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CHATROOM

Is it mandatory to conduct a “pre-entry” medical prior to going down range?

29 CFR 1910.120 (f) discusses “Medical Surveillance program” of an employee but does not reference pre-entry vitals for going into a hot zone.

Should pre-entry vitals be done anyway?

It’s never a bad idea to have an established baseline of vitals, at the beginning of shift and most definitely after entry has been completed. By doing this at the beginning of shift, you can use that data to compare after a fire scene as well. Since we do not do vitals prior to fire attack this would aid us in the area. It is generally speaking, still left to the AHJ.

So, you want to be a HazMat Medic? PART 1

*By Armando S. Bevelacqua,
City of Orlando Fire Department, Retired District
Chief of SOC*

So, what is a HazMat Medic? That is a loaded question. The simple answer is one who cares for those injured by chemicals, however the discipline is so much more. Let me explain, if you were in a traffic accident, what type of emergency service would you like? One that only knows and understands how to remove you from a severely damaged vehicle or a service that not only understands the intricacies of extrication but also can provide pre-hospital care. The answer is obvious. This same logic applies in several areas of hazmat response. You can have a team that only

understands the details of how a chemical will cause problems to the community or you can have a team that not only understands the community impact but also the human exposure possibilities.

Several issues have been entering the emergency services over the last 30 years. Most of these issues may seem to be subtle or less important. For many departments, the Special Operations section of the service is one that is held together by shoestrings and spitballs that has an ever-decreasing budget. It seems only your larger departments are seemingly able to keep up with the Human Resources needed, training demand, and equipment (the equipment issues are an ever increasing and expanding problem not only for

procurement but for training even in well-funded departments).

That first issue of tightening budgets has been within the hazmat lexicon for over thirty plus years, however only recently I would say, in the last fifteen have we seen an interest in this subject area which is just what this article is about, that of the HazMat Medic. But what is and who are these individuals? The concept grew out of a need that the Orlando Fire Department HazMat team identified back in the late 1980s. It was determined that if a problem were to occur with the entry team, a specialized trained paramedic would be required. Similar to what the military has within the special forces, a specialized medic to



take care of battlefield injuries. Here a specialized medic to take care of the team if an exposure occurs.

By the later part of 1988 Orlando Fire Department had these specialized medics within the hazmat team deployment. These men and women had to be HazMat technician qualified, a state certified paramedic and additional training in toxicology and antidotal treatments. By 1990 this program was being taught at the local community college along with satellite programs across the State of Florida. Soon the protocols developed were a part of State HazMat Response and the medical SOP. At the same time New York EMS started to incorporate many of these concepts and before long EMS agencies across the country were using these medical SOP (Chief

Maniscalco within New York City EMS saw the need and quickly started his program, using many of the issues and ideas under development in Florida). A few communities around the country at the time also were starting their own programs such as parts of Kentucky, Virginia and Colorado to name a few. What all these agencies had in common was that the department head saw a need and addressed it.

Now EMS in the fire service has always been a sour subject. You have those that say that EMS has no place in the fire department, others will argue that fire is the most logical place. However, you may see this as part of the emergency services, the fact still remains that EMS in any emergency scene is a valuable commodity. When dealing with chemicals I

would also like to have someone there looking at the issue from a health perspective. Enter the HazMat Medic!

The total list of responsibilities for the HazMat Medic is a long one. The entire program is more than just a person that can administer antidotes but rather, medics that can research chemicals health effects, short term and long term; a medical advocate if an exposure occurs. Pre-entry and post-entry medical analysis for the health and safety of the Entry/Recon team, rehabilitation issues and PTSD peer support just to name a few. It really depends on how far you would want to take the program. For example, Tactical Emergency Casualty Care for K9's has been realized adding yet another dimension under

the poisoning heading for working service dogs.

This is not to imply that EMT's or Advanced EMT's cannot have the training, on the contrary, the only must that is consistent is that the health care practitioner also have a high degrees of hazmat training (this training/education is also useful at USAR events, Confined Space rescue and below grade/trench rescues. Reason being, a non-hazmat person watching an over packing of a drum, or application of a Chlorine kit would just look at the operation as maybe interesting. A hazmat responder looks at the evolution and a high candidate for heat stress event and would prepare for as such. Having been a Paramedic for over 40 years, although it is comfortable to have one or two or more

medics (sometimes this is true but not all medics are good medics) on scene, an interested highly trained EMT is worth their weight in gold to the attending Medic. Short answer a well-trained EMT can fill in with HazMat Medic guidance and will produce the same positive outcome.

The second issue is that of Rescue teams. Before NFPA combined 472, 1072, and 473 (472 are the competencies for hazmat, while 1072 are the Job Performance Requirement's to 472 competencies and 473 the medical hazmat requirements) into one document which is now NFPA 470 the term rescue, or rescue team was not addressed. Although this concept is new and different responders have different options on how this works. One statement I shall make here is that there is no

such thing as a RIT, RECO, On Deck team, in the hazmat world! It is a rescue team for the entry team along with the backup team (this whole subject will be explored in a future article), The point here is that if an accident occurs in the hot zone the backup team would come in to assist in the removal of the injured responder



and turn the responder over to the rescue team which would in turn decon and move the person into medical.

So, as I stated before do you want the team that only knows how to remove you from the damaged vehicle and not attend to your injuries or would you

rather have a knowledgeable medic remove you from the dirty toxic environment that not only understands the toxicology but understands what it is like in a protective ensemble AND is able to treat you appropriately.

The answer is obvious - the individual that is specially trained in the discipline of Hazardous Materials and the medical consequences thereof.

Armando S. Bevelacqua is 37 plus year veteran of the fire service. Retired from City of Orlando Fire Department, Orlando Florida where he served as Chief of Special Operations, Homeland Security and Emergency Medical Services Transport.

Armando also teaches at local colleges, instructing Fire and EMS Classes. Armando lectures to fire departments throughout North America, Canada and Europe. He is an adjunct instructor through the Department of Defense as well as with several federal agencies involved with forced protection.

Chief Bevelacqua serves on several federal, state and local committees. He held membership of the Inter-Agency Board (IAB) for Training and Exercise development. Technical Consultant and member to the NFPA 470 (472, 1072, 473), and 475 Technical Committees along with representation on the ASTM standards development committee for emergency response.

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The Essentials of Measurement for the Aspiring HazMat Technician

By: Bobby Salvesen

THE HAZMAT GUYS, FDNY HM 1 Retired

Beyond the Beeping: The Craft of Meter Reading

Imagine you are in the thick of an incident, a hazardous maze that only you can navigate. Your meter, an extension of your senses, guides you, beeping urgently. But it's not about how loud the beep is or how quickly the numbers change; it's about the story behind those numbers. Your role extends well beyond reading; it's interpreting the cryptic messages your meter conveys. In the heat of the moment, when every second counts, understanding these readings isn't just part of the job—it's what sets a skilled technician

apart from a novice. Recognizing the difference between harmless and harmful, between stay or evacuate, hinges on your ability to decode the data that your device provides.

A Hollywood Misstep: Parsecs and the Art of Measurement

Let's take a slight detour into pop culture to illustrate a point. In the world of "Star Wars," Han Solo boasts about the Millennium Falcon's speed, saying it made the Kessel Run in less than 12 parsecs. It's a classic line, but it conflates distance with time. This isn't just a quirky movie error; it serves as an entertaining yet enlightening example of why understanding units of measurement is critical. If such a mistake can slip into Hollywood's narratives, it's easy to see how it could slip into real-world scenarios. For a HazMat technician, such a mix-

up could mean the difference between a successful intervention and a dangerous mishap.

Navigating the Two Measurement Systems

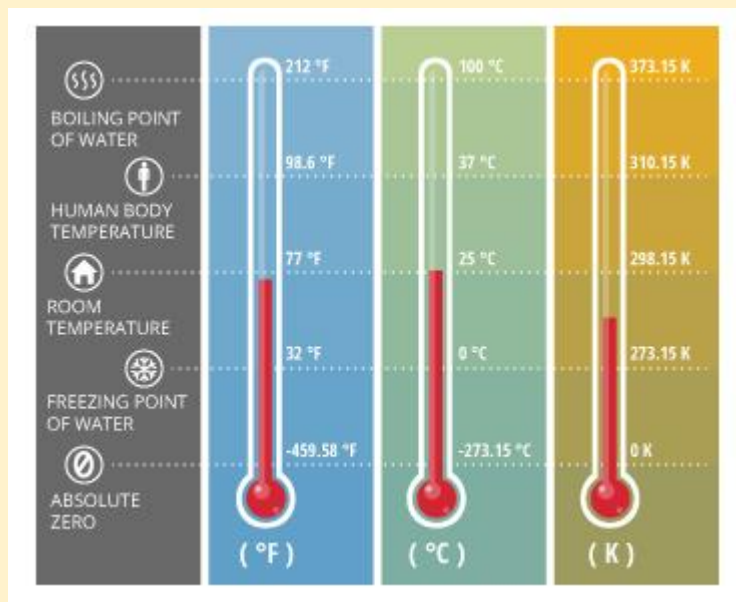
In America, our customary units are like an old friend—familiar but a bit complicated.

| Customary Measurements | | |
|--|---|---|
| Length | Weight | Capacity |
| 1 foot = 12 inches 1 yard = 3 feet 1 mile = 1,760 yards | 1 pound = 16 ounces 1 ton = 2,000 pounds | 1 cup = 8 fluid ounces 1 pint = 2 cups 1 quart = 2 pints 1 gallon = 4 quarts |
| Metric Measurements | | |
| Length | Mass | Capacity |
| 1 kilometer = 1,000 meters 1 meter = 100 centimeters 1 centimeter = 10 millimeters | 1 kilogram = 1,000 grams 1 gram = 1,000 milligrams | 1 liter = 1,000 milliliters |

Inches, feet, and miles for distance; ounces and pounds for weight; pints, quarts, and gallons for volume. These units are ingrained in our daily life, yet they often require convoluted conversions (remember, sixteen ounces to a

pound). Contrast this with the metric system, the global standard, where everything scales with a simplicity that's almost elegant. The metric system is the lingua franca of science, and as a HazMat technician, becoming fluent is non-negotiable. The rest of the world uses meters, grams, and liters—units that interconnect with the simplicity of a decimal point shifting.

The Cool Precision of Kelvin



Delving into Kelvin, you're not just dealing with another way to measure temperature; you're tapping into the universe's

baseline for cold. Absolute zero, measured in Kelvin, is more than just a low number—it's the

definitive end of the thermal line, where molecular motion ceases. In your line of work, grasping Kelvin isn't about handling cold substances; it's about having a thermometer that measures with scientific precision.

Knowing the exact temperature can be crucial, especially when dealing with chemicals that have strict temperature thresholds for safe handling.

Unit Conversion: Your Digital Sidekick

As a HazMat technician, you'll often find yourself switching between systems of measurement, especially when communicating with international teams or interpreting safety data sheets from different countries. Here, technology is your ally. With a world of apps, websites, and digital tools at your disposal, unit conversion no longer has to be a dreaded

chore. These tools are the quiet sidekicks in your hazardous material adventures, doing the heavy lifting so you can stay focused on the task at hand—ensuring safety and preventing disasters.

PPM and PPB: Slicing the Air

Understanding parts per million (PPM) and parts per billion (PPB) is akin to mastering the nuances of a new language—it's about understanding the scale and significance of concentration. It's not merely a fraction; it's a precise expression of how much of a substance is present in the air you breathe. Whether it's measuring toxins, contaminants, or oxygen levels, these ratios can inform critical decisions. Grasping these concepts solidifies your role as a defender against invisible threats, with your

meter translating the silent but potent language of air quality.

LEL and Concentration: The Flammability Factor

Grasping the nuance between percent concentration and percent lower explosive limit (LEL) is more than academic—it's a matter of safety. These aren't just numbers; they're indicators of how much hazard is present and how explosive the environment could be. Every gas has its own LEL, and your understanding of this can prevent an ignition or explosion. As you read your meter, remember you're reading potential energy, the gap between safety and combustion, and your knowledge is the barrier that protects against crossing that line.

Radiation Units: The Importance of the Micro

In the realm of radiation, the micro is mighty. Microrem, the smallest unit you'll typically encounter, is the key to simplifying complex readings. When your meter displays a string of numbers, what you're seeing is a scale. One Microrem (uR) might seem insignificant, but it's a fundamental building block. Understanding this scaling can streamline your process, saving you from mathematical headaches and keeping your focus on safety.

The Invisible Cube: Air Quality in Metrics

Visualizing air quality metrics requires a certain imagination. Picture a cubic meter of air—a block the size of a large beach ball—and then imagine it's not just air but a vessel carrying mercury vapor, particulates, or other

contaminants. Your meter's readings, whether in milligrams or micrograms per cubic meter, turn this invisible cube into a quantifiable space. This visualization helps you to not just read the air quality, but to understand it, making your assessments more intuitive and your actions more informed.

Precision in Reporting: Unit Accuracy Matters

In the high stakes' world of hazardous materials handling, your reports are as crucial as your initial response. Detailing your findings with precise units is non-negotiable; after all, 'mg' versus 'g' can be the difference between a routine situation and a catastrophe. Ensuring that your data is as accurate as possible protects not just you and your team, but the community at large. It is a critical aspect of the

job, one that underscores the importance of your role and the trust placed in your hands.

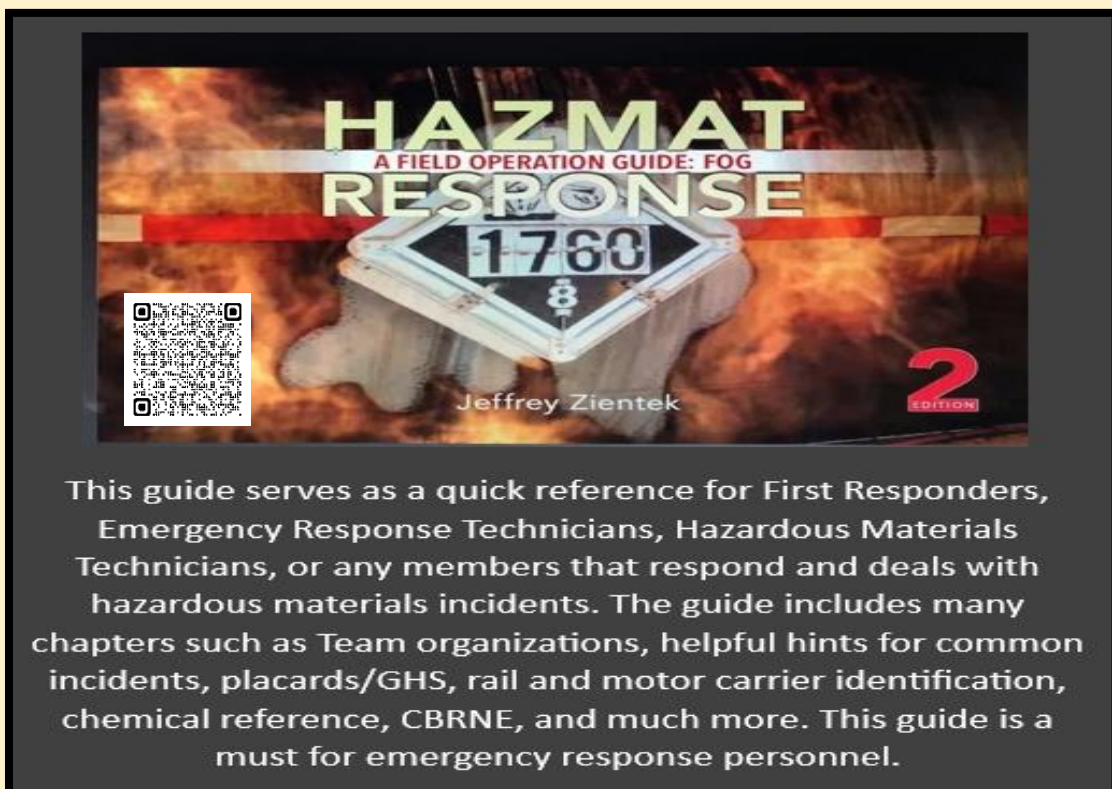
A Measured Conclusion

Equipped with these insights into the art of measurement, you stand at the threshold of transforming from a mere observer to a guardian of safety. The beeps and flashes of your meter aren't just signals—they're the language of a hidden world of hazards. As you parse through units and interpret silent dangers, you're not just doing a job; you're crafting a story of caution, action, and preservation. But mastering this narrative requires more than just knowledge—it demands comprehensive training.

Bobby Salvesen is retired FDNY HM 1 Firemen and Co-Host of The HazMat Guys. His firefighting journey began in 1994 when he joined the East Meadow Volunteer Fire

Department. In 2000, he was hired by the FDNY. He spent a brief time in Ladder 159 before moving over to Squad 288 after 9/11, where he remained for the next 13 years. During this time, he became certified in high-angle rope rescue, collapse, confined space, rigging, extrication, diving, shoring, and firefighter removal. After his tenure in the rescue branch of the FDNY, he transferred to the Hazardous Materials Command, and in 2015, he attained his Hazardous Materials Specialist certification.

He's been a Deputy Chief instructor for the Nassau County Fire Service Academy for the last nine years and has taught everything from Hazardous Materials to Confined Spaces.



This guide serves as a quick reference for First Responders, Emergency Response Technicians, Hazardous Materials Technicians, or any members that respond and deals with hazardous materials incidents. The guide includes many chapters such as Team organizations, helpful hints for common incidents, placards/GHS, rail and motor carrier identification, chemical reference, CBRNE, and much more. This guide is a must for emergency response personnel.

Invest Wisely

By Kevin Ryan

MAKE A WISE INVESTMENT

Leadership is one of the most discussed subjects in any field. It does not matter if it is business, military, or hazmat response.

There are a bunch of articles, books, and podcasts out there on leadership. One thing that all this information cannot teach you is how to deal with people.

Dealing with people is a hard lesson for all leaders no matter how much experience you have. The one thing that all your training cannot specifically prepare you for is what do you do when members fail you? Make no doubt, your members will fail you at some point. Failure is a lesson in of itself. What does

a leader do when this lesson is in progress? The answer is all about swallowing your pride. Take ownership of the failed endeavor. The leader needs to make themselves accountable in addition to taking ownership.

Take notice that I am using the word leader and not Chief, Capt. Lt. etc. A leader is not denoted by any



rank or pins. Leaders are the ones who have earned respect of their members and will follow them anywhere. I am by no means advocating for disregarding the rank structure as it has a purpose in our profession. I am simply saying that when you stand in a group,

people will always look at the natural leader that they trust and train with.

How does a leader get buy in when training and prepping a member for a dangerous job? What kind of motivation does a member need to get in a Level A plastic bag and enter a cloud of chlorine? The leader needs to invest in their members at every turn.

The definition of decision making is betting on the outcome of a choice. Leaders make choices all the time. Their decision making should be based on their most valuable resource. That resource as we all know is our members.

Technology has not taken the place of the most powerful asset we have in our arsenal. When given a choice, I will take a well-trained member with minimal equipment any day.

Why? A member can do what technology cannot. A well-trained member can think outside the box, recognize clues and determine a course of action.

Critical thinking is the most important trait I look for in a member.



Most hazmat teams are part of a larger Special Operations umbrella in larger departments. The members attracted to this type of work tend to be nonlinear thinkers. They do not think in straight lines but in zig zags connecting the dots. Nonlinear thinkers work best when

trained with concepts rather than facts. Here is an example:

You are about to teach a group of students how to set a hot zone. Fact based teaching says a hot zone should be 75, 150 or 300 ft. based on the ERG. Teaching in this fashion does not give the member the ability to recognize certain conditions. Now let's teach the concept of the most effective way to set up a hot zone. Using the ERG as a starting point, does the student understand how recognizing certain aspects of an incident can give them the opportunity to be flexible? Does the hot zone need to be larger based on the cloud of vapor that is coming from a tank truck? Can I shrink the initial hot zone setting based on meter readings? Investing in the students in this way promotes an asymmetrical thinking technician.

Technicians that can recognize developing conditions, adjust tactics, and operate effectively are worth their weight in gold.

Members that feel empowered rather than micromanaged require more investment from a leader. The return on your investment for these members will more than justify the efforts to train them. In a sense, training is our capital to be spent wisely. Training that allows for self-development, critical thinking and teamwork will boost your portfolio more than any other tool at a leader's disposal.

SOP's, discipline, and policies only bring a minimal return. These promote a minimum standard but not an exceptional hazmatter. You can find the hazmatters that far exceed the minimum on every team. The one common trait with this group is how team oriented they

are. The mission always comes first for them. There is no individual reward in their view. The team wins, they win. It is that simple.

One of the best things a leader can do is get out of the way when it's time to suit up and enter the hot zone. Trust the time and effort that is put into building the team. I can say from my own experience that this is one of the more difficult things to accomplish. Effective leaders that have been there done that still get that urge to jump into action. A micromanager or a control freak in command shows a lack of trust and confidence developed through little to no training. The time until the entry team gives their first report can be nerve wracking. Seconds will seem like hours during this time. You will not know if the next transmission will be leak secured or a mayday. Trust the

members you invested in to handle the situation presented to them.

Check the ego when you get the job of IC or Group Supervisor. Develop a solid plan with reasonable strategies and tactics. Invest wisely in your personnel. Respect their capabilities. Trust in the members you train. The team wins, you win #winning

Kevin Ryan leads the Baltimore City FD Hazmat Operations Office. A 31-year veteran of the fire service with 26 years of experience in the world of hazmat response. He is a Level III instructor and adjunct at the BCFD Fire Academy.

YOUR AD HERE!

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INFORMATION

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PFAS IC

By: Vicki Quint

Co-Chair Foam Exposure Committee

HazMat personnel need to be aware of your own state's laws and regulations on PFAS. Individual states have taken the lead on PFAS because USEPA has been unable to stay up on the issue of protecting citizens. Regulations are changing quickly.

As fire departments work through obtaining a 'clean' firefighting foam, they should be aware of California Proposition 65 (Prop 65). This 1986 law came into effect with the intention of allowing consumers to make informed decisions on whether to purchase a product.

Proposition 65 requires businesses to provide warnings to Californians about significant exposures to chemicals that cause cancer, birth defects or other reproductive harm. These chemicals can be in the products that Californians purchase, in their homes or workplaces, or that are released into the environment.

Prop 65 applies to any company including internet businesses that sell products to anyone in California. This law could help all fire departments determine and obtain safe products for their own fire department.

“Proposition 65 has two primary substantive provisions: (1) a warning requirement and (2) a discharge prohibition. The warning requirement provides that businesses with 10

or more employees must provide ‘clear and reasonable warnings’ before knowingly or intentionally exposing individuals in California to any of the chemicals that are listed as known to cause cancer or reproductive harm.”

Section 15 of an SDS should list Prop 65 chemicals.

The attention to California occurs because California is larger by area and population than several European countries. In 2022, California was ready to become the world’s 4th largest economy.

When Californian automobiles were required to meet certain emission standards under the federal Clean Air Act passed in 1970s, the state was granted its own authority

to set their own pollution rules on autos because of the bad air quality in Southern California.

The auto makers were obviously not going to be able to maintain two production lines: one for California and one for the other 49 states. So, all automobiles manufacturers basically had to meet California standards. Today 16 other states and Washington, DC follow the California plan which is around 40% of the US market for cars, SUVs and pick-up trucks.

The AFFF Angle

An Aqueous Film-Forming Foam (AFFF) incident occurred in Connecticut.

“The Department of Energy and Environmental Protection (DEEP) is investigating after

Burlington [CT] firefighters allegedly used firefighting foam illegally to put out a car fire. A DEEP spokesperson said fire officials responded to a fully engulfed car fire on Route 6 Wednesday night. Universal Gold AFFF foam [National Foam], which contains the chemical PFAS, was used to put out the fire, they said. No one was put in harm's way during the fire, according to DEEP."

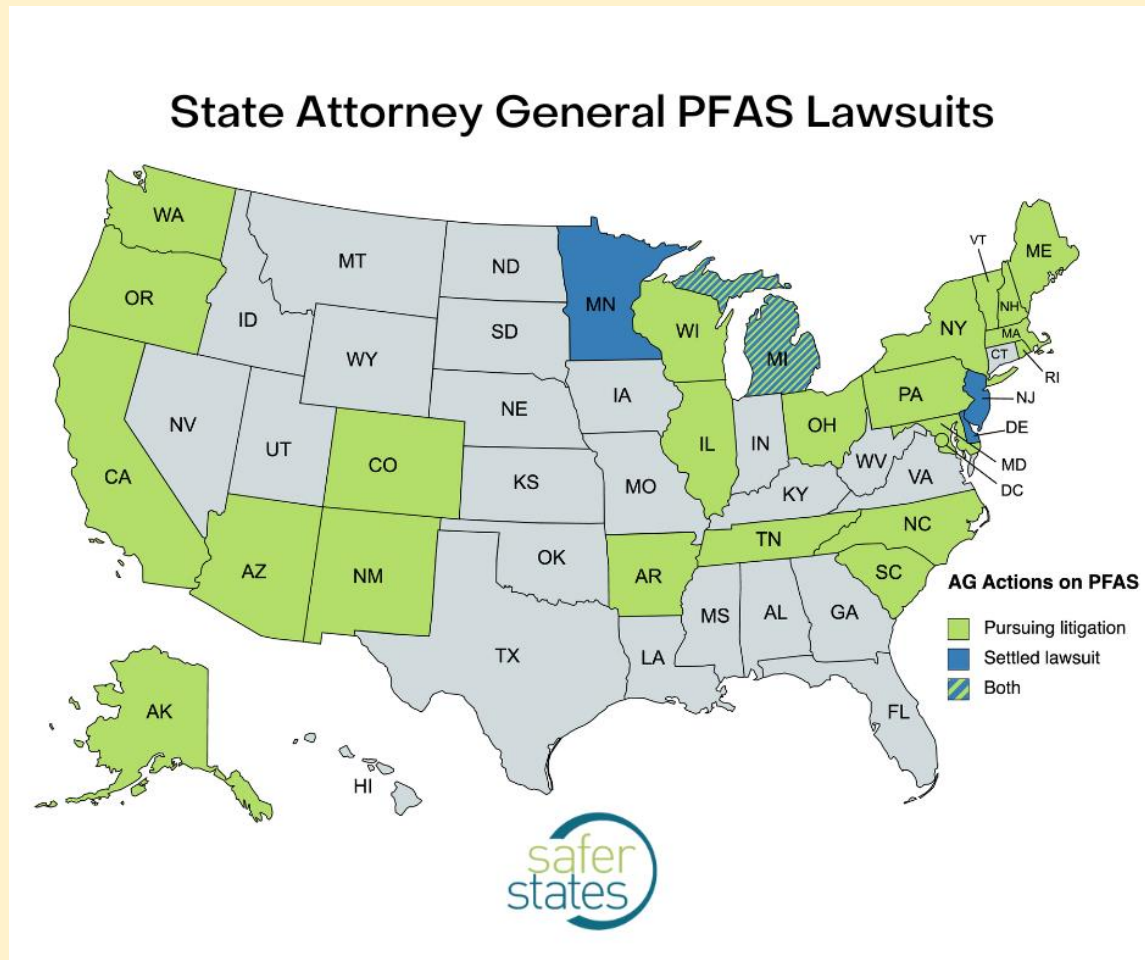
It was reported that a minimum of one to three gallons was used in extinguishing the fire. "The type of foam used is no longer allowed in routine firefighting situations. This is because PFAS is a group of chemicals, per- and polyfluorinated alkyl substances, which can be dangerous if it gets into rivers and groundwater.

Officials are figuring out where to dispose of the collected waste at a secure chemical disposal facility out of state.

DEEP said the state of Connecticut typically seeks to recover costs from those responsible for releasing chemicals. They said it's possible Burlington fire officials will be asked to pay these funds."

Fire departments may find themselves being fined for using fluorinated firefighting foams which means their own citizens, towns and cities will be covering these costs. Some \$10,000 fines have already occurred. DEEP is responsible for the emergency foam trailers. Currently, more than half of the states' Attorneys General have taken legal action against PFAS manufacturers and key users.

Individual states have been working on foam take-back programs for the last several years because of USEPA delays. The State of Indiana



included all AFFF products in their firefighting foam collection program, not just foam products dating prior to 2003. Other states have used the 2003 production date on

firefighting foams as a cut off for state-wide collections.

All AFFF contain PFAS.

C6 AFFF products contain PFAS.

According to the new military Department of Defense MilSpec which was issued in January 2023, the new term “Fluorine-free’ indicates the foam concentrate will contain a maximum of 1 ppb PFAS.

Independent third-party firefighting foam testing currently available:

NFPA 18

UL 162

ICAO A, B & C

EN 1568: Parts 1-4

LASTFIRE

Total Fluorine Testing

US Forestry

MIL-SPEC to F3, strictly land-based and freshwater use only

Incident Command for PFAS, the Foam Exposure Committee (FEC) recommends the following actions because there is no way presently to remove PFAS from the human body:

- Identify your fire department's current firefighting foam product – does it contain PFAS?
- Stop using firefighting foam that contains PFAS which means all AFFF - minimum. The definition of AFFF is that it contains fluorine

/ PFAS. AFFF designations include AR-AFFF products.

- Properly dispose of foams containing PFAS based upon your state's recommendations.
- If possible, replace fire apparatus including anything that PFAS was used in or with.

“Cleaning out” an apparatus foam tank can still mean PFAS remains in the tank. A three wash and rinse will contribute to a quadrupling of the wastewater. Basically, your rinse water is now batch mixed foam product.

“Most currently available remediation technologies do not actually destroy PFAS,” Minakata said. “Instead, these technologies transfer PFAS from one phase to another. They are conveniently implemented in order to meet the new EPA regulations. But it's going to

backfire. Unless we fully destroy the structure of PFAS, we're bound to encounter larger, more fundamental problems.”

At present, there is no known method of *completely* removing PFAS from an apparatus foam tank, human blood or the body. PFAS is basically being taken from Point A to Point Z while contaminating everything in between.

Remediation costs for AFFF run-off water is cost prohibitive. PFAS can be anywhere that firefighting foam has been used. Be certain your new firefighting foam is fluorine-free. You can check for this in Section 15 of the SDS or MSDS.

When you remove fluorine from the firefighting foam, you have a wetting agent.



There are fire tested F3 products readily available now. The FEC F3,

fire-tested product list is posted at the Fire Department Safety Officers Association (FDSOA) website under Safety Resources (www.fdsoa.org). These foams were tested for Total Fluorine by PIGE.


There are no regulations requiring a fire department to use an AFFF!

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Florida Training Centers


Map of 27 Fire Training Facilities with Usage of AFFF, May 31, 2023, https://floridadep.gov/sites/default/files/Map_Training_Sites_Based_on_Priority_31May23.pdf



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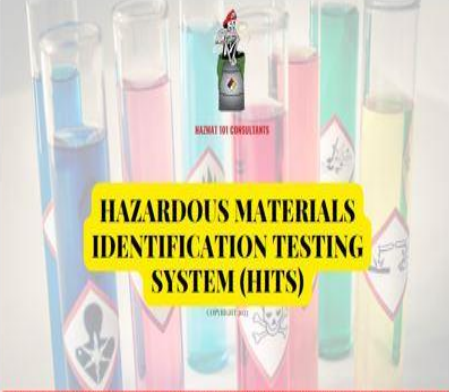


Operational Class Topics:

- Scene Management to include CO emergencies, Natural Gas leaks, Over the road haulers and CNG vehicle
- 2020 Emergency Response Guidebook.
- Identifying Offensive/Defensive Strategies & Tactics.
- Donning & Doffing of PPE (Including firefighter turnout gear).
- Decontamination Procedures.
- Lithium Ion Battery Fires
- Basic Air Monitoring review of 4 and 5 gas
- Detection equipment.



Contact us for more information on in person or virtual classes:
Bob@hazmat101consultants.com

HAZARDOUS MATERIALS IDENTIFICATION TESTING SYSTEM (HITS)

THE BASICS OF RESEARCH IS ONE OF THE MOST IMPORTANT BUT CONFUSING SUBJECTS ON A HAZARDOUS MATERIALS INCIDENT. USING THE HAZARDOUS IDENTIFICATION SYSTEM (HITS), THE TECHNICIAN WILL BE ABLE TO IDENTIFY CHEMICAL PROPERTIES OF A SUBSTANCE OR COMPOUND BY SIMPLE FIELD TESTING IN LESS THAN 15 MIN. CONTACT US FOR MORE INFORMATION WWW.HAZMAT101CONSULTANTS.COM



High gas alert

| | |
|----------------------|------|
| VOC ppm | 81.5 |
| O ₂ %vol | 20.9 |
| LEL % | 0 |
| CO ppm | 0 |
| H ₂ S ppm | 0.0 |

Strategies & Tactics of Air monitoring and more
www.hazmat101consultants.com

CONFERENCE DATES



Florida HazMat Symposium
Jan 16th – 19th 2024

Massachusetts HazMat
MAHMT
Mar 26th – 28th 2024

Michigan HazMat Responders
Conference
Apr 15th – 17 2024