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## Report of the Week

Rash results from neutralizing action  
1/25/08

**Report Number: 08-034**

Report Date: 01/20/2008 1912

### Demographics

Department type: Combination, Mostly paid

Job or rank: Captain

Department shift: 24 hours on - 48 hours off

Age: 43 - 51

Years of fire service experience: 17 - 20

Region: FEMA Region III

### Event Information

Event type: Non-fire emergency event: auto extrication, technical rescue, emergency medical call, service calls, etc

Event date and time: 10/10/2005 1800

Hours into the shift:

Event participation: Involved in the event

Do you think this will happen again?

What do you believe caused the event?

- Training Issue
- Accountability
- Decision Making
- SOP / SOG

What do you believe is the loss potential?

- Lost time injury

### Event Description

Shortly after initial units arrived on the scene of an accident involving a passenger car and tractor trailer, a clear liquid was discovered leaking from the rear of the cargo trailer. After inspecting the trailer contents, the driver determined that the load shifted causing the batteries to overturn and leak their contents of sulfuric acid. Hazmat units were dispatched to assist and on arrival confirmed a spill within the trailer. Concerned with operating on the shoulder of the highway, the Hazmat Duty Officer requested the tractor trailer be relocated to an existing highway construction area where Hazmat could safely mitigate the hazard. Once relocated, the Hazmat Duty Officer requested an entry into the trailer to determine the size of the spill and whether the acid was reacting with the contents and/or structure of the trailer. Entry Team and a Backup Team donned Level "B" chemical protective coveralls [name deleted], chemical protective gloves and boots and self-contained breathing apparatus (SCBA). As a standard practice prior to entry, team members had their gloves, boots and SCBA mask sealed and bonded to the coverall with chemical tape. An Entry Team member entered the trailer via a ground ladder and surveyed the area. He determined a small spill having a pH of 1 with no reaction taking place. The member exited the trailer and proceeded to Decon. After assessing the situation and consulting with the State Environmental Protection Representative, a recommendation was made to neutralize the acid with a slurry of soda ash and water. The Hazmat Duty Officer had the Entry Team

member re-entered the trailer and applied two, five gallon buckets of the neutralizing mixture. Afterwards, members were Decon'ed and dressed down, equipment was picked up and units were placed in service. Later that shift the member who had performed both entries began experiencing signs and symptoms indicative to a skin reaction similar to hives. During this period the member came in contact with three separate officers who were made aware of the condition but failed to consider the member was suffering from a possible allergic reaction. They failed to initiate medical treatment. Unable to sleep without relief from the itchy rash that seemed to be getting worse, the member check into the local hospital emergency room at the end of his shift. Taking medication for three days and missing one day of work the member later returned to full duty.

### **Lessons Learned**

1. Increasing the level of chemical protective clothing should be considered when hazmat members are entering and/or working within confined areas that have limited air movement or areas that may confine vapors and products of chemical releases. 2. When appropriate, provide forced ventilation to reduce accumulation of toxic/corrosive vapors. 3. The neutralizing mixture used was not a standard method members were trained on and accustomed to performing. In hindsight, adding soda ash to water created a base solution which should have been applied in small amounts while monitoring the pH. The rapid application may have caused a sudden release of corrosive vapors that the Level "B" CPC was not intended for and capable of providing adequate protection. 4. Officers should be more cognizant of acute medical conditions that may affect members during the course of the shift and be proactive in insuring members receive prompt treatment.

### **Discussion Questions**

Hazardous materials teams evolved in the late 1970's after fire departments realized incidents they were being called to exceeded the standard practices and equipment they were using at the time. Respected founding responders from Professor Ludwig Benner, Chiefs John Eversole and Warren Isman and Captain Ron Gore to today's Greg Noll, Mike Hildebrand, Chief Robert Ingram and a host of others, have established sound practices for these elite teams. However, even elite teams can be drawn into injury producing situations if given misinformation or falling prey to human error. Avoiding the pitfalls of human error is the stimulus for this submission. After you review the entire account of [08-034](#), consider the following:

1. The first arriving companies in [08-034](#) have ready access to hazardous materials assets. Where is your nearest haz mat team located?
2. The spill was determined to have a pH of 1. What does that mean to you as a first responder?
3. The entry takes place in the trailer section of a tractor trailer. What considerations came to your mind when you read that?
4. Would you employ a back up team for this entry? How should they be dressed out?
5. What plan does your department or haz mat team have in place to monitor members post incident for delayed reactions to exposures?

*Note: The questions posed by the reviewers are designed to generate discussion and thought in the name of promoting firefighter safety. They are not intended to pass judgment on the actions and performance of individuals in the reports.*