



## **National Fire Fighter Near-Miss Reporting System Reports Related to Commercial Fire Tactics**

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**Report Number:** 06-039  
**Report Date:** 01/26/2006 1035

### **Demographics**

Department type: Volunteer  
Job or rank: Fire Chief  
Department shift: Respond from home  
Age: 25 - 33  
Years of fire service experience: 11 - 13  
Region: FEMA Region VI  
Service Area: Rural

### **Event Information**

Event type: Vehicle event: responding to, returning from, routine driving, etc.  
Event date and time: 12/24/2005 1430  
Hours into the shift: 0 - 4  
Event participation: Witnessed event but not directly involved in the event  
Weather at time of event:  
Do you think this will happen again? No  
What were the contributing factors?

- Decision Making
- Human Error
- Individual Action

What do you believe is the loss potential?

- Life threatening injury

### **Event Description**

We were dispatched to a large wildland fire to assist multiple agencies. We were enroute with a wildland fire apparatus, and a water tanker to provide assistance. Both apparatus were occupied with one firefighter each. The department's assistant chief and firefighter were following in the assistant chief's private vehicle behind the apparatus. The wildland fire apparatus was in front and water tanker was following behind on a rural Farm to Market Road when they approached a train crossing. The wildland apparatus went across the railroad tracks and made a left turn on another Farm to Market Road to travel to the fire. The driver of the water tanker failed to look at the flashing warning lights. The railroad tracks did not have cross arms, just flashing lights. The driver of the water tanker didn't see the train approaching until it was too late and collided with the first locomotive just behind the front axles, and wheels on the locomotive. The driver of the wildland fire apparatus never saw the collision and proceeded to the scene, thinking the driver of the water tanker had stopped for the train. The water tanker was equipped with two 600 gallon water tanks, which upon collision unbolted from the frame of the apparatus and pressed the cab of the apparatus against the train partially ejecting the driver out the driver side window, pinning him from the thigh area down. The driver was extricated with the jaws-of-life, from a mutual aid department, and flown to a trauma center. The driver of the water tanker spent several weeks in intensive care, underwent numerous major surgeries, and is undergoing extensive rehabilitation for his injuries.

## **Lessons Learned**

Lessons learned: Ensure all personnel are trained extensively in emergency vehicle operations. This individual was properly trained in emergency vehicle operations. He lacked knowledge of the response district, and the train crossings he had to proceed over enroute to the scene of the incident. My suggestions to prevent similar incidents from happening are to always stop at railroad crossings, look both ways to ensure there are no trains approaching. Never rely on lights, or cross arms to alert you that a train is approaching, and know where train crossings are, whether in your response district or mutual aid department districts. Actions to correct the situation are to ensure all individuals are properly trained in emergency vehicle operations, and know how to approach railroad crossings, and know that a train cannot swerve out of the way to miss you, and even with warning lights, and sirens activated a train will not be able to stop for you. Lastly, always stay alert when operating an emergency vehicle; know your route of travel before leaving the station, and the possible hazards and delays of traveling that route.

**Report Number:** 06-269

Report Date: 05/08/2006 1822

### **Demographics**

Department type: Combination, Mostly paid

Job or rank: Fire Fighter

Department shift: 24 hours on - 24 hours off

Age: 25 - 33

Years of fire service experience: 0 - 3

Region: FEMA Region VII

Service Area: Suburban

### **Event Information**

Event type: Training activities: formal training classes, in-station drills, multi-company drills, etc.

Event date and time: 04/21/2006 1230

Hours into the shift: 0 - 4

Event participation: Involved in the event

Weather at time of event:

Do you think this will happen again? Uncertain

What were the contributing factors?

What do you believe is the loss potential?

### **Event Description**

A 2-man team made entry with a charged hose line from the second floor of the burn tower, down to the first floor, where the burn room was located to simulate a basement fire. As the two firefighters entered the burn room, firefighter number one opened the nozzle and saw that he had a fog pattern. Firefighter number one then quickly closed the nozzle and attempted to adjust the pattern. Upon reopening the nozzle, firefighter number one got no water. He then tried to readjust the nozzle pattern again and found that he again had a fog pattern. Firefighter number two then took the nozzle and turned it to adjust the pattern. When he opened the nozzle he also got no water. Firefighter number one then started to feel like he was getting burned and exited the burn building. Firefighter number one received some first, second and a small amount of third degree burns. Firefighter number two was able to exit the building safely. The drill was then terminated by the safety officer. Firefighter number one was taken to urgent care non-emergency and missed a total of three shifts of duty. The bunker gear used by firefighter number one was taken out of service, as well as his helmet, which all showed signs of failure.

### Lessons Learned

It was determined that a reserve nozzle was put into service the prior day. Firefighter one and two were assigned to a different apparatus and until the drill began they had not been advised of the change. The nozzle that was placed on the attack line was a special high-rise pack fog nozzle that was made to be shut down and taken apart and used as a smooth bore nozzle.

The burn room temperature spiked in a short amount of time without the knowledge of the safety team. The crew's lack of experience with the nozzle lead to them continuing to turn the nozzle from a fog pattern to the off position. Firefighter number one checked his pattern upon entry to burn tower but failed to check it again before entering burn room. Upon review it was

found that the gallons per minute on the nozzle had also been affected by dragging the hose down the stairs and was moved from 125gpm to 30gpm without the knowledge of the crew.

Upon review of the incident it was found that Firefighter number one and two should have been more aware of the equipment that they were using and that there was a lack of communication between crews that a different type of nozzle had been placed in service.

Always check your equipment and make sure to check pattern and gpm before making entry to a fire room.

**Report Number:** 07-912

Report Date: 05/13/2007 2008

### **Demographics**

Department type: Paid Municipal

Job or rank: Captain

Department shift: 24 hours on - 24 hours off

Age: 34 - 42

Years of fire service experience: 11 - 13

Region: FEMA Region IX

Service Area: Urban

### **Event Information**

Event type: Fire emergency event: structure fire, vehicle fire, wildland fire, etc.

Event date and time: 02/17/2007 1630

Hours into the shift: 5 - 8

Event participation: Involved in the event

Weather at time of event: Clear and Dry

Do you think this will happen again? Yes

What were the contributing factors?

- Training Issue
- Command
- Situational Awareness
- Communication

What do you believe is the loss potential?

- Life threatening injury

### **Event Description**

I was assigned to the first engine on the second alarm of a concrete tilt up type warehouse fire. During response heavy smoke was visible in the area. The radio traffic indicated the fire would be defensive. At arrival, my crew and I were assigned to West division. I reported to command and provided my pass tags then reported to West division and was assigned to assist in forcible entry.

At the time of our assignment to forcible entry, there was heavy smoke from all openings in the building but no fire from the roof. I noted that fire was pushing out through a roll up door. I put one of my two firefighters on one of the roll up doors and took the other firefighter to find additional doors to open so we could put some lines through openings and get some water on the fire. As soon as we ventilated a window, I heard radio traffic that the building was coming down and all to evacuate. The north wall fell into the building causing six of the firefighters assigned to West division to run from the west wall. The west wall was pushed outward by the falling north wall. Apparently the roof had ventilated and then collapsed near the north wall and the collapse pulled the north wall in. Fortunately no one was injured or killed in this incident however the potential for great loss of life was present. This wall collapsed 16 minutes into the fire and four minutes after our arrival on scene.

## **Lessons Learned**

Most important is situational awareness. I noted that the fire in the building had moved down below the level of the top of the roll up door. I realized there was a huge amount of fire but

still continued with my assignment of forcible entry without re-evaluating the wisdom of my action. Anytime you think "that's a lot of fire" it probably is.

The persons assigned to forcible entry were 6 to 12 feet from the corner of the building. They chose to run straight away from the building instead of sideways, the shorter distance, placing them in greater danger.

Just because you have only been at the scene a few minutes does not mean that the fire is only a few minutes old.

**Report Number:** 07-983  
**Report Date:** 07/03/2007 0817

### **Demographics**

Department type: Paid Municipal  
Job or rank: Deputy Chief  
Department shift: 24 hours on - 48 hours off  
Age: 43 - 51  
Years of fire service experience: 21 - 23  
Region: FEMA Region VII  
Service Area: Urban

### **Event Information**

Event type: Fire emergency event: structure fire, vehicle fire, wildland fire, etc.  
Event date and time: 02/16/2007 1000  
Hours into the shift: 0 - 4  
Event participation: Involved in the event  
Weather at time of event: Cloudy and Sleet  
Do you think this will happen again?  
What were the contributing factors?

- Situational Awareness
- Command

What do you believe is the loss potential?

- Lost time injury

### **Event Description**

[Reviewer note: apparatus numbers changed to preserve department identity.]

Day/Date: [deleted]

Time: 1000 Hours

Weather Conditions: 29 degrees, with winds out of the southwest at 13 mph and gusts of 23 mph.

Staffing: All companies were staffed with four personnel with the exception of [ENGINE 3], who had 3 personnel.

On [date deleted], at 0955:08 hours, Fire Communications received the first 911 call for incident # [deleted]. The caller reported a fire at a bar [name and location deleted]. Fire Communications received four (4) additional 911 calls over the next two minutes and 52 seconds. Fire Communications dispatched car [unit numbers deleted] at 0958 hours. Fire station [# deleted] was located just two (2) blocks south and one block east of the bar. For the purpose of this report, a 00:00 clock will begin at the time of the regular alarm tone, (0958 hours).

At 01:06 minutes, [ENGINE 1] reported smoke showing from the station. Upon their arrival, 18 seconds later, they announced they were on the scene of a two-story commercial structure. They identified a hydrant on the corner, established [name deleted] command and announced that they would be investigating. Inferring from the audio recording of the radio traffic, and comments made during the after action review; prior to entering the structure, [ENGINE 1's] Captain had a short conversation with a citizen about the location of the stairs

to the second floor. [ENGINE 1] advanced a dry hose line into the structure to find the location of the fire, thought to be on the second floor. During the review, [ENGINE 1's] Captain reported that with his previous experience in the building, he thought the stairs to the second floor were inside the bar.

Inferring from the communications audio log, at 1:50 minutes the dispatcher prompted [ENGINE 1] for a size-up by asking if he "had smoke". [ENGINE 1's] Captain replied, "Pretty heavy smoke". At 2:14 minutes, [TRUCK 1] reported on scene and at 2:23 minutes, [ENGINE 1] requested a 1st alarm. During the review, [TRUCK 1] stated that they observed light gray smoke from the north while en route. At 2:38 minutes, [ENGINE 2] reported on scene with a hydrant. During the after action review, [ENGINE 2's] Captain noted "moderate smoke conditions" and that [ENGINE 1] and [TRUCK 1] were just entering the structure when [ENGINE 2] was pulling up to the scene. [ENGINE 3] reported on scene at 3:10 minutes. The dispatcher asked [ENGINE 1] if they wanted a "working fire response". [ENGINE 1] responded affirmatively and added, "Have one of the other companies find the stairs on the north side." The dispatcher relayed the message.

[ENGINE 2] pulled a dry back-up line and laid it at the door. During the review, [ENGINE 3's] Captain reported that he saw two lines going in and didn't think a third was needed. [ENGINE 3] joined [ENGINE 1] and [TRUCK 1] inside the structure while [ENGINE 2's] crew did an exterior size-up of the south and east sides of the structure. At 4:16 minutes, the [FIRE APPARATUS OPERATOR] of [ENGINE 1] asked his captain if he wanted the line charged. [ENGINE 1] responded, "Not yet, haven't found the stairs." At 4:32 minutes, [ENGINE 1's] captain requested a camera to help find stairs. [Battalion Chief 1] reported on scene at 4:51 minutes and assumed Command.

During the review, [ENGINE 1] and [TRUCK 1] crews reported that prior to the 'sudden change', there was very little heat and smoke conditions. Captain of [ENGINE 3] said that after about two minutes inside, smoke conditions changed from light to heavy smoke but with little heat. [Battalion Chief 1's] [DISTRICT SAFETY OFFICER] stated that his observation gave no cause for concern. To paraphrase, "I thought it was a room and contents fire. It looked like an ordinary fire with an ordinary amount, color and pressure of smoke."

[ENGINE 2's] Captain reported his findings to [Battalion Chief 1] and then entered the structure. At 5:10 minutes, [TRUCK 1]B (crews operating on the roof) asked [TRUCK 1]A, "Do you want a hole cut?" [TRUCK 2] reported on scene from the west at 5:17 minutes. [TRUCK 1]B repeated his request, "Do you want a hole?" [TRUCK 1]A responded, "Yes, cut it." [TRUCK 1]B replied, "Couldn't understand." At 5:32 minutes, the dispatcher responded to [TRUCK 1]B, "He said cut it." During the After Action Review, [TRUCK 1]B (Roof Crew) stated that most of the smoke was coming from the bakery roof. "We asked where they want the hole cut and if a hole was needed."

At 6:06 minutes, [ENGINE 1] announced, "Charge that line." During the review, firefighters reported that at about this time, there were multiple verbal requests from interior crews to charge the line and as the message was relayed outside, there was some confusion as to what line to charge. At 6:11 minutes, the [FIRE APPARATUS OPERATOR] of [ENGINE 1] asked, "need water yet?"

## After Action Review

a. During the review, the facilitator asked interior crews to describe conditions just before the sudden change.

- [ENGINE 1]'s Captain stated that he observed a small ceiling opening and asked to have line charged then everything flashed, but it wasn't like a normal flash, where the flames go back up, it blew down from above the bar and stayed there.
- [TRUCK 1]'s Captain stated that he was checking for fire in the ceiling and it felt like "soft butter". A few seconds later, the whole room began to burn, floor to ceiling.
- [ENGINE 2]'s Captain stated that they were about 15 feet inside and the smoke started getting worse. "Fire rolled over us, and we yelled for water. About 10 seconds later the room flashed and interior crews began evacuating.
- [ENGINE 3]'s Captain stated that they made it inside the building to the east wall, when the truck pulled the ceiling, it got dark and hot fast. Then we had fire floor to ceiling. We headed north to escape the fire and "I tried to use the radio but couldn't get it to work with my glove on." "I decided to leave the glove on and started yelling for help."

b. During the review, the facilitator asked crews on the exterior to describe conditions just before the sudden change.

- [Battalion Chief 1] [DISTRICT SAFETY OFFICER] stated that because it was the quickest water, he grabbed a booster line (that was laid out) and pulled it into where he thought the two firefighters were. "I saw a lot of fire and then it went away. The fire disappeared but the heat was intense. I heard someone screaming so I started to move towards the screams. I found them and pulled them out. It was so hot that if I would not have heard the screams, I would have probably headed back for a bigger line."
- (Account from [ENGINE 2] Captain) One of [ENGINE 2]'s firefighters was the last of his company to make it to the door. When he got to the door, he heard screams from inside. [ENGINE 2] firefighter made his way to [TRUCK 1] firefighter and assisted him out where they were both assisted away from the building by crews that were already on the exterior.
- [Battalion Chief 1] stated that he began to assign the arriving companies and ordered a second alarm. A few minutes later, [Battalion Chief 2] suggested they handle EMS and Battalion Chief [Battalion Chief 1] assigned [Battalion Chief 2] to EMS.
- [Battalion Chief 3] stated that immediately after his arrival, he noticed people coming out of the building. He assisted with immediate needs and then attempted to find out who may still be inside. He requested a PAR from Command.

At 6:19 minutes into the incident, [Battalion Chief 3] reported on scene. During the after action review, [Battalion Chief 3] stated that he could see "heavy, dirty brown smoke with pressure" while responding from the north. At 6:23 minutes, [Battalion Chief 1] announced to have the building evacuated and requested an evacuation tone. During the after action review, [Battalion Chief 1] reported that when he observed firefighters exiting the structure with some of their protective clothing on fire, he called for the evacuation.

After the initial evacuation, there were several requests for ambulance. [Battalion Chief 1] ordered someone to do something with a line on [Engine 1]. He requested [TRUCK 2] to be his RIT and ordered [Truck 2] “inside to get firefighters out”. During the review, crews reported that it was obvious that following the sudden change in conditions inside the building, there was a lot of face-to-face communications and there was some confusion as to who may or may not still be inside the building.

At 8:33 minutes into the incident, two minutes and 10 seconds, following the evacuation order, [TRUCK 1]B reported that the hole was cut.

At 13:50 minutes after a complete PAR and an operating EMS Group, Command initiated a defensive attack on the fire and ultimately stopped the fire one building to the west of the bar.

## **Lessons Learned**

### **Recommendations**

The [deleted] Safety Committee conducted an incident review on [a month later] and found that to minimize the possibility of similar occurrences the feartment should take the following steps:

- Establish and use a systematic After Action Review process for all significant incidents. The process should focus on lessons learned and experiences gained that will help to avoid similar occurrences.
- Demand that from the inception of all incidents, the Incident Commander perform his/her command duties from a position that affords the best overall scene management and supervision. On most structure fires, this is outside the structure. On most commercial structures, this would be outside the structure and inside of a vehicle.
- Work on developing a culture where Fire Communications personnel are encouraged to use their judgment and field personnel accept that it is the authority of Fire Communications to manage the Fire Department’s rolling resources. Fire Communications personnel should feel that if they decide to announce “we’re receiving multiple calls for this address” or “Battalion Chief XYZ” is delayed at an accident” or decide to dispatch a “working fire” response before the on scene commander utters the words, field personnel will not challenge them.
- Deliver/offer training opportunities to personnel for low frequency, high-risk incidents. For example:
  - Recognizing the signs and dangers of a void space fire and the necessity of having a charged hand-line when checking for fire.
  - Recognizing the differences and the potential risks of commercial building fires over residential fires and the different tactics that should be considered.
  - Understanding the benefits of early vertical ventilation.
  - Understanding the dangers of operating alone if even for a moment.

- Firefighter survival – clearing an egress path on the way in, remaining calm, relying on PPE.
- Continue Mayday, entanglement and L.A.S.T. drills
- Defensive Operations: Elevated vs. Ground Level Master Streams
- Establish a policy that demands a redundant water source on any offensive attack strategy.
- Establish a policy that has a goal that a backup line is advanced from another pumper with a separate water source. The tactic of an attack line and a backup line being advanced from the same apparatus is not as safe as the two lines coming from different apparatus.
- Establish a policy that demands that firefighters working over a fire during ventilation, don SCBA's and wear face pieces.
- Ensure that the communication model project team addresses non-essential radio traffic to stay off air. For example, companies responding on the second alarm often walk on working companies.
- Establish an SOP on conducting a PAR.
- Review IMS Manual and possibly add a statement about “Fast Attack Mode” vs. “Strategic Attack Mode”.
- Recognize an unacknowledged radio response is an unanswered response.

Mayday training helped save these firefighters, although some were burned, NOBODY removed their face piece or were in a panic, they all relied on their training and thankfully survived.

**Report Number:** 07-986  
**Report Date:** 07/08/2007 1809

### **Demographics**

Department type: Paid Municipal  
Job or rank: Driver / Engineer  
Department shift: 24 hours on - 48 hours off  
Age: 34 - 42  
Years of fire service experience: 4 - 6  
Region: FEMA Region IV  
Service Area: Urban

### **Event Information**

Event type: Fire emergency event: structure fire, vehicle fire, wildland fire, etc.  
Event date and time: 06/05/2007 1400  
Hours into the shift:  
Event participation: Involved in the event  
Weather at time of event: Cloudy and Rain  
Do you think this will happen again?  
What were the contributing factors?

- Situational Awareness

What do you believe is the loss potential?

- Life threatening injury

### **Event Description**

My station was called to a possible fire in the rear of a strip mall. The responding crew consisted of an engine, rescue and command vehicle. I am the driver of the engine. Upon arrival we were greeted by several occupants of the building who were exiting a common area which was a hallway that ran behind each shop for employees only. The owner of the pizza shop was the first to approach us, stating that his power had been surging and he could smell smoke near the circuit breakers outside. He was very accusatory towards an individual that was doing some remodeling in a shop a few stores down. He stated that they had wires running everywhere and that they must be overloading the circuits. The construction worker stated that he was only using tools such as a saw and drill and there was no way he was overloading anything.

Near the hallway on the outside of the building there were circuit panels for all of the shops as well as a main circuit breaker for the building on the wall outside. There were also two large green electrical boxes on the ground about 10 feet off of the wall that turned out to be the main breakers through which the power company runs power to this general area. The main circuit breaker box for the building had light smoke coming from it. I was dressed in my bunker pants and work shirt only at this point and was waiting for my firefighter to grab a dry-chem extinguisher. He did so and approached fully bunkered. I reached up with my non-gloved hand and unlocked the metal latch to the breaker box but looking at my firefighter fully bunkered out decided not to open the door to the breaker box at the last moment. My acting lieutenant instructed me as there was no immediate danger to anyone that we would wait for a city building inspector, the building owner and an electrician. The city building inspector arrived and in addition to the above, called the electric utility company, as those two large area circuit boxes were right next to the building.

After waiting approximately 1/2 hour all parties arrived. The electric company pulled the circuits for the area and the electrician opened the main breaker to the building and turned it off. The smoke that was coming out of this box was not originating from this breaker box but rather just following the piping on the wall and exiting out of the main breaker box door. There was a large 8 foot long box near the ground that had no latches and was finally opened. This box housed large diameter wires or lines that fed each breaker box. One of them had burned through its insulation and was touching part of the large box housing. It was not red from heat but the paint had bubbled in several places. As the paint was very old it was hard to see. My leg was approximately 3three or four inches from this large box when I initially approach the breaker panels. As the box was apparently charged this could have been a problem for me if I had made contact with this box on a seemingly routine call. The electrician told me that it was good I did not open the breaker box, because if there was a problem with it, it could have arced.

Understanding now that this could have happened, I started to consider all of the house fires that we go on and pulling a meter means opening a breaker box and flipping a switch now a days. My understanding from the electrician is that these can arc. We pull it on every house fire for the most part. The safety officer that pulls the breaker does not carry any protected high voltage gloves that I saw used that day on scene. My lack of knowledge and exposure in this incident got me thinking I needed more training on electrical fires and understanding of electricity. The local electric company does not wish to provide any training, as they feel that they could somehow be liable if we were to make a mistake, which I understand. I cannot find any training online for electrical fires. So in addition to submitting this near miss report, I am hoping to generate some interest in discussion on how we can become better trained on electricity and what to look for. Hope this makes you think twice when approaching and responding to an electrical fire.

### **Lessons Learned**

The main lesson learned for me was experience in this kind of situation. More caution needs to be taken on my part, and if I am unsure of what is going on or what to do, I need to contact additional resources. I feel that with more standardized training on electrical fires and what kind of precautions are needed I will be able to identify hazards more easily. I know most firefighters will probably read this and say well if you don't know then stay away but they know as well as I do that this is not always possible.

**Report Number:** 07-1155  
**Report Date:** 12/08/2007 1839

### **Demographics**

Department type: Combination, Mostly paid  
Job or rank: Battalion Chief / District Chief  
Department shift: 24 hours on - 48 hours off  
Age: 43 - 51  
Years of fire service experience: 30+  
Region: FEMA Region III  
Service Area: Suburban

### **Event Information**

Event type: Fire emergency event: structure fire, vehicle fire, wildland fire, etc.  
Event date and time: 12/07/2007 0730  
Hours into the shift:  
Event participation: Witnessed event but not directly involved in the event  
Weather at time of event: Cloudy and Rain  
Do you think this will happen again?  
What were the contributing factors?

- Situational Awareness
- Decision Making
- Human Error
- Procedure
- Training Issue

What do you believe is the loss potential?

- Life threatening injury

### **Event Description**

The department was operating at a fire in a residential high rise, with fire on the eighth floor. The response assignment includes a minimum of 14 units and approximately 40 personnel. A second alarm had been requested by command upon his arrival due to fire showing from the eighth floor. I responded as the incident safety officer.

Crews controlled the fire quickly, were using hydraulic ventilation to clear smoke, and were completing a check of the fire floor and floors above the fire for smoke conditions and occupants' welfare by the time I arrived. A number of occupants had evacuated the building and were congregating in the building lobby or just outside of the front entrance. Firefighting crews were also entering and exiting the building.

I reported to the command post to receive a briefing and orders. As I was walking away from the command post toward the building, crew members on the eighth floor began breaking windows in the fire apartment's bedrooms. This was a corner apartment. Glass fell in large pieces on the A and D sides of the wing, nearly striking a number of civilians and firefighters. No warning was given that the windows were about to be broken.

### **Lessons Learned**

1. Breaking windows on the upper floors of a building requires careful coordination. Luckily, no one was struck by the falling glass, although one man with two small boys was narrowly

missed. An elderly woman was walking out from under the entrance canopy and narrowly missed being struck by shards that bounced off the canopy and showered the area in her travel path.

2. Before windows are broken or any debris is released from an upper floor, an all clear needs to be established.

3. Division commanders and company officers need to be cognizant of what crews are doing at all times.

4. Constant emphasis on safe practices is a must.