Pre-decontamination Sampling*, Mandatory Attachment to Appendix A, 6 CCR 1014-3



These samples underscore a dichotomy seen in the sampling performed in the living room, and in the bedroom. This dichotomy, wherein the highest level (greater than 2,000 times that permitted by State regulation) coexists with the lowest sample identified. We have presented our interpretation of the meaning of this dichotomy in the “Conclusions” section.

Sampling evidence alone from this functional area conclusively indicates contamination in excess of that permitted by the State. Furthermore, sampling from this area conclusively indicates contamination of the entire ventilation system.

### ***Functional Space 6: Crawlspace***

The Crawlspace consisted of an area as commonly defined. At the time of our initial August, 2005 assessment, the Crawlspace was used extensively for storage. At the time of our February, 2006 visit, in violation of State regulations, the items had been removed. A three part composite sample collected from this area indicated a methamphetamine contamination level of approximately  $3.7 \mu\text{g}/100 \text{ cm}^2$ . For this three part composite, one slightly different area was composited with two others. However, this is consistent with the DQOs of the preliminary sampling.

### ***Functional Space 7: Garage***

During our August, 2005 visit, we were physically incapable of entering the garage due to locked and/or blocked doors and entrance ways. During our February, 2006 visit, the garage was accessible and in violation of State regulations considerable chattels had been removed.

A discreet sample was collected from the top of the light fixture in the garage, and indicated a methamphetamine contamination concentration of approximately  $5 \mu\text{g}/100 \text{ cm}^2$ . All contents remaining in the garage are therefore contaminated and cannot be removed until such time that verification sampling demonstrates adequate cleaning, pursuant to state regulations.

### ***Functional Space 8: Ford Pick-up Truck***

Towards the end of our August 3, 2005 visit, the homeowner arrived at the house in the Ford Pick-up (Colo License Number 177 HJL) that had been identified in the police reports as containing methamphetamine. A short time after her arrival, the homeowner was arrested by EPD, and the Ford Pick-up was left at the subject property. As such, pursuant to the language of the regulation, the Ford Pick-up ostensibly became part of our preliminary assessment.

According to police reports, methamphetamine, methamphetamine production precursors, and glassware reported by the police as being normally associated with methamphetamine production had been located in the Ford Pick-up truck. Furthermore, according to police and to neighbors, unauthorized persons removed articles from the house and placed them into the Ford in violation of CRS §25-18.5-103 (3). Furthermore, our sampling has demonstrated that clothing and virtually all other items in the residence



were contaminated. Based on the totality of the circumstances, sufficient evidence exists for a cognizant Industrial Hygienist, trained in the aspects of methamphetamine, to conclude the Ford Pick-up is contaminated as required by State regulations, and requires remediation.

### ***Functional Space 9: Silver/Gray Jeep Cherokee***

At the time of our August, 2005 visit, a silver-gray colored Jeep Cherokee was parked in the front of the property, along the south property line. As previously discussed “drug laboratory” is defined in Colorado Revised Statutes §25-18.5-101 as all proximate areas that are likely to be contaminated as a result of manufacturing, processing, cooking, disposing, or storing of methamphetamine related materials.

In light of the language of the regulations, we believe the Jeep would strictly be considered part of our assessment. However, based on our subjective observations, it appeared the vehicle had not been used or occupied for an extended period of time. Furthermore, no documentation was found which suggested the Jeep was in any way associated with the activities or contamination in the house. Finally, our interviews revealed no information which suggested that the Jeep was in any way associated with the activities or contamination in the house. Therefore, the language of the regulation notwithstanding, based on the available information, we concluded that there is insufficient information which would reasonably implicate the Jeep as potentially contaminated.

### ***Functional Space 10: Attic***

It is our opinion that the attic is certainly contaminated to some degree. However, a visual inspection of the attic indicated that it was visibly free of overt items associated with methamphetamine activity. Furthermore, the attic does not appear to be particularly useable as storage. Under the circumstances, the presumed presence of methamphetamine notwithstanding, the presence may not meet the standard of “contamination” as that term is defined in State regulations. Therefore, although we have included the attic as a functional space, we have excluded this functional space from remediation activities.

### ***Functional Space 11: Outdoor Property***

Outdoors, stored around the exterior walls of the house and stored alongside the shed was a variety of miscellaneous items such as several Gerry cans (approximately seven gas cans), building materials, refrigerators, tires, chairs, furniture, building materials, shovels, tool boxes, lumber, shelves, tables, car stands, jacks, electrical cords, Christmas lights, boxes, lawn and gardening tools, coolers, suitcases, kitchen appliances, floor tiling, and several other items.

Based on information provided to us by the EPD and by neighbors, many household items were removed from the house in violation of state statutes and regulations. Obviously, during a preliminary assessment, it would be prohibitively expensive to assess each item separately. As such, consistent with the State of Colorado regulations, we



believe that given the totality of the circumstances, there is sufficient evidence to reject the hypothesis being tested and accept the null hypothesis; concluding that until otherwise demonstrated, all outdoor items should be considered contaminated.

### **Structure 2, Functional Space 1: Shed**

To the west of the main residence, located entirely within the fence-line is a small garden shed. The shed had possibly been placarded with an order by the Chief Building Official with the City of Evans with a no-occupancy, no-entry order. On the door of the shed, at the time of our August visit was a sign that read “DANGER KEEP OUT” and on the ground at the foot of the shed door was a second placard which read “DANGEROUS BUILDING DO NOT ENTER OR OCCUPY THE BUILDING.” The placard on the ground was signed by the Chief Building Official with the City of Evans.

During our August, 2005 visit, the shed is full of miscellaneous items including a motorcycle. In violation of State regulations, those items had been removed by the time of our February, 2006 visit.

Two wipe samples were collected from the top horizontal surface of a fluorescent lighting fixture suspended from the ceiling of the shed interior; one during our August, 2005 visit, and another during our February, 2006, visit; the resulting methamphetamine contamination concentrations were 2.6 and 1.5  $\mu\text{g}/100\text{ cm}^2$ , respectively. Sampling evidence alone from this functional area conclusively indicates contamination of the shed and all contents that were in the shed.

### **Ventilation System**

Although not a Functional Space *per se*, samples collected from the ventilation system indicate that contamination in the ventilation system is extremely high. The industrial hygiene and medical communities now know that the mere use of methamphetamine in a home results in elevated exposures to the occupants via airborne migration. When methamphetamine is smoked, between 80%<sup>16</sup> and half<sup>17</sup> of the substance is released from the user's pipe. Of that material which is inhaled, between 33%<sup>18</sup> and 10%<sup>19</sup> of the

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<sup>16</sup> Cook CE, Pyrolytic Characteristics, Pharmacokinetics, and Bioavailability of Smoked Heroin, Cocaine, Phencyclidine, and Methamphetamine (From: Methamphetamine Abuse: Epidemiologic Issues and Implications Research Monograph 115, 1991, U.S. Department Of Health And Human Services Public Health Service Alcohol, Drug Abuse, and Mental Health Administration National Institute on Drug Abuse

<sup>17</sup> Cook CE, Jeffcoat AR, Hill JM, et al. Pharmacokinetics of Methamphetamine Self-Administered to Human Subjects by Smoking S-(+)-Methamphetamine Hydrochloride. Drug Metabolism and Deposition Vol. 21 No 4, 1993 as referenced by Martyny JW, Arbuckle SL, McCammon CS, Erb N, Methamphetamine Contamination on Environmental Surfaces Caused by Simulated Smoking of Methamphetamine (The publication of this study is currently pending. Copies of the study are available from the Colorado Alliance for Drug Endangered Children.)

<sup>18</sup> Harris DS, Boxenbaum H, Everhart ET, Sequeira G, et al, The bioavailability of intranasal and smoked methamphetamine, Pharmacokinetics and Drug Disposition, 2003;74:475-486.)



nominal dose is not absorbed into the body (leaving the material airborne). Recent work by Industrial Hygienists at the National Jewish Hospital<sup>20</sup> in Denver, Colorado, indicate that a single use of methamphetamine, by smoking, would result in an average residential area ambient airborne concentration of methamphetamine ranging from 35 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) to over 130  $\mu\text{g}/\text{m}^3$ . These authors found that smoking methamphetamine just once in the residence can result in surfaces being contaminated with methamphetamine. The authors concluded: "If methamphetamine has been smoked in a residence, it is likely that children present in that structure will be exposed to airborne methamphetamine during the "smoke" and to surface methamphetamine after the 'smoke.'<sup>21</sup>

Since it is the purpose of the ventilation system to move air throughout the structure, and the furnace is conclusively heavily contaminated, we can conclude the furnace may be a source of continued contamination until appropriately addressed.

## Conclusion

Based on the totality of the circumstances, including interviews with the homeowner, law enforcement documents, our subjective observations and objective data from sampling as performed by the WCDH, CEH and FACTs, we find that there is sufficient evidence to conclude that widespread and significant methamphetamine contamination exists throughout the house, and in the Green Ford Pick-up. FACTs samples, and those of the WCDH, conclusively and objectively demonstrate that carpets, clothing, walls, ceiling fans, crawlspace, garage, shed and ductwork within the house contain methamphetamine at concentrations that exceed the allowable limit.

The sampling, and other information, indicates the initial hypothesis is rejected and the null hypothesis is accepted (that is, the structure is non-compliant). The data indicate a high probability that elevated methamphetamine contamination was widespread throughout the entire living areas and including the garage, the crawlspace, the exterior shed, all personal belongings, chattels, Ford Pick-up and property as defined by State statute and regulations.

There appears to be a dichotomy in the sampling results in that the wall samples appear to be much lower than expected in the context of the other samples collected from the same

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<sup>19</sup> Cook CE, Jeffcoat AR, Hill JM, Pugh DE, et al Pharmacokinetics of methamphetamine self-administered to human subjects by smoking S-(+)-methamphetamine hydrochloride Drug Metabolism and Disposition, Vol 21, No. 4, pp. 717-723, 07/01/1993

<sup>20</sup> Martyny JW, Arbuckle SL, McCammon CS, Erb N, Methamphetamine Contamination on Environmental Surfaces Caused by Simulated Smoking of Methamphetamine (The publication of this study is currently pending. Copies of the study are available from the Colorado Alliance for Drug Endangered Children.)

<sup>21</sup> Martyny JW, Arbuckle SL, McCammon CS, Erb N, Methamphetamine Contamination on Environmental Surfaces Caused by Simulated Smoking of Methamphetamine (The publication of this study is currently pending. Copies of the study are available from the Colorado Alliance for Drug Endangered Children.)



areas. In Functional Spaces 1, 2 and 5, the wall samples are unusually low in light of the overall contamination in the house as demonstrated by other samples and in light of the evidence of overt contamination in other parts of the specific functional space. Based on information available to us, the integrity of the residence was compromised by unauthorized entry by unauthorized persons. Based on the information available to us, and based on our own observations, unauthorized entry was made into the residence on numerous occasions by numerous, unidentified parties. We believe the dichotomy between the wall samples and the other surfaces is consistent with unauthorized contamination reduction activities performed on those surfaces; leaving extant contamination on other surfaces.

## Recommendations

Based on our observations, laboratory results, and police information, we make the following recommendations:

- 1) All rooms of the residence, and all remaining contents indoors and property outdoors (including the shed, and its contents and the Green Ford Pick-up but excluding the silver-gray Jeep) and including the crawlspace and the garage should be decontaminated by a licensed contractor, trained and experienced in such decontaminations as required by State regulations. We do not believe the homeowner meets the definition of a suitable contractor pursuant to Section 5.5 of the regulations which state:

§5.5. 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.

- 2) Based on our experience, it may be desirable to entirely remove and replace the furnace and all associated duct work. Removal of the furnace and duct work would also facilitate remediation of the crawlspace.
- 3) The crawlspace is a viable storage area, and as such the potential for human exposures to methamphetamine is significant. We recommend the upper two inches of soil in the crawlspace be removed. Following the removal of the soil, we recommend a thorough wipe down of all surfaces in the crawlspace. We recommend the decontamination process be conducted in Level C PPE ensembles with full-face APRs or full-face PAPRs.
- 4) All remediation work performed at the residence should be conducted under written contract with a reputable remediation company qualified to perform the work.
- 5) All work performed at the residence should be conducted by an experienced contractor whose employees are properly trained in accordance with 29 CFR §1910.120 and Colorado Revised Statute §25-18.5-104; *Entry into illegal drug laboratories*.
- 6) All work performed at the residence should be conducted in accordance with all other State and City/County regulations.



- 7) All remediation work should be presumed to be pursuant to 29 CFR §1910.120 unless otherwise indicated.
- 8) The contractor *should* be contractually obligated to perform personnel air monitoring for methamphetamine for at least one full shift employee per day to allow for support of proper PPE selection.
- 9) The contractor *should* be contractually obligated to include the personnel air monitoring data in their final documentation.
- 10) Any contractors (and their subcontractors) should be contractually obligated to decontaminate the property to below the statutory limits. Any recleaning required by a contractor (or their subcontractor) pursuant to a failed final assessment should be contractually obligated to be performed at the expense of the contractor.
- 11) Contractors should be contractually obligated to cover industrial hygiene costs of return visits and sample expenses as a result of failed final clearance(s).
- 12) A contamination reduction corridor should be established at the back of the property, through the den, and access restricted to authorized personnel.
- 13) State regulation prohibits painting or otherwise encapsulating surfaces prior to final clearance sampling.
- 14) Following the decontamination process, prior to the final clearance sampling by the Industrial Hygienist, the remediation contractor/subcontractor *should* be contractually obligated to collect a minimum of three QA/QC wipe samples from the property, as part of their own QA program, and submit those samples for methamphetamine analysis.
- 15) The contractor should be contractually obligated to provide their wipe sampling data (including location of sample, area of sample, and analysis results), to the consulting Industrial Hygienist for review prior to final clearance sampling.
- 16) If the three contractor QA/QC samples suggest that contamination in the property has been sufficiently reduced, the Industrial Hygienist should perform final clearance sampling according to 6-CCR 1014-3.
- 17) Until decontamination has been properly effected pursuant to 6-CCR 1014-3, no unauthorized personnel should be permitted entry into the property and no property should be removed.

We hope this information has been timely and useful. If you have any questions, or require clarification, please do not hesitate to contact us.

Caoimhín P. Connell  
Forensic Industrial Hygienist

Enclosures: One CD; \_\_\_\_\_ Page data package, and Appendices





## **APPENDIX A:**

### **SUPPORTING DOCUMENTS**

<b>Form</b>	<b>DOCUMENT</b>
ML1	FACT Property description field form
ML2	Plumbing inspection field form (plumbing system integrity and identification of sewage disposal mechanism)
ML2	Ventilation inspection
ML3	FACTs Functional space inventory field form
ML4	FACTs Law Enforcement documentation field form
ML5	FACTs Field observations field forms
ML6	FACTs Contamination migration field form
ML7	FACTs ISDS field form
ML8	FACTs Pre-remediation photograph log sheet field form
ML10	FACTs Drawing of Cook area(s) field form
ML12	FACTs Drawing of Storage area(s) field form
ML12	FACTs Drawing of Waste area(s) field form
ML12	FACTs Drawing General site field form
ML14	FACTs Certification of procedures, results, and variations from standard practices. (Signature page)
ML15	FACTs SOQs
ML 17	FACTs Field Data Sheets
ML 18	FACTs final check list (typically for final close out)



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## **APPENDIX B**

### **WELD COUNTY DEPARTMENT OF PUBLIC HEALTH ANALYTICAL RESULTS**



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## **APPENDIX C**

### **REVIEW OF CENTURY ENVIRONMENTAL HEALTH PRELIMINARY ASSESSMENT**



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## **APPENDIX D**

### **ANALYTICAL REPORTS FOR FACTS SAMPLES**



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## **APPENDIX E**

### **CENTURY ENVIRONMENTAL HEALTH ANALYTICAL RESULTS**