

Too Good To Be True

What if you were a fire investigation company and you managed to find gasoline where nobody else did? Sounds too good to be true. A New England Fire Investigation Company got our attention when they seemed to get positive results for the introduction of a flammable fluid several days after the State Police in Vermont and Maine got negative results. We were frankly puzzled. The results always were “slight traces of gasoline”.

The Vermont State Police Lab stood by their negative results. There was no gasoline according to their report. They were in fact correct. We asked for the samples from two other State Police labs and sent them to other labs to be sure that the results were correct. We worked with John Lentini who sits on the ASTM Committee handling ignitable fluid testing. Still no gasoline.

In on case the Criminal Charges were dropped immediately.

We did some research and found that the lab in question had plead guilty to Federal charges in the early 1990s for falsifying lab results for some items for the U.S. Army. The FDA had also issued a ruling against this company. There was no strong evidence that the tests results for the insurance carriers were falsified. Still there was a nagging concern that they, working with the Cause and Origin Company assigned by the insurance carriers, managed to find what the jurisdictional personnel could not.

Fire investigators can guard against such potential problems by using “blind” samples as a test with their lab. Insurance personnel can guard against this type of potential problem by insuring that they have a quality control program that reviews investigations that take place on every level.



Services Offered By Corporate Investigative Services, LTD.

Since 1969 we have offered our services and expertise in the area of fire investigations and fire science. Our goal is honest and informative evaluations of the assigned case so that our clients can make informed decisions. We strive to evaluate each case utilizing the latest scientific information available. We invite your inquiries at (800) 245-8244.

A Sample of the services we offer our clients:

- Fire Origin and Cause
- Furnace Failure Analysis
- Electrical Fire Analysis
- Case Review of Product Liability Matters Related to Fires
- Case Review of Arson Related Matters
- Fire Scene Evaluation and Reconstruction
- Propane Incident Evaluations
- Fire Fighting Tactics

What to Look for in Choosing a Lab

All labs are not equal. Look for ISO Certified labs. The International Standards Organization has rigorous standards and review procedures, record keeping, etc. Certification by the Academy of Forensic Science Technicians is a plus. The lab should meet or exceed the American Society of Testing Materials (ASTM) standards for testing Ignitable Liquids. (Standards ASTM E1412, E1387, and E 1618)

What certifications does the Analyst doing the lab work actually hold?

Ask the hard questions of the lab you are using. The fact that the person doing the testing holds a Doctorate in some related field does not make his results accurate or his handling of the samples acceptable. If they are certified ask them if you can see the inspection reports for the past five years.

F.J. Spinelli – Fire Investigator Instructor



His friends call him “FJ”. He has been working with Corporate Investigative Services for the past ten years. He is also a New York State Fire Instructor and a career fire Captain with the Hartsdale, New York Fire Department.

As a Fire Instructor, he teaches a host of classes at the Westchester Professional Fire Academy and throughout the Hudson Valley. In his “spare time” he is the father of four children and a student at the Empire State College of N.Y. He recently spoke at the New York State Association of Fire Commissioners at Niagara Falls on the topic of Grant Writing. F.J. has the unique ability to get positive results from grant writing.

He is a New York State Codes Officer and brings to our organization both a strong knowledge of fire investigations and fire fighting tactics.

F. J. is also the former Fire Chief of the Garrison Fire Department and a former police officer.

F.J. Spinelli pictured as he prepares to lead fire fighter recruits into a training facility.

Cross Contamination of Samples

“Cross contamination” of samples has become increasingly more problematic with each advance in detection of parts per million of ignitable liquid. The phenomenon can occur when a sample is taken from an area such as a floor. The problem is that the floor could have become contaminated from another source and not as the result of the introduction of a flammable fluid as a cause of the fire. Something as simple as storing evidence cans in a vehicle can be problematic if there is no precaution taken to isolate potential contaminants in items such as a power saw.

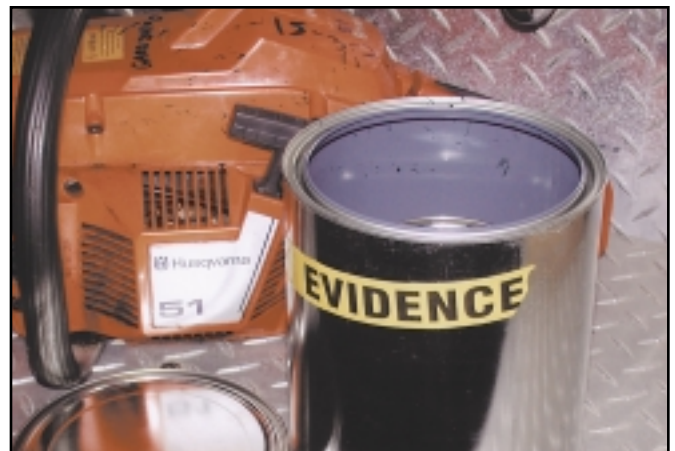
Fire fighters entering a building from the outside can unintentionally track hydrocarbons into a structure. A broom that has been introduced to flammable fluid can be used to sweep away an area and actually introduce an unintended result. Using a broom or shovel that has previously been used in another scene can be the contaminant. Dirty gloves or clothing after are a potential problem. Fire Department operations can spread and contaminate an area.

We are aware of the fact that some soaps are used to clean tools off after

an investigation. That has limited use as far as we can tell. Following the prescribed cleaning there is no guarantee that the broom or item is clean unless it is tested in a lab. In addition, we are not sure that the fire investigator facing the end of a long day accomplishes the cleaning that is required. Our suggestion – **Use new brooms and shovels at each investigation** and you can actually diminish one area of examination in court.

There is another area of contamination that should be of concern to the investigator. That concern should center on insuring that your lab insures that there is no chance of samples becoming contaminated inside the lab itself. We have noted at least one case in which this happened in a New York State Crime Lab. In that particular case the matter became known to our office when the lab reported “fresh gasoline” in the

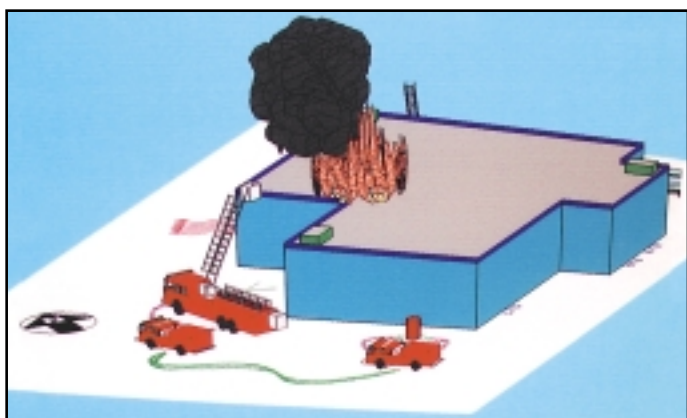
sample. Following a fire the probability of getting “fresh gasoline” as opposed to “fire aged gasoline” is at best unusual. Several labs reviewed the findings and all agreed that the gasoline found in the first lab test was not consistent with the situation.



Evidence cans and a nearby gasoline powered chainsaw are a sure recipe for a positive lab sample but a poor example conducting a proper investigation.

Total Station for Crime and Fire Scene Reconstruction

Following training in Portland, Oregon our recently acquired Total Station was placed into service. It is used to accurately draw fire, explosion, and accident scenes using Crash Zone and Fire Zone drawing programs. We also have an "on board" system to translate the measurements into a diagram. The system has been used by the F.B.I. and A.T.F. for a number of years. For the fire investigator the system can document char patterns, lines of demarcation, and furniture placement when required. The equipment will be particularly valuable when accuracy for fire modeling is required. Door openings, vents, and room configuration are all required if the fire modeler is to have an accurate conclusion with regard to his or her computations.



Tom Williams and Derik White review the Total Station at a training program in Portland, Oregon. The Total Station unit gives accurate 2D and 3 D drawings of accident scenes, char patterns, and fire scenes.

◀ *3-D drawing showing FD apparatus placement dimensions are on other diagrams.*

Ignitable Liquid Absorbent

We are currently reviewing the potential use of ILA (Ignitable Liquid Absorbent). It is said to be a water repelling material that absorbs hydrocarbon material and can identify ignitable liquids introduced at a fire scene. Our initial tests indicate that the material changes color when it comes in contact with and absorbs liquid accelerants. Tests thus far indicate that the material is "non corrupting" and does not alter your sample. This material **DOES NOT** take the place of a lab. The material must be sent to a qualified lab to determine through MASS Spec and GC if there is actually a hydrocarbon material present and what it actually is.

Our experiments are in determining if photographic documentation before removing the sample will enhance potential visual presentations. Anytime that a secondary material is added to a sample there is room for error and corruption of the sample so our current interest is in the potential problems. We are equipping staff members with the material to begin to experiment with it. ATF is also said to be doing research on the product. If it adds cost with no significant benefit then we will make appropriate adjustments.

Hazardous Circuit Breaker Panels Should be Replaced

Dr. Jesse Aronstein presented a paper to the American Society of Home Inspectors. The full text of that paper can be found on our website WWW.Arson-codes.com.

He addressed the FPE stab-lok panels which have been A SOURCE OF CONTROVERSY SINCE THE 1980'S. Consumer Product Safety Commission investigated reports that the panels failed to operate properly and closed their case in 1983. In Canada a companion panel was recalled in 1996. Dr. Aronstein noted that unlike replacing a penny behind a fuse type of safety device, potential failure on some specific FPE panels is not easy to spot. It requires more than a simple functional test to determine if they will operate. He pointed out in his paper that the presence of an FPE panel should be considered a safety defect.

Corporate Investigative Services staff members first encountered the panel in a fire that took place at Frenchman's Creek in Palm Beach Florida at a condominium in 2000. The failure mode was the panel in a garage at the upscale condo unit.

Dr. Aronstein recommends the FPE Stab-lok panel should be replaced. Fire investigators should be aware of this potential problem when investigating fires of an electrical nature. Insurance company subrogation specialists should be kept abreast of fires from these units. Visit our website arson-codes.com for the full text.

Flashover & Fire Patterns

Flashover or Full Room Involvement can distort the burn patterns at a fire scene. Every fire investigator must understand the phenomenon. Claims Managers of insurance companies, attorneys, and anyone involved in determining the cause of a fire must understand the chemistry of FLASHOVER and its consequences. The condition takes place when the contents of a room or the actual room reach a point where all ignitable items ignite and literally flash over. It is a ceiling to floor phenomenon that changes many of the burn patterns. NFPA 921 addresses the phenomenon in section 4.16.1.4 and points out that burning from full room involvement can produce burning of floors due to radiation. NFPA 921 is clear in stating that that once a fire has transitioned to full room involvement burning at the floor is not indicative of an origin at the floor.

We still see fire investigators that do not understand the phenomenon and the turbulence of the air that can be created in a compartment in full room involvement. Flashover is a transition state for a fire. We hear testimony stating that the fire had a “low” burn and thus must be caused by the introduction of a flammable fluid. All too often the person making the statement does not understand the phenomenon of flashover and the ramifications it has on burn patterns.. These investigators may be the same people who still speak of “the fire was too hot to be natural or moved too quickly across the house”. The investigator must know from what vantage point he witness saw the fire. Was it pre or post flashover? Remember that thermal influences, ventilation, and compartment geometry all go to the transition of a fire to flashover.

The reason that flashover has become more prevalent in structure fires today is probably due to two changes in our life styles. First,



Photo by Michael Lane

This is the remains of a living room at what was once a fully furnished room. Frames from furniture are visible but almost every piece of combustible material was consumed some five minutes after the family left this Nashville, Tennessee residence. There was a leather couch, coffee table and wooden lamp.

building codes require energy efficiency that insures significant insulation and thus heat from a fire does not escape a building as it did in the old farmhouse Grandma lived in. Grandma may have had two by four exterior walls and most probably no insulation. Today new construction requires two by six exterior walls with insulation. Second, the furniture we use now is not made of natural fibers and we encounter more plastics and other materials containing a variety of products with significant potential to burn quickly and with a high HRR (Heat Release Rate). HRR must be a consideration in a fire investigation.