

Abandoned Building and Post-Fire HRD Search Concerns

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INHALANT CONCERNS

Carbon Monoxide (most widely known)

Volatile Organic Compounds (VOC)

- No limits have been established for dogs
- Physiologically speaking one can make assumptions that the extent of exposure and absorption, along with risk for adverse reactions to volatile organics, are most likely quite different for dogs compared to people.
- *If the site hasn't been cleared for people, dogs probably shouldn't enter either—what would happen if the dog was allowed inside and then visually observed to go down, but the VOC levels were too high for the handler or other rescuer to enter to assist the dog?*

Hydrogen Cyanide gas given off from burning of plastics and polyesters

- Hydrogen cyanide is twenty-four times more dangerous than carbon monoxide. Because of this the action level for HCN is lower than CO.
- The action level in order to operate without SCBA in an environment where HCN is present will be **5ppm** (4.7ppm). This is the Short Term Exposure Limit (STEL) for HCN as recommended by NIOSH.
 - STEL as defined by NIOSH is a 15-minute TWA (Time-Weighted Average) exposure that should not be exceeded at any time during a workday.
 - Immediately Dangerous to Life and Health (IDLH) for HCN is 50 ppm.
- The action level for carbon monoxide will remain the same at 35ppm. The atmosphere must meet both the action level for HCN and CO in order for personnel to operate without SCBA.
reference: drwilliamson.columbiasc.net/.../SOG%20OPS-36%20Hydrogen%20Cyanide%20Monitoring%202001-11-2010.pdf

Asbestos

- Assume present if older building
- Small chips and flakes off of tiles and shingles
- No meter for immediate detection; need filter samples sent to a lab

Silica

- In cement, breaks down in fire, collapse
- Requires a lab to measure

RADIATION CONCERNS

In an unknown environment bring in some radiation detection capability as well

INGESTION and CONTACT CONCERNS

These are combined because in addition to possible absorption through the paw pads, the nature of canines is to lick themselves clean, hence ingestion. There is also the possibility that on a hot day there is temptation to drink whatever is available. Canines are also scavengers at heart, and decaying matter (food based or human remains) may be tempting to sample. Even the best, most well-trained have their off days.

Water

- Run off from toxins, including heavy metals and decaying food, may puddle
- High acid or high base can be caustic to the paw pads
- Petroleum products may be absorbed through the paw pads as well
- Use pH paper to detect high acid or high base that may be caustic
- Leptospirosis organism needs a laboratory to test; assume possible presence

Human Remains

- More of a concern as something carried back to base or others
- Decontamination to include a foot bath in Hypochlorite (bleach) 0.5%; this is household bleach diluted 1:10. Be sure and rinse off bleach solution once done; a range of 100-500 ppm may be used on equipment

MONITORING

Air Monitors-

- Place monitors around and in the area being searched to detect changing levels.
- At Minimum the areas should be monitored for Oxygen, CO, H₂S, Flammability, VOCs, and pH (remembering that the canines are at a lower level to the ground than the handler/survey operator so pay attention to those levels)
- Our guys use the RAE systems (MiniRAE 3000, MultiRAE Plus, UltraRAE 3000, AreaRAE Steel)

Water Monitors -

- Try pH paper for extremes of acid and base
- Use of Spilfyter Chemical and Wastewater Classifier Strips
- Organisms need a laboratory
- Visual - petroleum 'color rings' float, green-tinge for anti-freeze
- Olfactory - if it smells bad, odd, etc.....
- No tasting!!!!:-(-
- Put on glove and dip in - may feel grease or oil

DECONTAMINATION

- Whole body soap and water ideal
- Bleach solution foot bath if organisms a concern
- Baby wipes for face, ears, hard to get places with soap and water
- Ophthalmic rinse eyes if getting red and goopy; have check with a veterinarian

This document compiled with the help of several people

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