



Physical Anthropology Section – 2003

H30 Fire Scene Management Strategies for the Recovery of Human Remains From Severe Vehicle Fires

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This presentation proposes operational guidelines for scene management and recovery of victims of fatal vehicle fires.

Fatal vehicle fires pose unique challenges to fire investigators, medical examiners, anthropologists, odontologists, and law enforcement personnel. The presenters strongly endorse initiating this investigative function as a multidisciplinary team approach. This presentation proposes operational guidelines for scene management and recovery of victims of fatal vehicle fires. The key to all fire death investigations is the preservation of the scene and the documentation of evidence associated with the causation of the fire. Prior to conducting the removal process of fire victims, it is vitally important to remember that the fire may have been ignited to conceal elements of a crime or to make the death appear accidental. Suicide by incineration is an uncommon modality of selfdestruction but there are documented instances of victims who prepare the scene to give the appearance of an accidental death. Death investigators are encouraged to approach all fire related deaths as homicides until they prove otherwise. These guidelines are presented to minimize postmortem trauma that may occur during the removal of a decedent from within the confines of a vehicle. Additionally, these steps are outlined to increase the accuracy of determining cause and manner of death, the origin of the vehicle fire and significantly contribute to the identification of the vehicle's occupant(s). The following guidelines are proposed to outline procedures for recovering fatally burned victims of vehicle fires.

1. Quality scene maintenance begins with appropriate fire suppression. A fog or mist water application is suggested, rather than a powerful full stream of water. This is highly likely to reduce the amount of postmortem trauma to victim(s) inside the vehicle. Educate fire departments that if there is an obviously deceased individual(s) grossly burned in a vehicle fire, use the minimum amount of low-pressure water to extinguish the fire.
2. Subsequent to fire suppression a vehicle should be allowed to cool, and collected moisture should be permitted to drain from the vehicles interior. Fumes from burnt plastics, vinyls, paint and other chemicals should be given an opportunity to dissipate. This reduces the potential hazard of investigatory personnel inhaling toxic fumes.
3. The presenters have discovered that moving burnt vehicles to a secure environment, while the victim(s) remained inside, has produced considerable destruction of evidence and postmortem trauma to the victim(s). If the vehicle is in a location where it can be left for a brief period of time, it is highly recommended that the vehicle not be moved, but a large tarp be placed over the vehicle and a guard or police officer stationed to maintain scene integrity.
4. As in most investigations comprehensive quality photography of the scene is paramount. Every step of the recovery process should be photographed. Photographs taken with a wide-angle lens may yield clear evidence of a burn pattern as well as other details as to the fires origin.
5. Leave victim(s) in place, and have fire personnel cut away the side or both sides of the vehicle. This allows safe access for personnel removing victims and reduces postmortem destruction to the victim(s) body while being removed.
6. Notify a forensic anthropologist as soon as possible and request that they respond to the scene to assist in the recovery and removal of the victim(s). This is a crucial step in the recovery process, since severely charred human remains may be very difficult to distinguish from the various burnt debris from inside a vehicle.
7. Before anything is actually removed from the vehicle being examined, collect carpet and seat material samples from around the body of each victim. If any of the victim's clothing remains, samples should be collected and tested for the presence of accelerates. Liquids flow to the lowest level and ignitable liquids may "pool" in the clothing or matrix directly under the body. All samples from fatal vehicle fires should be placed in a glass jar, which is then placed into a clean, airtight metal container. A container should never be more than half full as a vapor space is vital to analysis.
8. If victim(s) have been fused, or are adhering to the seat cushions or spring structure of the vehicle seats, cut the seats loose with the victim still in place. The seat can be removed and transported to the medical examiner's office without disarticulating the victims.
9. Human remains should not be placed into body bags after removal. They can be placed on a sheet of plywood sheet covered with a clean, white sheet. Placing victims in conventional body bags after removal is likely to produce additional postmortem damage to the skeletal structure of the victim. Every effort should be made to transport the victim(s) to the medical examiner's office in the least disturbed condition possible.
10. Each decedent from a vehicle fire should undergo full-body X-Rays. This is necessary to assess whether elements of a crime may exist, such as bullets or shotgun pellets for example. Additionally, jewelry or body artifacts that might confirm the identity of the individual(s) may remain undetectable without the assistance of



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radiological examination.

11. Since most victims of extreme vehicle fires are identified solely by their dentition, extra caution should be exercised to preserve a victim's dental structure. The integrity of exposed teeth can somewhat be safeguarded by applying an aerosol adhesive.

12. After the fire victims have been removed, the vehicle should then continue to be checked by fire investigators to confirm the cause and origin of the fire.

13. Every effort should be made not to process vehicle fires with human remains inside at night unless it is absolutely imperative. Fragments of bone, jewelry artifacts, as well as other significant evidence is likely to be overlooked due to inadequate lighting.

Both presenters feel strongly that the above-mentioned guidelines will facilitate higher quality, more comprehensive fatal fire investigations. Fire department education as to fire suppression strategies where there are fatalities present is imperative, as well as establishing written procedural guidelines outlining the management of vehicle fire fatalities. It is suggested that a multi disciplinary approach to the scene management, victim recovery and identification of victims be initiated. It is also recommended that all entities involved in these types of investigations be made aware of the importance of a forensic anthropologist in the recovery process of human remains.

Forensic Anthropology, Fire Suppression, Suicide by Incineration