



**FORENSIC APPLICATIONS CONSULTING TECHNOLOGIES, INC.**

**Industrial Hygiene Assessment  
And Notice of Noncompliance  
of an Unoccupied  
Illegal Drug Laboratory  
at  
1170 Garrison Street  
Lakewood, Colorado 80215**

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## EXECUTIVE SUMMARY

Forensic Applications Consulting Technologies, Inc. (FACTs) was contracted to perform an assessment of the compliance of a property with regard to State Statutes and Regulations pertaining to methamphetamine contaminated properties. The assessment was conducted for the residence located at 1170 Garrison Street, Lakewood, Colorado 80215 (the subject property). The assessment was based on available documents and a site visit. Based on the totality of the circumstances, FACTs makes the following findings:

- The initial Preliminary Assessment was not performed in compliance with Colorado Regulations Pertaining to the Cleanup of Methamphetamine Laboratories.
- The subject property was not remediated pursuant to Colorado Regulations Pertaining to the Cleanup of Methamphetamine Laboratories.
- To the extent they have not been remediated, levels of methamphetamine in excess of the State permitted limit appear to continue to exist at the property.
- Final clearance sampling and activities were not performed in compliance with Colorado Regulations Pertaining to the Cleanup of Methamphetamine Laboratories.
- The property remains in a state of noncompliance with Colorado regulation 6 CCR 1014-3 and Colorado Statutes CRS 25-18.5-101 *et seq.*
- The document prepared by Foothills Environmental Inc. (FEI) dated March 9, 2009 purporting to be a Preliminary Assessment, is fatally flawed and fails to meet the minimum elements of a Preliminary Assessment as mandated by regulation and cannot be used as a Preliminary Assessment.
- The final clearance activities performed by FEI (and those used to exclude other areas of the property from remediation) were fatally flawed and failed to meet the necessary sampling requirements for final clearance at the property.
- An illegal drug lab, as that term is defined in CRS §25-18.5-101, remains in existence at the subject property.
- An illegal drug lab, as that term is defined in CRS §25-18.5-101 has existed at the subject property from at least January 8, 2009 forward to the present date.
- A Class 1 Public Nuisance, as defined in CRS §16-13-303(1) remains in existence at the subject property.
- A Class 1 Public Nuisance, as defined in CRS §16-13-303(1) has existed at the subject property from at least January 8, 2009 forward to the present date.



- To date, no Preliminary Assessment, as defined by regulation, has been prepared for the property as required by state statute and state regulation.
- To date, no final clearance sampling has been performed at the property pursuant to mandatory regulations.
- The document prepared by FEI and dated April 17, 2009, identified as a “Methamphetamine Post Remediation Assessment” exhibits fatal flaws which render the Decision Statement invalid.
- If the property is sold as is, the seller (registered owner) would not receive the liability shield from toxic tort suits as described in CRS §25-18.5-103(2).
- If the property is sold as is, the buyer would have ninety days to bring the property into compliance pursuant to CRS §38-35.7-103.

The following sections describe our findings, rationale, methods, observations, conclusions and recommendations.

## INTRODUCTION

FACTs, was contracted by a potential buyer to perform a compliance evaluation for the subject property with regard to regulations pertaining to methamphetamine contaminated properties.

During this assessment, FACTs reviewed a PDF version of a document titled “Methamphetamine Post Remediation Assessment.” The document was prepared by Foothills Environmental Inc. and dated April 17, 2009. The document contained several appendices including a second document also prepared by FEI and dated March 9, 2009 and identified as a “Preliminary Assessment.”

Our assessment also included a visit to the subject property on Thursday, January 8, 2009, and a copy of our original report was appended to the FEI document.

Our audit has identified several irregularities, errors, and omissions in the documentation prepared by FEI. The errors and omissions cover a wide spectrum of severity ranging from fatal flaws to minor irregularities.

A “fatal flaw” is an error or omission that is so egregious that a single fatal flaw would invalidate the entirety of the report and work. The FEI work product provided to FACTs contains several fatal flaws.

### ***Preliminary Assessment***

According to Colorado State Regulation 6-CCR 1014-3, following the discovery of an illegal drug lab, as that term is defined in CRS §25-18.5-101, and following



“notification,” the property must either be demolished or a “Preliminary Assessment” must be conducted at that property to characterize extant contamination (if any), and to direct appropriate decontamination procedures (if any). Pursuant to these regulations, information obtained in the Preliminary Assessment, must be used as the basis for remediation, and must be the basis for any final clearance sampling.

The Preliminary Assessment must be conducted according to specified requirements<sup>1</sup> by an authorized Industrial Hygienist as that term is defined in CRS §24-30-1402. Implicit in the regulations is the requirement that the Industrial Hygienist has been trained in aspects of clandestine drug labs. According to the regulations, during the assessment, the Industrial Hygienist is to perform hypothesis testing wherein:

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.

To ensure that the Industrial Hygienist has expertise in the assessment of clandestine drug labs, State regulations require the Industrial Hygienist to provide a description of their training and experience. State regulations require that description to be included in the final documentation; the mandatory regulations require:

8.21. Consultant statement of qualifications, including professional certification or qualification as an industrial hygienist as defined in section 24-30-1402, C.R.S., and description of experience in assessing contamination associated with methamphetamine labs.

Nowhere in the provided documentation did we find where FEI included the mandatory description. In their report, FEI makes the following statement:

*As a Certified Industrial Hygienist, Mr. Gonzalez has the experience, training, and knowledge in various sampling techniques and the ability to recognize and evaluate hazards that may be associated with Clandestine Drug Laboratories.*

However, there is nothing about being a “Certified Industrial Hygienist” that automatically imparts any kind of expertise in clandestine drug laboratories. Indeed, one could be a Certified Industrial Hygienist and have no experience whatever in any kind of sampling. The author of this compliance audit (Connell) was on two of the regulatory committees that wrote the original regulations for the State of Colorado, and was called to testify before the Colorado Board of Health during the regulatory approval process. During that hearing, before the State Board of Health, the committees tasked with developing the regulations pursuant to CRS §25-18.5-103 were informed by the Colorado Board of Health that the board would automatically and summarily reject any proposed regulations regardless of any other provisions if the new regulations included a provision that a Certified Industrial Hygienist would be exclusively permitted to perform the

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<sup>1</sup> Section 4 of 6 CCR 1014-3



assessment work. The Colorado Board of Health went on record saying that certification in industrial hygiene by the ABIH was not considered a mark of competency in industrial hygiene or clandestine drug lab assessments.

During a recent methlab case, FACTs provided expert witness testimony on behalf of a Northern Colorado Municipality which was in litigation against an homeowner who had hired a CIH to perform methlab work. The CIH in question had attempted to perform a “Preliminary Assessment” of a methlab. The CIH in question, also believed that since he was a CIH with a PhD, he was automatically authorized to perform the work. The assessment performed by the Certified Industrial Hygienist in question was so grossly incompetent, that the final assessment was entirely unusable, and failed to meet even the minimum elements of a “Preliminary Assessment” and was ultimately rejected by the courts. Ultimately, it was shown that the CIH lacked any and all training in aspects of illegal drug labs was therefore, not even authorized to perform the work in the first place.

For this subject property, FEI failed to meet State regulations by failing to provide a description of experience in assessing contamination associated with methamphetamine labs. Furthermore, the fatal errors associated with the work, as described below, would indicate FEI lacks legitimate expertise, knowledge and technical competence in clandestine drug lab assessments. Our audit indicates FEI lacks an understanding of Colorado methlab regulations.

## **Failure to Comply with Mandatory Elements of a Preliminary Assessment**

Pursuant to State regulations, specific information must be included in the Preliminary Assessment (PA).

### **Paragraph 4.3 Identification of Functional Spaces**

FEI failed to perform its duties and fulfill regulatory requirements by failing to identify functional spaces within the property. Pursuant to this section, the Industrial Hygienist is required to include:

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

According to State regulations 6 CCR 1014-3 (Section 3)

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



In its report, FEI failed to perform the regulatory mandated identification of structural features that may indicate separate functional spaces, such as attics, and crawl spaces.

FEI identified six functional spaces for the subject property. In its assessment, FEI entirely failed to assess or even identify the two attics and the crawlspace. The oversight is a fatal flaw and renders the PA, remediation, and the final clearance invalid, since it is possible that heavy contamination may exist in these areas. Furthermore, since the regulations explicitly identify attics and crawlspaces, it is difficult to understand how FEI failed to include these important aspects of a Preliminary Assessment.

Of lesser importance, and possibly supported by professional judgment, the barn consists of five distinct areas, and there is no support provided in the FEI report to justify the argument that the “...*spread of contamination [in the barn] may be expected to occur relatively homogeneously, compared to other functional spaces.*”

However, it is generally recognized that pre-remediation sampling results in a property exhibit lognormal distributions. FACTs has collected methamphetamine samples from over 1,200 locations. The lognormally distributed contaminant levels is a prevailing property.

During our assessment at the property, based on a legitimate knowledge of how contaminants migrate in a property, FACTs identified the following fourteen functional spaces:

1. Attic
2. Bathroom
3. Central Bedroom
4. Crawlspace
5. Den (Family Room)
6. Dining room
7. Garage
8. Kitchen
9. Living room
10. Master bedroom
11. Large room in barn
12. Barn Stable 1
13. Barn Stable 2
14. Barn Stable 3

#### **Paragraph 4.6 Identification of Areas of Contamination**

FEI failed to perform its duties and fulfill regulatory requirements by failing to identify or recognize signs of contamination. Pursuant to State regulations the Industrial Hygienist is required to provide:

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. If the consultant determines that assessment sampling is necessary, such sampling shall be conducted in accordance with the sampling protocols presented in Appendices A and D. Sample analysis shall be conducted in accordance with the method requirements presented in Appendices B and D.

Furthermore, State Regulations require:

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

During our cursory review and site visit, FACTs identified and photographed several areas of staining indicative of and consistent with contamination. Furthermore, in the FEI report, FEI states:

*The South Metro Drug Task Force (SMDTF) investigated the property on November 26th, 2006. The report mentions the observation of visual staining and odors associated with Methamphetamine manufacturing. A copy of the report is attached to the Preliminary Assessment included in this report.<sup>2</sup>*

And finally, in the FEI photographs, areas of staining are clearly visible. Therefore, while FACTs observed staining, and the South Metro Drug Task Force observed staining, and staining is seen in the FEI photographs, FEI addresses staining in their report thusly:

*FEI did not observe staining inside the residence.*

We suspect that the inability to observe or recognize the staining that is clearly visible, is due to the fact that FEI lacks any experience and/or legitimate training in clandestine drug labs, otherwise, they would have seen the staining in their own photos, and observed by both FACTs and the South Metro Drug Task Force.

Furthermore, since FEI did not inspect the crawlspace or the attic, and (as described later, the ventilation system, or the plumbing system), it is not clear how FEI made their assessment for the property as a whole.

### **Paragraph 4.11 Evaluation of the Plumbing System**

FEI failed to perform its mandatory obligations by failing to meet the regulatory requirements of a plumbing inspection. Pursuant to State regulation, in Section 4.11, the Industrial Hygienist is required to provide:

*Inspection of plumbing system integrity and identification and documentation of potential disposal into the sanitary sewer or an individual sewage disposal system (ISDS). ...*

We could not find any documentation anywhere in the FEI report that FEI performed the mandatory inspection of the plumbing system at the subject property. In fact, FACTs

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<sup>2</sup> No such copy of the SMDTF report was appended to the copy of the report.



found no references whatever to the plumbing system in the Preliminary Assessment or in the final clearance sampling report.

The inspection of the plumbing system is not only a mandatory requirement, it is also normal standard industry practice. It is difficult to understand how on the one hand, FEI would present itself as having expertise in clanlab assessments and accept the professional obligation to perform a Preliminary Assessment, (which explicitly requires an inspection of the plumbing integrity), and at the same time fail to perform that regulatory and contractual obligation.

#### **Paragraph 4.14 Photographic Record**

During the Preliminary Assessment, the Industrial Hygienist is required to provide:

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

Unless there is a photographic archive somewhere that was not submitted to the Governing Body as required, FEI failed to meet its mandatory and regulatory obligations by failing to provide photographic documentation of property conditions. In its preliminary assessment, FEI provided 16 photographs, and failed to document the following conditions:

- Exterior patio
- Exterior grounds
- Plumbing system
- Heating and ventilation system
- Attic
- Crawlspace
- Stables
- Dining room

Also, photographs that were included failed to show the rooms in their entirety.

#### **6.0 Sampling and Analytical Procedures.**

FEI failed to perform its duties and fulfill regulatory requirements by failing to perform sampling pursuant to mandatory regulatory requirements. According to State regulations:

6.0.1 Except as provided in 6.0.2, assessment sampling shall be conducted as part of the preliminary assessment to characterize the nature and extent of contamination. Assessment sampling and laboratory analysis shall be conducted in accordance with Appendices A, B and D of these regulations.

##### Paragraph 6.1 Locations of Samples

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

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



FEI failed to perform its mandatory and professional obligations by failing to meet several of the elements of the requirements specified for sampling. According to State Regulations, if samples are collected (and particularly if those samples are to be used for final clearance purposes), the samples are to be collected in areas that exhibit the highest potential for contamination. Colorado's regulations explicitly state:

#### Sampling Theory

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

The Colorado regulations continue with:

#### Biased Sampling

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

FEI exhibited gross technical incompetency in sampling and in understanding Colorado's methlab regulations, and that lack of technical incompetence translated into gross errors and omissions during their work.

During the cursory evaluation performed by FACTs on January 8, 2009, FACTs collected samples from areas that represented the highest potential for contamination. The results of FACTs sampling indicated that each of the five-parted composites had excessive levels of methamphetamine contamination. Those results are reproduced below:



Sample ID	Sample Location	Methamphetamine Concentration µg/100cm <sup>2</sup>
GM010809-1A	Kitchen ceiling above range	8.05
GM010809-1B	Garage fluorescent light fixture	
GM010809-1C	Living room top of door bell casing	
GM010809-1D	Bathroom top of medicine chest	
GM010809-1E	Furnace supply in living room	
GM010809-1	Composite	
GM010809-2A	Den top of closet	2.98
GM010809-2B	Barn - garage louvered door	
GM010809-2C	Barn garage shelving	
GM010809-2D	Barn horse's stall	
GM010809-2E	Boy's Room S wall top of W corner	
GM010809-2	Composite	

**Table 1  
Results of Methamphetamine Samples**

Sample group number one indicates that either each of the areas sampled during our January visit contained *at least* 8 µg/100 cm<sup>2</sup>, (or that four of the areas contained at least 10 µg/100 cm<sup>2</sup>, or three of the areas contained at least 13 µg/100 cm<sup>2</sup> or two of the areas contained at least 20 µg/100 cm<sup>2</sup> or one of the areas contained at least 40 µg/100 cm<sup>2</sup>).

Therefore, the sampling performed by FEI during their Preliminary Assessment raises two serious questions:

Question #1

Since the cursory sampling performed by FACTs indicated such high levels, why did FEI report no detectable levels of methamphetamine in their samples for the same general area?

Question #2

Since the sample suite collected by FACTs contained at least one sample from the HVAC interior, why did FEI fail to collect even a single sample from the ventilation interior, even though there was a 20% chance that the elevated methamphetamine concentrations were exclusively due to a contaminated ventilation system?

We propose the following answers to the questions.

Answer to Question #1

FEI, lacking any legitimate expertise in methlab assessments, failed to understand the migration patterns of methamphetamine and collected samples from areas where one would expect the lowest concentrations.

In fact, reviewing the FEI data, we see that is precisely what FEI did. The issue is addressed in detail in a later section.



## Answer to Question #2

As described later, FEI was required by regulation to collect a sample from the ventilation interior. FEI entirely failed to follow regulations in this regard, and failed to observe the objective evidence that the ventilation system may be contaminated.

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>3</sup> and half<sup>4</sup> of the substance is released from the user's pipe. Of that material which is inhaled, between 33%<sup>5</sup> and 10%<sup>6</sup> of the nominal dose is not absorbed into the body (leaving the remainder airborne). Recent work conducted by Industrial Hygienists at the National Jewish Hospital<sup>7</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>8</sup>

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<sup>3</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>4</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>5</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.)

<sup>6</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>7</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>8</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.)



Since it is the purpose of the ventilation system to move air throughout the structure, if the furnace is contaminated by methamphetamine, we conclude the furnace was an effective mechanism of dissemination of contamination and the all areas serviced by the duct work would reasonably be presumed contaminated.

The results of the furnace sample alone would lead a reasonable person, trained in aspects of meth laboratories, to conclude the *presence* of widespread elevated methamphetamine throughout the entire occupied space, all other sample results notwithstanding.

Therefore, it is for this reason that FACTs confidently concludes that, based on just this sample alone, an high probability of elevated concentrations of methamphetamine potentially exists throughout the residence until confirmation sampling demonstrates otherwise.

Regarding the second sample set, we know that regarding the second group of areas, either each of the areas sampled during our January visit contained *at least* 3 µg/100 cm<sup>2</sup>, (or that four of the areas contained at least 3.75 µg/100 cm<sup>2</sup>, or three of the areas contained at least 5 µg/100 cm<sup>2</sup> or two of the areas contained at least 7.5 µg/100 cm<sup>2</sup> or one of the areas contained at least 15 µg/100 cm<sup>2</sup>). Therefore, it is difficult to understand how the sample with the highest concentration, collected by FEI had less than 0.7 µg/100 cm<sup>2</sup> (unless the person collecting the sample did not understand proper sampling theory).

In its report, FEI states:

*The Methamphetamine (sic) contamination was isolated to the family room, but the duct system was still cleaned as a pre-caution (sic).*

Since the ventilation system, was not sampled, and since the attic was not assessed and since the crawlspace was not assessed, FACTs finds no support in the documentation that would support the conclusion that methamphetamine was isolated to the “family room.”

## **DECONTAMINATION**

The property was not decontaminated pursuant to State regulations.

### ***Ventilation System***

The ventilation system was not cleaned pursuant to State regulations. According to Colorado regulations, Appendix C:

8. Beginning with the outside air intake and return air ducts, clean the ventilation system using pneumatic or electrical agitators to agitate debris into an airborne state. Additional equipment may be also be used in the cleaning process, such as brushes, air lances, air nozzles, and power washers. Controlled containment practices shall be used to ensure that debris is not dispersed outside the air conveyance system during cleaning.



In its report, FEI states:

*The Methamphetamine (sic) contamination was isolated to the family room, but the duct system was still cleaned as a pre-caution (sic).*

However, the final documentation failed to provide any sampling evidence of the efficacy of the cleaning. Based on our observations, FACTs speculates that the ventilation system was NOT decontaminated. We believe that an inspection of the ventilation system will reveal that the ventilation system was not cleaned pursuant to State regulations, and it is for this reason, FEI failed to provide the mandatory photographs and the mandatory final clearance sampling for the ventilation system.

## **Plumbing**

The plumbing system was not decontaminated pursuant to mandatory State requirements (in fact, the plumbing system was simply not decontaminated at all).

Pursuant to Colorado decontamination regulations:

5.6. Water flushing of plumbing systems connected to the sanitary sewer to eliminate any residual chemicals.

Nowhere in the provided documentation has FEI or the remediation contractor discussed this mandatory decontamination procedure. FEI cannot make the argument that the plumbing system did not required decontamination since, as described above, FEI entirely failed to perform the mandatory inspection on the plumbing system.

## **Ventilation System**

The FEI report states:

*The HVAC system was placed under HEPA filter negative air pressure.*

Photos from FEI, however indicate critical barriers on the negative side ventilation grills. Therefore, how could the ventilation system have been placed under negative pressure? Answer – it could not have been. When the *in situ* grills were covered with critical barriers, the barriers are specifically employed to guard against the transmission of delta pressure.

## **Migration of Contaminants**

The FEI report states:

*Per 6 CCR 1014-3 all waste materials were placed in polyethylene bags or wraps and removed from contaminated areas.*



Although there is no such requirement in 6 CCR 1014-3, the comment raises a much larger issue. The waste manifest indicates that loose material, not bagged material was taken to the landfill. Since the photos indicate that the exterior doors were sealed with critical barriers, we know the material was not transloaded directly to the outside; if the material, such as carpeting, was transloaded loose, it had to have been transported through the house in an uncontrolled fashion, raising the potential for cross-contamination.

### ***Decontamination of Undisclosed Areas***

The FEI report states:

*All insulation was bagged and removed as meth contaminated waste-*

FEI stated that only two areas were decontaminated: 1) The Family Room and 2) The ventilation system. Since there was no insulation located in the family room, or in the duct work observed by FACTs, the insulation must have been removed from some other, undisclosed location. As such, the unidentified area was supposed to be subjected to final clearance sampling as required. We do not find any such information in the provided documents.

## **FAILURE TO COMPLY WITH MANDATORY ELEMENTS OF FINAL CLEARANCE PROVISIONS**

### ***Failure to Perform Mandatory Sampling***

The work by FEI failed to meet the minimum standards for sampling as specified by regulation.

### **Appliances**

According to Colorado State 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.

The FEI report states:

*Crystal Clean was used in the cleaning of **appliances**, drywall, and flooring.*

We do not see anywhere in the FEI report which documents that the appliances were somehow relocated to the decontamination area (therefore, the appliances must have been decontaminated *in situ*). As such, how was the work areas isolated to prevent migration of contamination? Furthermore, mandatory State regulations (Section 5.8.2) require the personal belongings (which would include the appliances) to be sampled to determine the



levels of contamination. FEI failed to meet its regulatory and contractual obligations by failing to perform the mandatory sampling on the appliances.

## **Ventilation System**

According to Colorado State Regulations, samples shall be collected from:

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

FEI failed to perform its regulatory and professional obligations by failing to comply with State regulations and collect samples from the ventilation system (and other areas where contamination may have migrated such as the attic and the crawlspace).

## ***Failure to Test the Final Hypothesis***

According to Colorado regulations:

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

And:

6.1. Locations of samples shall be based on information gathered during the preliminary assessment. Samples shall be collected from:

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

Pursuant to this requirement, FEI was obligated to diligently attempt to “prove” that the areas to be excluded from decontamination and the areas subsequently decontaminated were noncompliant. The samples collected by FEI failed to meet the objectives of the regulation for the following reasons:

As specified above, the Industrial Hygienist is required by regulation to sample from those areas that are expected to have the highest levels of contamination. Yet FEI collected samples from areas that are expected to have the **LOWEST** levels of contamination including:

- Sample 1170-01 Countertops.
- Sample 1170-01 Linoleum Kitchen Floors
- Sample 1170-06 Window Sills
- Sample 1170-07 Bathroom Floor
- Sample 1170-09 Window Sills



## **Floor Samples**

The regulation explicitly require samples to be collected from the areas which have the greatest potential for elevated methamphetamine concentrations. In the case of the floor samples, the floors would be expected to exhibit the lowest possible concentrations. This is because floors are routinely cleaned and or otherwise disturbed (even in heavily contaminated houses).

## **Counter Tops**

The samples for the counter tops would have represented sample locations that would have a low probability of exhibiting noncompliant contamination even in an active laboratory. This because the surface is readily cleaned, often cleaned (even by the meth cook), and easily cleaned.

## **Window Sills and Bathroom Floor**

One of the species of methamphetamine under consideration is water soluble. Therefore, surfaces likely to have been wet are similarly those same surfaces that are least likely to exhibit contamination. Collecting a sample from these areas is contrary to the intent and the explicit language of the regulations. Any water flowing over the surface would effectively wash away any surface methamphetamine, thus biasing the results low, where methamphetamine may otherwise be present. Window sills are subjected to condensation, which can effectively wash away or dilute the contaminants in question. The sampling locations indicate gross technical incompetence and a lack of understanding of contaminant migration, and a lack of understanding of the regulations.

## ***Failure to Include Mandatory Documentation***

Specific documentation must be included in the final document package submitted to the Governing Body. FEI failed to perform its mandatory obligations by failing to provide specific information.

Paragraph 8.8 The results of inspection of plumbing system integrity and identification of sewage disposal mechanism.

FEI either failed to perform the mandatory plumbing inspection, or FEI failed to document the results of the plumbing inspection as required by regulation.

## ***Paragraph 8.22 Certification and Variations***

According to State regulations, the Industrial Hygienist is required to provide:

Certification of procedures and results, **and variations from standard practices**.

Nowhere in its report does FEI identify each of the variations from the regulatory requirements of a Preliminary Assessment as discussed in this review. Rather, FEI signed a statement at the end of the document stating:



*I do hereby certify that I conducted a preliminary assessment of the subject property in accordance with 6 CCR 1014-3, § 4.*

However, the work objectively was not performed pursuant to with 6 CCR 1014-3, § 4.

Nowhere in its report does FEI identify each of the variations from the regulatory requirements of final clearance sampling as discussed in this review. Rather, FEI signed a statement at the end of the document stating that they conducted sampling according to regulation (which they did not) and that the sample results demonstrated that the cleanup standards had been met (which they cannot support since the mandatory samples have not been collected)

## **CONCLUSIONS**

The work that we reviewed contained numerous errors and omissions. FACTs did **not** perform a thorough critical review of the project or the submittals, rather our observations were superficial and cursory. We believe that a thorough critical review of the project would uncover numerous other errors and omissions. We also believe that a site visit would also confirm that the ventilation system was not cleaned as stated, and that overt methamphetamine contamination continues to exist at the property.

Also, FACTs did not cover miscellaneous technical, mathematical or minor errors in the reports. For example, in its report FEI makes the statement:

*A total of seventeen (13) (sic) samples and one (1) method blank were collected in the residence and detached barn.*

According to State regulations, (Appendix A, Paragraph 10):

10. At least one sample media blank, treated in the same fashion but without wiping, should be submitted for every 10 samples collected.

In this case, FEI failed to submit the mandatory QA/QC samples. However, the error is twofold

- 1) FEI failed to the submit the correct number of blanks (a very minor error that could have easily been satisfactorily explained in the report, and data submitted in the information package discussing how the lack of the required QA/QC sample impacted the sample suite, if at all).
- 2) But more importantly, FEI failed to even note that it had not submitted the required QA/QC, and failed to discuss the issue in the “Variations” section; adding continuing support to the argument that FEI has exhibited gross technical incompetence on the project, and exhibited broad-spectrum failure to comply with regulations.



Therefore, FACTs has focused mostly on the most egregious and fatally flawed elements which included:

- The document prepared by FEI, dated March 9, 2009 purporting to be a Preliminary Assessment, exhibits gross technical incompetence, is fatally flawed and fails to meet the minimum elements of a Preliminary Assessment, and cannot be used as a Preliminary Assessment.
- The initial property assessment was not performed in compliance with Colorado Regulations Pertaining to the Cleanup of Methamphetamine Laboratories.
  - A. Several elements of the PA were missing
  - B. The final document contained false information
  - C. FEI failed to identify all functional spaces
  - D. FEI failed to perform a photographic archive and photograph log
  - E. FEI failed to perform a plumbing inspection
  - F. FEI failed to perform a ventilation system inspection
  - G. FEI failed to observe indications of staining
  - H. FEI offered a materially false statement knowing that statement would be filed with a public official.
  - I. FEI failed to perform sampling necessary to exclude specific areas from decontamination.
- The property was not remediated pursuant to Colorado Regulations Pertaining to the Cleanup of Methamphetamine Laboratories.
  - A. The remediation company failed to water flush the plumbing system
  - B. The remediation company failed to disclose the area(s) where insulation was removed thus violating 6 CCR 1014-3 (8.16)
  - C. The remediation contractor failed to clean the remaining ventilation ducts
- Final clearance sampling and activities were not performed in compliance with Colorado Regulations Pertaining to the Cleanup of Methamphetamine Laboratories.
  - A. FEI failed to collect a sufficient number of samples from the property
  - B. FEI failed to note the deficiencies of the remediators
  - C. FEI failed to collect samples from mandatory areas
  - D. FEI failed to properly challenge the final hypothesis
  - E. FEI offered a materially false statement knowing that statement would be filed with a public official.
- Sampling performed by FEI was **not** performed in a manner consistent with Colorado regulations
- The property remains in a state of noncompliance with Colorado regulation 6 CCR 1014-3 and Colorado Statutes CRS 25-18.5-101 *et seq.*
- Based on the rationale described above, an illegal drug lab, as that term is defined in CRS §25-18.5-101, **remains in existence at the subject property.**



- An illegal drug lab, as that term is defined in CRS §25-18.5-101 has existed at the subject property from at least January 8, 2009 forward to the present date.
- A Class 1 Public Nuisance, as defined in CRS §16-13-303(1) **remains in existence at the subject property.**
- A Class 1 Public Nuisance, as defined in CRS §16-13-303(1) has existed at the subject property from at least January 8, 2009 forward to the present date.
- To date, no Preliminary Assessment has been prepared for the property as required by state statute and state regulation.
- To date, no final clearance sampling has been performed pursuant to mandatory regulations.
- If the property is sold as is, the seller (registered owner) would not receive the liability shield from toxic tort suits as described in CRS §25-18.5-103(2).
- If the property is sold as is, the buyer would have ninety days to bring the property into compliance pursuant to CRS §38-35.7-103.

We believe that this report is covered by CRS §38-35.7-103 *et seq.* and therefore, FACTs has an obligation to forward this discussion to the Governing Body with jurisdiction over the property:

Mr. Craig Sanders  
 Environmental Protection Supervisor  
 Jefferson County Department of Health and Environment  
 1801 19th Street  
 Golden, CO 80401

## RECOMMENDATIONS

FACTs recommends that a State mandated Preliminary Assessment be performed at the property as required by State statutes and State regulations, by a legitimate Industrial Hygienist trained in the aspects of Clandestine Drug Laboratories.

Based on the Preliminary Assessment, we recommend that legitimate remediation efforts be conducted at the property pursuant to State regulations.

Following the remediation, we recommend that a legitimate final assessment be performed at the property pursuant to regulations.

Prepared by:



Caoimhín P. Connell  
 Forensic Industrial Hygienist



# APPENDIX A CONSULTANT'S SOQ





## FORENSIC APPLICATIONS CONSULTING TECHNOLOGIES, INC.

### CONSULTANT STATEMENT OF QUALIFICATIONS

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

<b>FACTs project name:</b>	<b>Garrison</b>	<b>Form # ML15</b>
<b>Date:</b>	<b>May 9, 2009</b>	
<b>Reporting IH:</b>	<b>Caoimhín P. Connell, Forensic IH</b>	

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 Statutes §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 over 200 hours of methlab training for officers of over 25 Colorado Police agencies, 20 Sheriff's Offices, federal agents, and probation and parole officers from the 2<sup>nd</sup>, 7<sup>th</sup> and 9<sup>th</sup> 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, the American Industrial Hygiene Association, and the Occupational Hygiene Society of Ireland.

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."

Mr. Connell is also a current 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 117 assessments in illegal drug labs, and collected over 1,200 samples during assessments (a complete list of projects is available from our web site).

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 contributing 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 has provided private consumers, state officials and Federal Government representatives with forensic arguments against fraudulent industrial hygienists and other unauthorized consultants performing invalid methlab assessments.

Mr. Connell, who is a committee member of the ASTM International Forensic Sciences Committee, was the sole sponsor of the draft ASTM E50 *Standard Practice for the Assessment of Contamination at Suspected Clandestine Drug Laboratories*, and he is an author of a recent (2007) AIHA Publication on methlab assessment and remediation.



**FORENSIC APPLICATIONS CONSULTING TECHNOLOGIES, INC.**

**Addendum to  
Industrial Hygiene Assessment  
And Notice of Noncompliance  
of an Unoccupied  
Illegal Drug Laboratory  
at  
1170 Garrison Street  
Lakewood, Colorado 80215**

Prepared for:  
Lynn Bartsch  
1905 Foothills Drive, South  
Golden, CO 80401

Prepared by:

**FORENSIC APPLICATIONS CONSULTING TECHNOLOGIES, INC.**  
185 Bounty Hunter's Lane  
Bailey, CO 80421



May 15, 2009

## SUMMARY and CONCLUSION

On Thursday, January 8, 2009, FACTs performed a site visit to the subject property, and issued a report on the visit dated January 12, 2009. On May 9, FACTs reviewed available documentation and performed a critical review of that documentation and on the same day, issued the compliance audit, to which this document is an addendum. On May 15, 2009, FACTs again performed a site visit of the subject property, and issued this addendum. No other site visits were performed by FACTs at any other time.

During the May 15, 2009, visit, FACTs observed and documented further support for the conclusions of our previous two documents and conclusions, and conclusively determined that the cleaning and decontamination claimed in the FEI reports did not occur as stated.

In its report, FEI stated:

*The Methamphetamine (sic) contamination was isolated to the family room, but the duct system was still cleaned as a pre-caution (sic).*

Based on the photographic evidence provided by FEI, FACTs speculated in our May 9, document that the ventilation system could not have been cleaned as stated.

During our May 15, 2009 site visit, FACTs personnel (Connell) lifted the vent cover of the duct in the northeast corner of the family room and observed heavy historical dirt and debris in the duct. The debris was conclusively old historical dirt and included dead insects, food particles, and other items (See Photographs below).

Our observations conclusively confirm that the decontamination of the subject property was not performed as stated in the FEI report, was not performed pursuant to state regulations, and was not performed pursuant to standard industry practice.

- The property remains in a state of noncompliance.
- No legitimate Preliminary Assessment has been performed for the property.
- State mandated decontamination has not been performed at the property.
- State mandated final clearance sampling has not been performed at the property.





**Photograph 1**  
**Duct Interior Northeast Corner of Family Room**



**Photograph 2**  
**Duct Interior Northeast Corner of Family Room**

