Title: SAFETY ARTICLE: IDLH atmosphere! What about LTDLH?

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An IDLH atmosphere is one that by its composition is Immediately Dangerous to Life and Health. IDLH is a well known term that has been covered very well in our training and culture. The big names in structural fire IDLH are carbon monoxide, hydrogen cyanide and perhaps oxygen deficiency. All three are right here, right now problems and any one of them can end in a tragic way. To counter these immediate threats, we conduct intense education, utilize protective equipment, purchase treatment kits and rely on medical facilities that have developed definitive treatment protocols.

Should we succumb to one of these problems on-scene or by a cardiac related episode within 24 hours of the call, Florida Statutes 112.18 or 112.191 will provide for us or our loved ones in a myriad of ways.

Just as we know that there are immediate dangers and deal with them, shouldn't we be just as aggressive and aware of the long term dangers to life and health in structural firefighting? What are we doing about LTDLH (Long Term Dangers to Life and Health)? It would seem that we are doing very little! This does not seem to make sense given the numbers at our disposal. The numbers that I am talking about are in the form of potential threat, firefighter incident fatalities and the various firefighter LTDLH statistics as they relate to Florida.

Hazardous Substances – There are about 70,000 hazardous substances recognized by the Environmental Protection Agency (EPA). These chemically combine in fires and generate 70 million things that are dangerous to us. To grasp this better, in every structure fire there are 20 – 25 products of combustion never seen before and unique to that fire. They are unique based upon the type and quantity of petro-chemicals involved in the fire, and they are not our friends!

Florida Firefighter Fatalities and injuries per year – Based strictly on the number for Florida firefighters and the national statistics, there should be between three and four Florida LODDs per year. This equates to about one LODD per 11,100 Florida firefighters. Our actual losses have been thankfully less than statistics would suggest due to the continued safety efforts of fire departments throughout the state. During 2010, there were 847 lost time firefighter injuries in Florida. This equates to one lost time injury per 47 Florida firefighters.

Florida LTDLH Statistics per year based upon 40,000 Florida Firefighters.

- **Parkinson's disease** – 30 out of every 1,000 Florida firefighters will be afflicted with this disease as compared to three to four civilians per 1000 civilians. This means that 1,200 Florida firefighters will contract this.

Threat – Heavy metals, styrene and other toxins, present in industrial and structure fires have been connected to not only Parkinson's but Alzheimer's.

Amazing – This threat was first documented in research released over 20 years ago in 1990!

- **Cancer** – The risk of cancer as a firefighter is about 300% above the civilian population in the US (there are 300 cases per 100,000 civilians). This means that 360 or one out of every 111 Florida firefighters will come down with a form of cancer. **Note** – Actual FL data: one big city fire department is experiencing one cancer case for every eight active members.

Threat – Benzene, diesel engine exhaust, chloroform, soot, styrene and formaldehyde are joined by the permutations created in a fire. A firefighter acquiring cancer will probably have one of the following: testicular, prostate, skin, brain, rectum, stomach and colon cancer, non-Hodgkin's lymphoma, multiple myeloma and malignant melanoma. The lead researcher for a University of Cincinnati 2006 firefighter / cancer study said: "There's a critical and immediate need for additional protective equipment to help firefighters avoid inhalation and skin exposures to known and suspected occupational carcinogens." He also stated that: "In addition, firefighters should meticulously wash their entire body to remove soot and other residues from fires to avoid skin exposure."

Amazing –The first study regarding cancer and firefighters was released over 15 years ago in 1995 by the Division of Environmental and Occupational Medicine, Department of Community Medicine, Mount Sinai School of Medicine, New York, USA! The 2006 study confirmed and expanded upon the original findings.

- ALS or Lou Gehrig 's disease - One or two civilians out of every 100,000 develop ALS. Ontario Fire Department has seven cases out of its 10,500 firefighters. Using those statistics, 27 Florida firefighters or one in every 1,480 Florida firefighters will be afflicted.

Threat – There has been very little research in this area, but the current belief is there is a link between genetic disposition and a hazardous substance exposure "triggering" mechanism.

Amazing – This report came out in 2006!

Hopefully I have your attention since 1,587 of our 40,000 Florida Firefighters will acquire a LTDLH condition each year. This equates to 1 out of every 25 Florida Firefighters. Did I use the worst case projections…Yes! It was done because all the studies note a significant and continuous rise in firefighter LTDLH cases. In the future, unless we act, these "worst case" numbers will be exceeded … dramatically.

What do we need to do?

- Bring awareness to the LTDLH issue at all levels including elected officials.
- Do not accept or condone the dirty gear look.
- Along with putting units back in service, allow the human units to do the same.
- Stay informed, check out the references below for starters.
- Institute preventative measures and screening for early detection.
- Install vehicle exhaust removal systems in stations and store bunker gear away from the apparatus.
- Consider today's bunker gear as out-of-date and look towards space age encapsulated protection.
- Remember that the cost of prevention and protection is far less than the emotional and financial costs when the unthinkable occurs.

As always, your feedback and comments are appreciated. You can contact me at 352-369-2836 or charlie.brush@myfloridacfo.com.

References used for this article and worth cruising through:

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