



FORENSIC APPLICATIONS CONSULTING TECHNOLOGIES, INC.

**Industrial Hygiene Assessment
of Potential Contaminants Located at
4000 Grouse Drive
Evans, Colorado**

Prepared for:

**Jason Stoots
2484 Sunset Drive
Longmont, CO 80501**

Prepared by:

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August 25, 2006

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EXECUTIVE SUMMARY

On Friday, August 11, 2006, personnel from Forensic Applications Consulting Technologies, Inc. (FACTs) visited the residential property located at 4000 Grouse Drive in Evans, Colorado (referred to as the “subject property”). The purpose of the visit was to perform an Industrial Hygiene assessment of the property in the context of possible methamphetamine contamination and indoor mould contamination.

This work was not intended to meet the definition of a “Preliminary Assessment” as that term is defined in, Colorado’s *Regulations Pertaining to the Cleanup of Methamphetamine Laboratories*, and was not intended to meet any condition found in those regulations. This work does not meet any of the minimum requirements of a “Preliminary Assessment” and cannot be used by the property owner in lieu of a “Preliminary Assessment.”

At the request and upon the authorization of Mr. Jason Stoots, the resident of the subject property, FACTs personnel performed a visual inspection and limited sampling activities at the subject property pursuant to an August 10, 2006, written scope of work.

The sampling data quality objectives (DQOs) employed by FACTs were to determine, within normal analytical confidences,¹ the possibility of methamphetamine presence at the subject property. Our DQOs included determining the presence and potential for mould growth in the property pursuant to standard industrial hygiene practices.

Using standard industry practices, procedures and methodologies, we conclusively identified the presence of methamphetamine at the property. Based on current State of Colorado Regulations and Statutes, this discussion would serve as discovery and notification of probable contamination and, therefore, the conclusive presence of an “illegal drug lab” as defined by State statute.

Based on state of the art sampling and analysis techniques, we conclusively determined the presence of methamphetamine at elevated concentrations. The analysis results indicate that methamphetamine contamination at the property is widespread.

Based on subjective observations and objective measurements, the property does not contain any unusual fungal invasions or overt mould growth. Based on our observations, the home does not have any visible signs of moisture intrusion or vegetative mould. Based on our observations, the mould exposures at the property would be considered “normal” and within expected values.

¹ Colorado Department Of Public Health And Environment, State Board Of Health, Regulations Pertaining to the Cleanup of Methamphetamine Laboratories, 6 CCR 1014-3, used merely as a sampling reference.



INTRODUCTION

Property

The subject property is a 2001 single family ranch-style residence. The structure comprises of approximately 2,730 total square feet of floor space.

The unfinished basement, which constituted approximately one-half of the structure's floor space, is a dug-out, poured concrete wall style, housing a force air furnace system.

According to public records, the registered property owner is:

William Reents
3405 El Caminito
Loveland CO 80537

Indoor Moulds

Standards

Currently, according to standard industry practices, an assessment of moulds in indoor environments is performed exclusively on the basis of a visual inspection by a properly trained individual. There are no national consensus standards regarding mould related issues; as recent as March 7, 2006, at a local forum of mould experts in Lakewood, Colorado, the presenters all repeated the same themes:

- 1) There are no national consensus standards regarding mould related issues.
- 2) Sampling should not be part of a building assessment for moulds.

Many Industrial Hygienists reference the April, 2000 publication titled *Guidelines on Assessment and Remediation of Fungi in Indoor Environment* (prepared by the New York City Department of Health, Bureau of Environmental & Occupational Disease Epidemiology) as a reflection of state-of-the-art in microbial investigations and remediation.² Those guidelines recognize the importance of a visual inspection and state (in part):

A visual inspection is the most important initial step in identifying a possible contamination problem.

Although many home inspectors, “certified mould experts,”³ and other consultants incorporate air sampling and other sampling methods in their initial assessments, they

² Although a more recent version of the New York City Guidelines is available, the earlier version is considered by most cognizant authorities as that which more closely reflects valid the industrial hygiene community's adherence to sound scientific principles.

³ There are no valid or recognized “Certified Mould Inspectors” (or other such terms as commonly used) in the State of Colorado since there is no governing body which accredits the certifications. Most of the “certified” mould classes are taught by instructors who themselves have no training in microbiology and who often exhibit anti-scientific views of moulds in light of more lucrative “toxic mould” agenda. Essentially anyone with a computer may merely declare themselves a “certified mould inspector” and then print out their own “certificate” to “prove” their qualifications.



usually have no recognized training in microbiology, aerobiology, or sampling theory and their sampling methods are usually inappropriate. Sampling during normal or preliminary assessments is not considered appropriate by the majority of the industrial hygiene profession. The New York City guidelines address air sampling thusly:

Air sampling for fungi should not be part of a routine assessment. This is because decisions about appropriate remediation strategies can usually be made on the basis of a visual inspection. In addition, air-sampling methods for some fungi are prone to false negative results and therefore cannot be used to definitively rule out contamination.

Similarly, consistent with current thought, is the document recently released by the US Government, Centers for Disease Control.⁴

The CDC *Mold Work Group*, in its section “Chapter 2: Assessing Exposure to Mold” states (in part):

Sampling for mold is not part of a routine building assessment. In most cases appropriate decisions concerning remediation and need for personal protection equipment (PPE) can be made solely on the basis of visual inspection. (sic)

Sampling, by “mould inspectors” and other “instant” mould consultants is usually performed as a way to “puff up” a report with fancy names and numbers, but does little to provide any real data. The CDC recognized the frivolity of sampling (in the absence of data quality objectives) in the same document when it stated:

Other than in a controlled, limited, research setting, sampling for biological agents in the environment cannot be meaningfully interpreted and would not significantly affect relevant decisions regarding remediation, reoccupancy, handling or disposal of waste and debris, worker protection or safety, or public health.

Similarly, the International ASTM Standards, currently under development for the assessment of indoor moulds in buildings, specifically excludes all sampling during preliminary mould inspections; thus reflecting current thought. Coincidentally, this author (Connell) is technical reviewer on the ASTM International D22 Committee. In the last few months, we have concluded a final review of the pending international guidelines which will be titled: *GUIDE FOR THE ASSESSMENT OF FUNGAL GROWTH IN BUILDINGS*. In that guide, which reflects state-of-the-art and standard industry practices, and is being developed by an international committee of *recognized* indoor mould experts, air sampling (even properly conducted air sampling) is discouraged and is considered by the cognizant community as superfluous, and misleading.

These reflect the general standard operating approach reputable industrial hygienists have maintained for decades. With the onset of the high media profile of indoor mould, many self-certified mould “experts” and other consultant lacking proper training in aerobiology have made sampling a common practice regardless of it’s lack of value or scientific foundation.

⁴ The CDC Mold Work Group, National Center for Environmental Health, National Center for Infectious Diseases, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, October 2005



Indoor Mould Assessment

FACTs performed a state-of-the-art visual inspection of the subject property. During this assessment, where we encountered restricted areas, such as enclosed wall cavities and ceiling plena, a small color video camera was inserted into these areas to perform a visual inspection. This camera contained an embedded light-source allowing real-time visual inspection of such areas. During our assessment, we collected a series of still photographs and video clips and those are included with this discussion on CD format.

In addition to visually assessing the accessible areas under consideration, we also qualitatively measured the moisture content of various structural members. A summary of those readings is provided.

Visual And Subjective Assessment

Upon entering the subject property, we did not observe any odors that would typically be associated with water intrusion or microbial proliferation.

In spite of a thorough visual inspection of the interior and exterior of the property, we did not find any visual indicators that are consistent with mould or water intrusion issues.

Moisture Readings

In addition to visually assessing the accessible areas under consideration, we also qualitatively measured the moisture content of various structural timbers such as wall studs, flooring, drywall and baseboards. Our moisture measurements were qualitative since they were collected using a Tramex[®] PTM 6005 conductivity style moisture meter. The meter is a commonly used “moisture meter.” However, contrary to common belief, the meter does not actually measure moisture; rather the meter measures electrical conductivity and qualitatively correlates that conductivity with moisture. Therefore, the moisture values given in our discussion should be used within the limitations of the meter and parameters discussed herein.

There exists a complex relationship between moisture intrusion, relative humidity, hygric buffering capacity of a structure, and moisture content of any particular structural timber on which mould may grow. Unpublished studies by this author (Connell) with Dr. Donald Mathre of the University of Montana have shown that inoculated timber substrates maintained at equal temperature and at a relative humidity of less than 90% for extended periods of time will not necessarily facilitate mould growth. Similarly, we have seen crawlspaces that have maintained several inches of standing water for years that are completely devoid of mould growth. Whilst moisture problems must be present for mould growth to take place, the presence of moisture does not necessarily mean the presence of mould.

In general, wood has an ability to sequester both bulk moisture and molecular moisture. An interior wood member can “safely” store moisture until the moisture content by



weight exceeds 16 percent (referred to by one author⁵ as the “surface mould limit for wood”). The capacity of a structure to sequester moisture is known as the “hygric buffering capacity.” The hygric buffering capacity of wood is such that at a sustained relative humidity of about 80%, the wood’s available moisture is about 16%. By contrast, typically, dimensional lumber moisture readings in the Colorado Front Range is 8% to 10%. We measured the moisture content of several items throughout the residence. The table below presents the moisture reading data.

⁵ Lstiburek, J. *Moisture Engineering*, presented at: *2002 Healthy Indoor Environments Conference*, Austin TX



Location	Member	Substrate	Depth cm	Reading % Moisture
NE Bedroom	Floor	Wood	0	10
NE Bedroom	Floor	Wood	0.5	10
NE Bedroom	Floor	Wood	2	10
NE Bedroom	Floor	Wood	2.5	9
NW Bedroom	Floor	Wood	0	<8
NW Bedroom	Floor	Wood	0.5	10
NW Bedroom	Floor	Wood	1	<8
NW Bedroom	Floor	Wood	1.5	<8
Living room	Floor	Wood	0	10
Living room	Floor	Wood	0.5	10
Living room	Floor	Wood	1	8
Living room	Floor	Wood	1.5	<8
Living room	Floor	Wood	0	9
Living room	Floor	Wood	0.5	9
Living room	Floor	Wood	1	9
Living room	Floor	Wood	0	9
Living room	Stairs Wall at Baseboard	Wood	0.5	9
Living room	Stairs Wall at Baseboard	Wood	1	9
Living room	Stairs Wall at Baseboard	Wood	0	8.8
Living room	Stairs Wall	Drywall	0.5	9
Living room	Stairs Wall	Drywall	1	9
Living room	Stairs Wall	Drywall	1.5	9
Basement	Stairs Wall	Stud	0	9
Basement	Stairs Wall	Stud	0.5	9
Basement	Stairs Wall	Stud	1	9
Basement	Stairs Wall	Stud	1.5	9
Basement	Stairs	Stud	2	9
Basement	Floor joist	Wood	0	9
Basement	Floor joist	Wood	0.5	9
Basement	Floor joist	Wood	1	9
Basement	Floor joist	Wood	1.5	9
Basement	Floor joist	Wood	2	9
Basement	Rim joist NE	Wood	0	9
Basement	Rim joist NE	Wood	0.5	10
Basement	Rim joist NE	Wood	1	10
Basement	Rim joist NE	Wood	1.5	10
Basement	Rim joist NE	Wood	2	10
Basement	Wall	Drywall	0	9.6

**Table 1
Moisture Readings**

As can be seen from the above table, none of the substrates measured indicated that a moisture intrusion concern was present at the subject property.



Mould: Conclusions and Recommendations

We did not observe any indications whatever of a mould “problem” or any other indications that would suggest that there are any unusual mould colonization issues. There was no visible evidence and no credible evidence that the house was anything other than “normal,” vis-à-vis moulds.

Methamphetamine Contamination

Standards

The State of Colorado has one of the country’s most comprehensive and scientifically based clandestine drug laboratory regulations. The Colorado regulations become applicable when the 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.⁶

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 definitions of a meth-lab includes smoking methamphetamine, since smoking is a process, and virtually its mere presence in the context of illegal possession constitutes an “illegal drug lab.”

Pursuant to State statute,⁷ an illegal drug laboratory that has not met the cleanup standards set by the State Board of Health must be deemed a public health nuisance. Pursuant to State statute⁸ every building or part of a building including the ground upon which it is situated and all fixtures and contents thereof, and every vehicle, and any real property shall be deemed a class 1 public nuisance when used for the unlawful storage or possession of any controlled substance, or any other drug the possession of which is an offense under the laws of Colorado.

Pursuant to Colorado regulations,⁹ upon discovery, a comprehensive and detailed “Preliminary Assessment” must be commissioned by the property owner and performed by an authorized and properly trained Industrial Hygienist who must characterize extant contamination. The content and context of the “Preliminary Assessment” is explicitly delineated by regulation. Any remediation or cleaning must be based on the Industrial Hygienist’s Preliminary Assessment.

FACTs contacted the Weld County Drug Task Force, and inquired about available records or other information concerning drug lab activity at the subject property. We

⁶ CRS §25-18.5-103

⁷ CRS §25-18.5-105(1)

⁸ CRS §16-13-303(c)(1)

⁹ Colorado Department Of Public Health And Environment, State Board Of Health, *Regulations Pertaining to the Cleanup of Methamphetamine Laboratories*, 6 CCR 1014-3.



were informed that drug related law enforcement actions had taken place at the address, and that methamphetamine was associated with the law enforcement activities.

Although it is definitive that the property was “discovered,” it was not within the scope of our work to determine if the property owner had been “notified.” “Notification” is not defined in state statutes, and is accepted to mean the property owner has merely been made aware of drug related activity at their property. There is no formal “notification” required by statute or regulation, rather the property owner is deemed to have been notified when they first became aware of methamphetamine related activity at their property.

To the extent that no information existed, within the scope of our work, for us to know the property owner was aware of methamphetamine related activities, and to the extent that our client, a tenant at the property, is under no obligation to perform any kind of testing or assessment, we were not performing a “Preliminary Assessment” as that term is defined, and we were not bound by the constraints or obligations for a “Preliminary Assessment.”

Rather, our role was to perform a state-of-the-art, standard industry practice Industrial Hygiene contamination assessment for a property. The assessment was performed pursuant to the intent of methamphetamine testing as described by CRS §38-35.7-103(2)(a).

State Contamination Thresholds

A recurring myth in methlab related issues, is that if a consultant performs a cursory investigation or a “Preliminary Assessment” and finds methamphetamine contamination, but that contamination is less than 0.5 micrograms per one hundred square centimeters ($\mu\text{g}/100\text{cm}^2$), then the property is “OK,” and not covered by the State regulations.

However, this argument is erroneous and no such provisions are found anywhere in State statutes or State regulation. If a consultant arbitrarily chooses non-mandatory sampling (such as performed at the Grouse Drive property) at the beginning of an industrial hygiene evaluation, and those samples result in ANY contamination, even below the value of 0.5 $\mu\text{g}/100\text{cm}^2$, then the property must be declared a methlab.¹⁰

Even for “Preliminary Assessments,” the initial declaration of contamination is not exclusively based on testing – the initial declaration is found within the language of the mandatory Attachment to Appendix A of the regulation (Hypothesis Testing) which states that:

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

¹⁰ *Ibid.* Appendix A



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.

Contrary to popular misconception, there is no *de minimis* concentration at the beginning of the process below which a property could be declared “not a meth lab” or “not of regulatory concern” since virtually any concentration of meth present in a sample at the property 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.*¹¹

This is due to the fact that when methamphetamine is smoked, between 80%¹² and half¹³ of the substance is released from the user’s pipe. Of that material which is inhaled, an additional 10%¹⁴ to 37%¹⁵ is further released in to the surrounding environment. Recent work¹⁶ indicates that a single use of methamphetamine, by smoking, would result in a residential area ambient airborne concentration of methamphetamine ranging from 35 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to over 130 $\mu\text{g}/\text{m}^3$.

At a recent conference,¹⁷ FACTs presented a paper wherein we presented calculations that demonstrated that smoking a single bowl of methamphetamine produced sufficient

¹¹ *Ibid.*

¹² 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)

¹³ Cook CE, Jeffcoat AR, Hill JM, et al. Pharmacokinetics of Methamphetamine Self-Administered to Human Subjects by Smoking S-(+)-Methamphetamine Hydrochloride. Drug Metabolism and Disposition 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.)

¹⁴ 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.)

¹⁵ 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

¹⁶ 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.)

¹⁷ Connell CP, *Alternative Enforcement Actions Pertaining to Illegal Drugs Laboratories in Colorado*, presented at the 2006 Summer Meeting of the County Sheriff’s of Colorado, Gunnison, Colorado



airborne methamphetamine to contaminate approximately 18,500 square feet of surface area to a concentration greater than 0.5 µg/100 cm².

Therefore smoking methamphetamine just once in the residence can result in surface contamination and significant occupant exposure. Therefore possession or other evidence of smoking meth provides the consultant with sufficient cause to reject the preliminary hypothesis and declare the property as “non-compliant.”¹⁸ The Colorado “clearance level” frequently cited by uninformed members of the public applies exclusively as *prima facie* evidence of decontamination at the end of a project¹⁹ and is that attainment threshold generally needed to issue a “decision statement” (final clearance).

Assessment Protocols

Hypothesis Testing

Although the sampling protocol used during this project was not bound by State regulation, we nevertheless used State regulations as a guidance document.²⁰ During our industrial hygiene assessment, the hypothesis was made that the subject area was clean and data would be collected to find support for this hypothesis. Our testing did not support the hypothesis, and we accepted the null hypothesis; *viz.* the area is non-compliant.

Sample Collection

Using standard industrial hygiene methods, we sampled the ventilation system, walls, a carpet and other surfaces within the subject property. We used standard industrial hygiene composite sample methods to collect a total of five sets of composite samples and one discreet sample.

Following sample collection, the samples were maintained in our control at all times, and shipped under signed chain-of-custody to the laboratory for analysis.

Wipe Samples

The wipe sample medium was individually wrapped commercially available *Johnson & Johnson*TM 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 SafewayTM 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.

¹⁸ There are rare exceptions to this which can be designed by properly trained Industrial Hygienists.

¹⁹ Colorado Department Of Public Health And Environment, State Board Of Health, *Regulations Pertaining to the Cleanup of Methamphetamine Laboratories*, 6 CCR 1014-3.

²⁰ FACTs personnel were the primary authors of the State’s new assessment protocols – as such, the State’s protocols were based largely upon FACTs’ normal standard operating procedures in methlab assessments.



The sampling media were prepared off-site in small batches in a clean environment. The sample media were inserted into individually identified polyethylene centrifuge tubes with caps. For QA/QC purposes, a field blank was randomly selected from the batch, and randomly inserted in the sampling sequence. The field blank was submitted to the laboratory along with the samples for methamphetamine analysis. To ensure the integrity of the blank, FACTs personnel were unaware, until the actual time of sampling, which specific sample would be submitted as a blank. To ensure the integrity of the blanks, the laboratory personnel were not informed which specific sample was a blank. 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 project, no duplicates were required, and none were collected.

Prior to the collection of each specific sample area, 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.

Vacuum Samples

The vacuum sample was collected in accordance with standard industrial hygiene microvacuum sampling procedures.²¹ The rationale for selecting the area to be vacuumed was based on a standard type of location selection known as “authoritative biased sampling.” The selected area was measured and delineated and 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. Prior to the collection of each specific sample area, the Industrial Hygienist donned fresh surgical gloves, to protect against the possibility of cross contamination.

Collection Rationale

The samples that were collected comprised of one “discreet” and five “composite” samples. A “discreet” sample is collected at single isolated location; “composite” samples are samples that have been collected from more than one area, and then combined. The advantage to composite samples is that sampling error is reduced (more areas are sampled), and the costs are similarly reduced.

²¹ For example, see ASTM Method D 5756-02



For this project, to control costs, we submitted the entire suite of samples, but instructed the analyzing laboratory to analyze just two of the samples. We instructed the analyzing laboratory to archive the remaining samples. In the following table, we have presented the sample results. The column identified as “Decision Threshold” is that value below which the sample result would need to be if the samples were final verification samples.

Sample	Location and substrate	Mass (µg)	Concentration (µg/100 cm ²)	Decision Threshold
GM081106-01A	Ventilation system – Furnace	-	-	-
GM081106-01B	Ventilation system – Living room supply	-	-	-
GM081106-01C	Ventilation system – Living room return	-	-	-
GM081106-01	Ventilation Composite	80.20	103.69	0.17
GM081106-02A	Kitchen ceiling-shelf	Archived		
GM081106-02B	Dining area ceiling-shelf			
GM081106-02	Ceiling shelf composite			
GM081106-03A	NE Bedroom, South wall	Archived		
GM081106-03B	SE Bedroom N wall			
GM081106-03	Bedroom wall composite			
GM081106-04	NE Bedroom carpet	Archived		
GM081106-05	Tops of door frames	Archived		
GM081106-06A	Basement top of I-beam	-	-	-
GM081106-06B	Basement top of vent duct	-	-	-
GM081106-06C	Basement top of water heater	-	-	-
GM081106-06	Basement composite	479.00	45.83	0.17
GM081106-7	Field Blank	Archived		

**Table 2
Summary of Methamphetamine Sample Results**

The two samples selected for immediate analysis were the samples collected from the ventilation system and the basement.

As mentioned earlier, when methamphetamine is smoked, the majority of the methamphetamine becomes airborne. Since it is the purpose of the ventilation system to move air throughout the structure, any airborne contaminants are similarly moved throughout the structure. As such, the degree of ventilation contamination indicates the general degree of contamination in the structure as a whole.

In this case, the ventilation system is conclusively heavily contaminated; if the samples had been collected as part of a final verification sampling protocol, the results would indicate a residual methamphetamine concentration approximately 600 times greater than the State would permit. The results of the ventilation system sample alone would lead a reasonable person, trained in aspects of meth laboratories, to conclude the *presence* of widespread methamphetamine contamination throughout the entire occupied space, all other sample results notwithstanding.

The basement sample was also selected for immediate analysis. This sample indicated widespread contamination in the basement, and conclusively demonstrates that surfaces



downstairs are also heavily contaminated. If the basement samples had been collected as part of a final verification sampling protocol, the results would indicate a residual methamphetamine concentration approximately 300 times greater than the State would permit.

Quality Assurance/Quality Control

The following section is for technical presentation only 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 0.100 µg (recovery =97%); Matrix spike 0.020 µg (recovery 0.021 µg, 105%); Matrix spike Dup 0.020 µg; (recovery 0.022 µg, 110%); Surrogate recovery (all samples): High 111% (Sample 1), Low 110% (Sample 6); FACTs reagents: IPA lot #A0503 <MDL for n=4; Gauze lot G0602, Archived. The QA/QC indicate the data met the data quality objectives. The QA/QC indicate a slight positive bias and the results may indicate concentrations slightly higher (5% to 10%) than actually present.

Methamphetamine Assessment Conclusions

The samples that were collected definitively and conclusively demonstrate widespread methamphetamine contamination at the property.

The samples and other observations and information definitively demonstrate that the property meets the definition of a “drug laboratory” as found in CRS §25-18.5-101.

The samples that were collected definitively demonstrate that the property meets the definition of a Class I Public Nuisance as found in CRS §16-13-303(c)(1).

As such, entry into the property is prohibited by state statute (CRS §25-18.5-104).

Furthermore, by state statute, all personal chattels (including clothing, toiletries, appliances, books, papers, furniture, etc) within the structure are similarly considered contaminated, and removal, without special provisions, is prohibited. (CRS §25-18.5-103(3)), until such time that an Industrial Hygienist has cleared the chattels for removal.

A person who knowingly permits another to enter a property that meets the definition of an illegal drug lab, should be aware of the criminal act of “reckless endangerment” wherein:

18-3-208. Reckless endangerment.

A person who recklessly engages in conduct which creates a substantial risk of serious bodily injury to another person commits reckless endangerment, which is a class 3 misdemeanor.

There are many examples of police officers, children and others who have sustained serious chemical induced bodily injuries that occur from methlab exposures. In this case, the owner of a property that is a meth-lab who permits another to enter their property may



be considered to "engage in conduct which creates a substantial risk of serious bodily injury to another person."

Methamphetamine Assessment Recommendations

At this point, the property owner must comply with all parts and sections of Title 25 of the Colorado Revised Statutes, Article 18.5.

All chattels within the subject property must similarly be handled pursuant to all parts and sections of Title 25 of the Colorado Revised Statutes, Article 18.5. All chattels must ultimately be presumed to be contaminated and cleaned pursuant to State regulations, OR destroyed. Pursuant to State regulations, any items that are cleaned must be tested to confirm the concentrations of contaminants.

6 CCR 1014-3 §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.

6 CCR 1014-3 §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.

We recommend that the occupants of the property, and others who have entered consult with their health care providers for information concerning physiological effects.

Consistent with our service agreement, a copy of this report has been filed with the Weld County Sheriff's office.

Prepared by:



Caoimhín P. Connell
Forensic Industrial Hygienist





FORENSIC APPLICATIONS CONSULTING TECHNOLOGIES, INC.

Appendix A

Statement of Qualifications Methamphetamine



FORENSIC APPLICATIONS CONSULTING TECHNOLOGIES, INC.

CONSULTANT STATEMENT OF QUALIFICATIONS

(as required by State Board of Health Regulations 6 CCR 1014-3 Section 8.21)

FACTs project name:	Stoots	Form # ML15
Date: August 11, 2006		
Reporting IH:	Caoimhín P. Connell, Forensic IH	

Caoimhín P. Connell, is a private consulting forensic industrial hygienist meeting the definition of an "Industrial Hygienist" as that term is defined in the Colorado Revised States §24-30-1402. Mr. Connell has been a practicing Industrial Hygienist in the State of Colorado since 1987 and has been involved in clandestine drug lab (including meth-lab) investigations since May of 2002.

Mr. Connell is a recognized authority in methlab operations and is a Certified Meth-Lab Safety Instructor through the Colorado Regional Community Policing Institute (Colorado Department of Public Safety, Division of Criminal Justice). Mr. Connell has provided methlab training for officers of over 25 Colorado Police agencies, 20 Sheriff's Offices, federal agents, and probation and parole officers from the 2nd, 7th and 9th Colorado judicial districts. He has provided meth-lab lectures to prestigious organizations such as the County Sheriff's of Colorado, the American Industrial Hygiene Association, and the National Safety Council.

Mr. Connell is Colorado's only private consulting industrial hygienist certified by the Office of National Drug Control Policy High Intensity Drug Trafficking Area Clandestine Drug Lab Safety Program, and P.O.S.T. certified by the Colorado Department of Law (Certification Number B-10670); he is a member of the Colorado Drug Investigators Association, and the American Industrial Hygiene Association.

He has received over 120 hours of highly specialized law-enforcement sensitive training in meth-labs and clan-labs (including manufacturing and identification of booby-traps commonly found at meth-labs) through the Iowa National Guard/Midwest Counterdrug Training Center and the Florida National Guard/Multijurisdictional Counterdrug Task Force, St. Petersburg College as well as through the U.S. Bureau of Justice Assistance (US Dept. of Justice). Additionally, he received extensive training in the Colorado Revised Statutes, including Title 18, Article 18 "Uniform Controlled Substances Act of 1992."

He is also an active law enforcement officer in the State of Colorado, who has conducted clandestine laboratory investigations and performed risk, contamination, hazard and exposure assessments from both the law enforcement (criminal) perspective, and from the civil perspective in residences, apartments, motor vehicles, and condominiums. Mr. Connell has conducted over 40 illegal drug lab assessments.

He has extensive experience performing assessments pursuant to the Colorado meth-lab regulation, 6 CCR 1014-3, (State Board Of Health *Regulations Pertaining to the Cleanup of Methamphetamine Laboratories*) and was an original team member on two of the legislative working-groups which wrote the regulations for the State of Colorado. Mr. Connell was the primary author of Appendix A (*Sampling Methods And Procedures*) and Attachment to Appendix A (*Sampling Methods And Procedures Sampling Theory*) of the Colorado regulations. He has provided expert witness testimony in civil cases and testified before the Colorado Board of Health and Colorado Legislature Judicial Committee regarding methlab issues.

Mr. Connell, who is a committee member of the ASTM International Forensic Sciences Committee is the sole author of the draft ASTM D30 *Standard Practice for the Assessment of Contamination at Suspected Clandestine Drug Laboratories*.



FORENSIC APPLICATIONS CONSULTING TECHNOLOGIES, INC.

Appendix B

Statement of Qualifications Mould Assessments



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**STATEMENT OF QUALIFICATIONS
(MOULD RELATED PROJECTS)**

The mould assessment will be performed by Mr. Caoimhín P. Connell, Forensic Industrial Hygienist with FACTS. Mr. Connell currently works as a consulting Industrial Hygienist (IH) with Forensic Applications Consulting Technologies, Inc., and possesses expertise in several areas of industrial hygiene including indoor microbiology, microbial assessments, chemical exposures, analytical chemistry, and indoor air quality (IAQ).

Mr. Connell has been a continuously practicing IH as that term is defined in the Colorado Revised Statutes §24-30-1402, since 1987. Prior to entering the IH field, he had approximately ten years experience in analytical and research laboratories in the United States and in Ireland as a chemist, research technician and laboratory technician.

Mr. Connell has been performing the type of work proposed for approximately 18 years. He has specifically performed identical microbial assessments and investigations for approximately 18 years. Mr. Connell has performed microbial investigations in a number of litigious cases and for such highly acclaimed organizations as the Mesa Laboratory of The National Center for Atmospheric Research. He has performed similar work in numerous cases in the capacity of an expert witness^{1, 2, et al}

Regarding this type of work, Mr. Connell's clients have included the U.S. Geological Survey, Health and Human Services, Federal Bureau of Prisons, and the National Institute of Standards and Technology. He currently serves on two International Standards Committees; ASTM D22.08 – *Indoor Air* (whose task is to develop and write indoor and building mould assessment standards for the international industrial hygiene community, and other professionals involved in indoor mould assessments) and Mr. Connell is also a member of the ASTM E30.05 *Forensic Sciences* committee and is the sole author of a pending standard for the evaluation of environmental contamination. Mr. Connell is a frequent speaker on indoor microbial issues for professional organizations, and has lectured on risk assessment, sampling and toxicology at the university level.³ Mr. Connell will be presenting a paper on the statistical variations associated with indoor mould sampling at the international symposium on indoor mould at the University of Colorado, Boulder, on July 27, 2006.

Mr. Connell is a recognized authority in the development of sampling and analysis Data Quality Objectives (DQOs), and was the primary author of the Data Quality Objectives for the State of Colorado Department of Public Health Regulations 6 CCR 1014-3, 2005.⁴

¹ Kalka V. US (Civil Action No. 91-Z-753), 1995

² Dr. Robert Powers vs. Embassy House Condominium, *et al* 03 CV 1766, 2004

³ Lecturer at Denver University, as part of the Masters Degree in Science Program, at the invitation of Professor Rupert C. Burtan, M.D., M.P.H., D.P.H.

⁴ State of Colorado, State Board Of Health Department Of Public Health And Environment, *Regulations Pertaining to the Cleanup of Methamphetamine Laboratories*, 6 CCR 1014-3, (Appendix A and Attachment

He has testified on sampling theory and analysis issues before the Colorado Department of Health and the Colorado State Legislature, Judicial Committee.

The investigations upon which our professional opinions will be formed are based on work that involved standard industry practices, accepted and standard procedures and accepted and standard methodologies. No new methodologies will be introduced or used in this assessment. Similarly, no new or untested scientific methodologies will be used, and no new applications for otherwise accepted methodologies will be introduced or employed. We will interpret the data generated during this investigation to the highest standard of care.

to Appendix A) Adopted January 19, 2005, effective March 30, 2005: www.forensic-applications.com/meth/coloregs.html





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Appendix C

Laboratory Analysis Report



ANALYTICAL CHEMISTRY INC.

Established in 1979

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Tukwila WA 98168-3240
Phone: 206-622-8353
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E-mail: aci@acilabs.com

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Lab Reference:	06167-06
Date Received:	August 16, 2006
Date Completed:	August 17, 2006

August 18, 2006

CAOIMHIN P CONNELL
FORENSIC APPLICATIONS INC
185 BOUNTY HUNTER'S LN
BAILEY CO 80421

CLIENT REF: Grouse

SAMPLES: wipes/2

ANALYSIS: Methamphetamine by Gas Chromatography-Mass Spectrometry.

RESULTS: in total micrograms (ug)

Sample	Methamphetamine, ug	% Surrogate Recovery
GM081106-01	80.2	111
GM081106-06	479	110
QA/QC Method Blank	< 0.004	
QC 0.100 ug Standard	0.097	
QA 0.020 ug Matrix Spike	0.021	
QA 0.020 ug Matrix Spike Duplicate	0.022	
Method Detection Limit (MDL)	0.004	
Practical Quantitation Limit (PQL)	0.030	

'<': less than, not detected above the PQL

Robert M. Orheim
Director of Laboratories

