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I. PURPOSE

SDFD personnel shall utilize the guidelines provided in this Standard Instruction to assist with rescue situations involving tented structures.

II. SCOPE

This policy shall apply to all SDFD Personnel.

III. AUTHORITY

The Fire Chief in coordination with the Assistant Fire Chief of Operations, Deputy Chief Shift Commanders authorizes the information within this policy.

IV. POLICY

A. Fumigants

1. Incidents involving fumigated structures will be considered hazardous materials incidents. Structure being fumigated may be tented or sealed with tape.
2. Sulfuryl Fluoride (trade name Vikane) is the most common fumigant used in structures. The following characteristics should be considered when encountering tented structures involving Sulfuryl Fluoride:
 - a. Sulfuryl Fluoride is a colorless odorless gas which is heavier than air (will settle in low lying areas).
 - b. ***It is non-flammable in all atmospheric conditions, but will change to a different, corrosive gas (hydrofluoric acid) when exposed to open flame.***
 - c. Chloropicrin (an extreme irritant) is added as a warning agent in very small amounts.
 - d. Sulfuryl Fluoride is primarily an inhalation hazard. It is not readily absorbed by the skin.
 - e. Sulfuryl Fluoride (Toxic Gas) has an OSHA permissible exposure limit (PEL) of 5 parts per million and an IDLH (immediately dangerous to life or health) of 200 parts per million.
 - f. Recommended firefighting equipment is a positive pressure, self contained breathing apparatus and full protective clothing (not turnouts).
3. Methyl Bromide, which is a more persistent and dangerous fumigant, was phased out for use in structures in 2005 as a result of the Montreal Protocol (severe ozone layer depletion). Methyl Bromide, however, may still be used for agricultural purposes.
4. Other examples of fumigants include chloropicrin (added as a warning agent to Sulfuryl Fluoride), formaldehyde, sulfur dioxide, hydrogen cyanide; carbon tetrachloride and ethylene oxide (used in lab and hospital settings).

B. Structure Fumigation Process

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1. Structures undergoing fumigation are generally tented and are required to have warning signs indicating the name of the fumigant, date and time of fumigation and the fumigator's name and emergency telephone number.

The signs must show the skull and crossbones and the words "DANGER POISON GAS! KEEP OUT!"
2. After a final check of the tented structure, chloropicrin is introduced from the exterior of the structure and fans will circulate it throughout the structure.
3. After ten minutes the Sulfuryl Fluoride is introduced into the house.

Fumigant cylinders should be removed from the site after the agent is injected into the structure.
4. Fumigation tarps are usually left in place for twenty four hours.
5. After the tarps are removed, aeration time usually takes from one to four hours before the structure can be entered by humans without respiratory protection.

C. Emergency Procedures – Victim Rescue inside Fumigated Structure

1. The first arriving unit should transmit a size-up, based on Department procedures for a hazardous materials incident
 - a. Establish IC
 - b. Designate and transmit the command post location
2. Provide for the safety of the public and responding personnel
3. Assess environmental hazards
 - a. Electrical wires
 - b. Secure utilities
4. Survey the incident
 - a. Identify exposures
 - b. Identify locations and number of victims
5. Isolate the hazard if possible
6. Establish control zones
 - a. A Hot Zone should be established 15' from the tented structure
 - b. Evacuate exposed personnel if within 15' of tented structure
7. Make notifications and request additional resources as needed
 - a. HIRT
The IC should consider contacting HIRT on the TAC channel for technical information regarding the type of fumigant
 - b. Police
 - c. ALS unit(s)

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- d. Truck company
8. Establish safety procedures for responding personnel
Assign a safety officer (this responsibility should be transferred to Haz-Mat personnel upon their arrival on-scene)
9. Identify the fumigant
 - a. Request chemical data from HIRT
 - b. Obtain fumigator's name and telephone number
10. Develop an Incident Action Plan (IAP)
 - a. Draw a site map
 - b. Confirm fumigant is Sulfuryl Fluoride
 - c. Confirm that a victim is inside, and that the incident is not a police activity.
 - d. Perform a risk analysis
 - e. Discuss hazards with personnel
 - f. Identify a two-person entry team
 - g. Establish a RIC and Accountability Officer (AO)
 - h. Establish Emergency Decon
 - i. Identify Site Control
 - j. Confirm tactical channel
 - k. Identify and communicate the emergency evacuation signal
11. Entry Procedures
 - a. Two firefighters in full turnouts and SCBA should remove the spring loaded clamps which join the tarps, and pull the edges back to allow dissipation of the fumigant.
 - b. Set up positive pressure ventilation using blowers to exhaust the fumigant. Select exhaust openings which will allow fumigant to exit into open areas and away from other exposures.
 - c. Two firefighters donned in full turnouts, SCBA's, portable radios and a PHD 4 gas detector (monitoring for flammable atmosphere) may enter the tented structure to conduct a lifesaving rescue.
12. Decon Procedures – Victim
 - a. Request Technical Decon from HIRT
 - b. All personnel performing decon should don double layer of medical gloves
 - c. Decon all personnel PPE including any contaminated SCBA
 - d. Strip clothing of victim
 - e. Bag clothing and personal items

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- f. Wash victim with copious amounts of water
- g. Attempt to catch any runoff
- h. *All personnel involved in rescue operations should be aware that the victim's airway may off-gas fumigant and take necessary precautions***
- i. Isolate the patient in back of ambulance
Seal off the patient treatment area using visqueen and duct tape
- j. Ensure Hazmat EMS Checklist Form (EMS-20) is completed and provided to the transport unit
- k. *Alert the receiving emergency room (ER) of need for additional decon outside of the ER prior to entering the facility***
- l. *Request a second HIRT unit to respond to the receiving ER***

13. Decon Procedures – Rescuer

- a. Rinse off turnouts with water, doff and bag turnouts.
Turnouts should be professionally laundered prior to putting back into service
- b. Entry personnel should wash and rinse and dry any exposed areas at the scene
- c. Ensure all entry personnel are routed through an established Rehab, including recording two sets of vital signs
- d. Entry personnel should be relieved of duty in order to shower upon return to station
- e. Ensure Decon of all equipment used in the entry (consult HIRT)

D. Emergency Procedures – Fire in a Fumigated Structure

Fighting fire inside a fumigated structure is not recommended. Sulfuryl Fluoride when exposed to flame turns into hydrofluoric acid gas. Hydrofluoric acid is harmful to the eyes, skin and lungs. Turnouts are not adequate PPE for fighting fire in fumigated structures.

1. When a fire in a fumigated structure is encountered, follow the procedures listed above (Victim Rescue in a Fumigated Structure) to the point where the IC is developing an IAP.
2. Extra emphasis should be given to evacuating the public in the smoke downwind of the incident.
3. Crews in full turnouts and SCBA should remove the tarps from the exterior of the structure and move them away from the structure.
4. Positive pressure ventilation, using blowers to exhaust the fumigant, should be set in place at uninvolved openings of the structure.
5. Protect exposures and attempt to control the fire from the exterior of the structure until HIRT arrives and confirms the structure is clear to enter.

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6. Personnel should wear full turnouts and SCBA during the entire event, including salvage and overhaul.

MAST personnel should be made aware of this requirement also.

7. Decon Procedures

a. The same procedures listed above (Decon Procedures – Rescuer) should be followed for all entry personnel that are exposed to smoke from a fire in a fumigated structure.

b. Ensure all personnel are routed through an established Rehab, including recording two sets of vital signs