



SAFETY ADVISORY

Date/Time: June 7, 2010 / 1200

Event: Firefighters sustain burn injuries from ash pits.

Purpose: Alert wildland fire community of the hazards associated with ash pits – how to recognize and mitigate exposure and how to respond to burn injuries.

Narrative: In April and May of 2010, on three different occasions firefighters stepped onto what appeared to be solid ground and dropped into hot pits of ash and steam when the soil gave way. In each case, victims and witnesses say that weaknesses in the ground were not visible before the firefighters broke through. In each case, the firefighter sustained burn injuries despite proper use of PPE and quick extraction from the pit.

Observations by witnesses indicated that use of water and presence of steam may have increased the severity of the burns; firefighters falling into similar ash pits in areas without such water

presence did not receive burn injuries. Pursuant to NWCG Burn Injury Protocols, burn victims were transported to a local medical clinic for treatment, and in all three cases, firefighters were referred to a regional burn center for care. Monitoring and follow up of patient care is necessary in order to ensure burned firefighters receive adequate medical treatment.



IC Actions: Thanks to good planning on the part of Type 3 ICs, medical care was on hand in all cases, and transport to local medical clinics was quick and efficient. After each incident, the ICs more frequently incorporated this hazard into safety briefings to alert fireline personnel to what had occurred, what to watch for, and what to do if someone is injured. In addition, ICs found different methods to mitigate the risk. One IC pulled resources from the interior of the fire and put the crews in a monitoring mode. Another IC had potential ash pit hazard areas flagged.

How to Detect Invisible Hot Ash Pits: “Ash Pit Hazards” can be found on the 6 Minutes for Safety web site (http://www.wildfirelessons.net/documents/6MFS_ashpithazards.pdf). It lists environmental factors, including the presence of extensive root systems, deep duff or peat, landscapes that have once been cultivated or manipulated by heavy equipment, old dozer piles, sawmills, timber sale yards or decking areas, and rodent holes filled with combustible debris. Indicators include white ash on the surface, swarms of hovering insects, translucent smoke that dissipates quickly above the ground, and the smell of incomplete combustion or creosote burning.

Role of PPE: All three firefighters were wearing standard issue green Nomex pants and all firefighter’s boots met NWCG PPE standards. One firefighter’s ankle straps were tightly cinched over their boots. All firefighters were quickly removed from the ash pits they fell into, but still sustained burn injuries (most likely from hot steam) through their pants.

Burn Injury Protocols: Interagency firefighter burn injury protocols are outlined in NWCG memo “Standards for Burn Injuries”, <http://www.nwcg.gov/general/memos/nwcg-012-2008.pdf>.

Be familiar with interagency burn protocols and your own agency’s requirements. Local and assigned incident managers must know where the closest burn center is and have plans for medical treatment and evacuation of injured personnel. In preparation for fire season, visit local medical clinics to discuss treatment and transfer of burn patients to minimize delays caused by staff unfamiliar with interagency burn injury protocols. Here is a list of possible burn care facilities: <http://www.blm.gov/nifc/st/en/prog/fire/im.html>.

Because a physician referral is necessary for admission to a burn center and delays in referrals to burn centers have occurred in the past, the burn injury protocols call for a firefighter’s representative to facilitate the medical referral to a burn center – referrals to burn centers are made directly by the attending physician.

Other Possible Influences: Underground ash pits not visible from the surface are created by the combustion of organic matter buried under a layer of mineral soil. Observations by witnesses indicated that water from concentrated hose work, presence of wetting rains, and proximity to river bottoms may have contributed to the presence of steam in the pits causing serious burns. The presence of emergency medical personnel and ambulances contributed to successful evacuation and treatment in all three cases. Morning safety briefings on ash pits did occur on these incidents, but firefighters still fell into them, mainly due to the fact that these pits were not easily recognizable.

