

City of Henderson Fire Department

Informational Final Report of Near-Miss Incident



Incident Number: 11-13575
August 1, 2011

The information contained within this report is intended to be used as a safety and training tool, an aid to prevent future occurrences, and to inform interested parties. The information contained herein is subject to revision as further information gathering is conducted and additional details emerge.

SUMMARY

On August 1, 2011, at approximately 1620 hours, the City of Henderson Fire Department responded to a reported structure fire. A first alarm assignment was dispatched. The first arriving engine (E1) observed active, thick brown smoke churning from the eaves and the attic vents. E1 established command, gave Brief Initial Report, requested a 5th engine, 2nd truck, and a 2nd alarm.

E1 declared an Offensive strategy with command in the Fast Attack mode. An interior fire attack was initiated in the occupancy of origin.

The fifth arriving engine company (E5) was assigned to the Bravo Exposure. The Fire Fighters pulled ceiling on both the interior and exterior of the bravo exposure, conducted a primary search in 2 units, and forced entry into several doors while wearing full PPE and breathing air. Upon completion of the task, the crew was moved to an exterior "stand-by" position. The crew stayed in full PPE with face pieces in place but off of air. Their SCBA bottles were changed by other members. After an estimated 5-10 minutes, the crew removed their SCBA face pieces but remained in full PPE for an additional 10 minutes.

At this point, one of the crew members asked the captain if he could dress down and get some water. The request was approved and the fire fighters doffed their turnout coats and left to get some drink of water. At this same time, all of the officers on the scene were requested to meet with command to do a brief "hot wash" of the event. It was at this time that crews noticed some hot spots flaring up and notified command. E2 captain who was with command, but not with his crew volunteered for the assignment.

While hydrating, the 2 fire fighters from E5 heard E5 re-assigned to extinguish hot spots on the interior of the fire building. The fire fighters joined back up with their captain and crew and re-donned their full PPE including SCBA's.

One of the firefighters felt very tachypnic and confused and required assistance from another fire fighter to help him strap into his SCBA. As this fire fighter entered the building, he felt very weak and was about to pass out. He notified his captain and was removed from the building and sent to medical for evaluation. The fire fighter was transported to the ER and treated for heat exhaustion and dehydration.

CONDITIONS

Weather conditions observed at the scene.

Temperature: 98 degrees – (Heat Index = 97 degrees)

Humidity: 24%

Precipitation: 0”

Wind Speed: 12.7 mph

Direction: ENE

Visibility: Clear

Structure: 2 story, multi-family apartment complex, Type V construction with pitched tile roof.

SEQUENCE OF EVENTS

- First Alarm dispatched @ 16:28:58 for reported structure fire
- E1 first arriving unit @ 16:35:34. E1 declared an Offensive strategy with command in the Fast Attack mode. An interior fire attack was initiated in the occupancy of origin.
- 5th engine, 2nd truck, and second alarm requested by E94 on arrival.
- E5 was the 5th arriving unit, and was assigned to Bravo Exposure @ apr.16:40:12. The crew pulled ceiling on both the interior and exterior of the bravo exposure, conducted a primary search in 2 units, and forced entry into several doors while wearing full PPE and breathing air.
- E5 completed with those tasks and moved to an exterior “stand-by” position @ apr. 17:10.
- E5 re-assigned to extinguish hot spots on the interior of the fire building at apr. 17:20.
- E5 made entry into the apartment, and the fire fighter notified his captain of his condition @ apr. 17:25.
- The fire fighter was seen by medical and transported to the ER @ 17:44:18

INJURIES/DAMAGES

The fire fighter was treated for heat exhaustion and dehydration. His symptoms became serious enough to warrant intervention when he was in an IDLH atmosphere. While no life threatening conditions appeared, this event could have been catastrophic if active fire of a greater extent was involved. The following injuries could have occurred;

1. Life Threatening Injuries
2. Lost Time Injury
3. Minor Injury

Based on the type of incident, this situation is reasonably inferred to occur again.

ROOT CAUSE ANALYSIS

I. What was the defective/hazardous item, process, and/or condition?

- I. Performing Fire attack operations.

II. What is the defect/hazard of the item, process, and/or condition?

- I. Nearly passing out in IDLH atmosphere.

• Why did A&B occur?

1. The fire fighter suffered from the effects of heat stress and dehydration.

• Why did 1 above occur?

2. His body got overly heated and he was under hydrated.

• Why did 2 above occur?

3. His body could not cool off. He did not have time to re-hydrate.

• Why did 3 above occur?

4. The fire event occurred during the summer. The Heat index was 97 degrees during the event. The fire fighter had on PPE for over 40 minutes. No formal rehabilitation period was given.

Root Cause: The fire fighter suffered from heat exhaustion because he became overheated and did not receive an opportunity to cool off and re-hydrate. He got overheated because he was wearing structural fire fighting PPE for over 40 minutes and doing physical work in a heat index of 97 degrees.

CONTRIBUTING FACTORS

PROCEDURES/PROTOCOLS/SOPS		HAZARDS		FACILITIES/EQUIP	
	None developed		Created by man		Faulty Equipment
X	Developed but not understood		Created by external factors (i.e., weather)		Poor design
X	Developed but not trained		Documented but not repaired		Not available
	Developed but not accurate		Unidentified		Not used properly
	Developed but unable to follow		Identified but accepted		Corrosion or wear
	Inexperience in using		Repaired but deficient repair		Ergonomic factors
			Conditions changed		
COMMUNICATION		HUMAN		TRAINING	
	Insufficient planning		Insufficient planning		Insufficient
	Communication breakdown		Employee perceived need		Not addressed in training
	Confusion after communication		Friendly competition		Tool used incorrectly
	Improper/lack of communication		Due to external factors		WEATHER
INCIDENT		X	Workload too heavy	X	Inclement – High Heat
X	High risk nature of activity		Lack of teamwork		Night time
	Command		Taking shortcuts		Poor Visibility
	Accountability		Fatigue		Slippery/Wet
	Situational Awareness		Horseplay		
	Task Allocation				
	Staffing				
OTHER FACTORS		OTHER FACTORS (Cont'd)		OTHER FACTORS (Cont'd)	
	Teamwork		Personal protective equipment (Lack of or insufficient)		New job duties
	Working long hours		Improper body position		Not at optimal health
X	Physical overexertion		End of shift		Exposure

LESSONS LEARNED

1. There is a high potential for this to occur again whenever crews are performing physical work and wearing structural PPE in high heat conditions.
2. SNFO -08 is the policy that addresses fire ground rehabilitation, but it has not been formerly trained on and implemented in a consistent fashion.
3. Although a formal rehabilitation group was established, not all crews who met the criteria to go through rehabilitation did so.
4. There is a common misconception that only “fire attack” crews require rehabilitation. Command needs to be responsible for managing this.
5. During high heat times, crews should rehabilitate before being re-assigned.
6. Additional resources will be needed to support operational objectives.
7. Any atypical presentations from a member (i.e. decrease in expected performance, signs/symptoms of illness-fatigue-NV-SOB-CP-lightheadedness) should immediately warrant a medical evaluation.
8. Additional tools to facilitate active core cooling should be investigated to enhance rehabilitation procedures.
9. Company officers must perform a personnel assessment on their crew members to ensure health status and readiness according to the guidelines on SNFO-08.