

**CIRMA**

# Hot Zone Series

for Fire Services



September 2020



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## Planning Training Exercises

### Background

The injured worker, a paid firefighter with 16 years of service, sustained an injury while performing an extrication training exercise.

The injury occurred during a planned extrication drill that required the set up and use of hydraulic rams. Because the department had several calls for service that day, the training officer did not have the time to establish a formal written training plan or perform a safety review of the training. The extrication drill took place in a sloped and sandy parking lot, using a donated vehicle with four different sized tires.

The training officer, being conscious of the shift hours and trying to save on overtime expenses, asked the Engine Company members to perform a training evolution before the end of their shift. The Engine Company accommodated the request and began the extrication of a "victim" from the vehicle. Because the training officer was called to another meeting, he asked the engine officer, a Lieutenant, to oversee the training. The Engine Company officer directed the injured worker to set up the hydraulic rams and begin "rolling" the dashboard. In an effort to complete the evolution expeditiously, the injured worker did not properly secure the rams and did not "size up the scene and ensure scene safety" – noting the vehicle had four tires of all different sizes and was located on a slope with sand underneath the tires. As the injured worker began to engage the rams, the vehicle began to slip, causing the rams to disengage from the vehicle. In an effort to prevent the rams from falling onto his legs, the injured worker reached out abruptly to catch the rams. He then slipped and twisted his back, immediately felt the onset of lower back pain, which radiated down his right leg. The incident was reported immediately to the Engine Lieutenant and the injured employee was directed to be seen by the department's Initial Care Provider. He was placed on temporary total disability and diagnosed with an acute lower-back sprain.

The injured worker was later evaluated by an orthopedic physician, given a referral for a short course of physical therapy, and released for transitional duty. Subsequently, while descending stairs at home, his right leg gave way, causing him to fall down the steps. He was admitted to the hospital, where admitted for four days. Post discharge, the injured continued to experience leg pain with associated numbness and tingling. Following a 16-week period of transitional duty, pain management treatment, and physical therapy, a surgical recommendation was made to address his lumbar issues, which the injured worker declined.

Prior to this injury, the injured worker had experienced eight prior work-related lower back injuries, the most significant necessitated a lumbar spine decompression surgery and two lumbar spine fusions. A 38% permanent partial disability rating was given following his surgeries.

### Investigation and Damages/Injury

The Fire Chief and department administration confirmed that the injury occurred on a training assignment which the Fire Company was directing.

There was insufficient planning for this drill, as a formal written training curriculum and safety plan were not drafted, and a lack of supervision. There were also hazardous actions performed by each member of the engine company as they were all "rushed" to complete the training before the end of the shift.

As a result, neither the Engine Company officer nor the injured employee identified the hazards associated with the scene and did not ensure scene safety prior to starting the evolution.

### CIRMA Liability Assessment

CIRMA is 100% responsible for this work-related training claim. The reserves on this claim were significant given the prior history of work-related lower back injuries, surgeries, and pre-existing medical conditions. Although the injured worker eventually resumed working in a full duty capacity, there was significant future exposure in the event another low back injury were to occur. Given the future exposure, CIRMA settled this case on a full and final, global basis. The total cost of this claim was over \$350,000.

### Key Recommendations

1. Training should be pre-planned, include objectives, and incorporate both functional and cognitive skills. The planning should include a step-by-step process in achieving the training goals, including steps to avoid injury.
2. A training checklist should be completed to support all steps of the training, to include attendance, accountability, placement of safety officer, start and end times, whether training is hazardous.

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3. The training site and any objects or items should be free from sand and debris. The tires on the vehicle should match or be deflated to ensure stability.
4. Staff should be briefed on training expectations and intended results.
5. All potential safety issues should be identified and reviewed.
6. Equipment and operations should be inspected prior to use.
7. The senior member, the one with the most knowledge, should assist in providing direction to the junior member, person learning the procedure, in the placement of tools.

For more information, please contact your CIRMA Risk Management Consultant at (203) 946-3700.

## Operational Awareness

### Background

The claimant is a 50 year-old Chief of a volunteer fire department. While attempting to fight a residential structure fire, he sustained severe injuries while falling down the basement stairs.

The Chief was the first person on the scene at the structure. Upon arrival, he saw visible smoke coming from the structure. The occupants were standing outside and advised smoke was emanating from the basement. The Chief immediately proceeded into the structure to identify the seat of the fire. He was not wearing any self-contained breathing apparatus and did not have the protection of a hose line.

While the Chief descended the stairs to the basement, he lost his footing, and fell, striking his head and arm on the concrete floor. His helmet was dislodged in the fall as there was a failure to effectively use the chin strap. The Chief managed to radio incoming units that he had fallen and requested the assistance of EMS. When EMS and fire department personnel arrived, the Chief was extracted from the structure fire, and later transported to the nearest hospital for treatment and evaluation of his injuries. The injuries were serious in nature and included a closed fractured skull and open fracture of the left arm. Surgery was required for the left arm and the skull fracture required extensive medications, diagnostic testing, and neurological follow up. Hospitalization extended for 2 weeks. The Chief was completely disabled for a period of 36 weeks, and while a transitional work release was given, he was unable to return to his full-time employment as a general contractor for another 16 weeks. After reaching maximum medical improvement, he was assigned a 10% permanent partial disability rating to the skull and a 20% permanency rating to his left, non-dominant arm. The Chief is no longer an active participant within the volunteer fire department.

### Investigation and Damages/Injury

The Chief's actions, although admirable, jeopardized his own life and safety as well as other first responders. The department had an established set of guidelines for structural fires which the claimant failed to follow. In violating department policy and operating outside the scope of his responsibilities as the incident commander, he created an unsafe working environment.

### CIRMA Liability Assessment

CIRMA accepted this case as a compensable Workers' Compensation claim. There were no other responsible third parties from whom to pursue subrogation.

### Key Recommendations

#### As a best practice departments should:

##### 1. Review and follow policies and procedures:

- a. The Chief Officer and Incident Commander should have completed an assessment of the scene for evaluation of risk vs. benefit. Since all of the occupants were safely out of the structure, no attempt should have been made to enter the structure until additional department resources arrived on scene.
- b. The NFPA standard related to 2-IN / 2-OUT and proper scene staffing levels would have eliminated the Chief's entry to the structure. A complete 360-degree scene would have helped in the decision making process.
- c. Command structure. Maintain a command and control presence while assuring all safety parameters of the operation are followed.

2. **Training Records:** Ongoing training should be conducted to cover department policies and policies, as well as any and all safety protocols. Leadership training should be required for executive level officers. Training attendance should be document in personnel records.

3. **Personal Protective Equipment (PPE):** Appropriate attire PPE should have been used in this situation when entering an IDLH atmosphere, including use of Self Contained Breathing Apparatus (SCBA) and proper securing of the helmet.

For more information, please contact your CIRMA Risk Management Consultant at (203) 946-3700.

## Forced Entry Procedures

### Background

The fire department is a combination organization with eight personnel on duty at a time; two are assigned to EMS coverage and six are assigned to fire coverage. There is no chief officer on shift. There is a career lieutenant; otherwise senior fire personnel or volunteer officers will take command.

### Incident

On January 25, the fire department was dispatched to an automatic fire alarm at a residential structure. The department had responded to alarms at this address several times over the past few years, all which turned out to be alarm malfunctions. On the January 25, the fire department responded with an engine company, truck company, ambulance, and two additional personnel responding in a utility vehicle. The police department, who were first on scene, noted nothing visible from the exterior, there were no occupants present, and the structure was locked with no access. The police cleared the scene when fire apparatus arrived and took over command. The engine arrived first and the senior member established command and reiterated that there was nothing visible from the structure, side "A- alpha," of a one-story ranch structure, alarms were sounding.

A walk-around of the structure revealed no visible smoke condition or odor of burning product. The two-person crew advised command of their findings and related that they were unable to see inside the structure because all the blinds were closed on the windows and doors. Upon arrival of the truck company, the command requested that the crew force entry and check on the situation within the structure. The crew obliged and forced open the front double-french door entryway, which caused significant damage to both the doors and their frame work. Once inside the residence, personnel reported that there was no fire or smoke in the structure and that it appeared to be a malfunctioning alarm. Once the all clear was given, the alarm was deactivated and, before leaving the residence, the fire department attempted to re-secure the damaged french doors with nails and boards.

On January 27th, upon returning home from their vacation and seeing their home, the homeowners called the police to report a burglary. The police responded to the home where the homeowners showed them the damaged door and reported that there were multiple items missing from their residence. As part of their investigation the police department checked and verified that fire department responded to an alarm at the residence two days earlier and forced entry. The police department concluded that at some point between the forced entry, and the homeowners returning, the residence was entered by unknown person(s) and burglarized.

### Damages

- The cost to replace and repair the front door and frame was **\$10,000**.
- Due to the damage to the front door and the fact it was not fully secured in a way to protect against the weather, snow or rain damaged the hardwood floor of the entryway and an oriental rug and nearby furniture, resulting in **\$22,000** in damage.
- The reported cost of items stolen from the residence was **\$25,000**.

Total cost of this claim was **\$57,000**.

### Liability

The fire department was found to be 100% liable for the losses of this claim. They forced entry on the residence, causing damage to the door, which also resulted in the damage to property from the snow/rain. Additionally, due to the extensive damage to the front door, the alarm system could not be reactivated by the monitoring company. Lastly, the burglary that took place was a result of the fire department leaving the house unsecured.

### Key Recommendations

1. The fire department should establish a policy clearly defining when and when NOT to force entry to any structure. The policy should include a statement that an executive officer of the department is requested to respond to, or at least be notified, of the actions that have occurred. Local law enforcement should also be notified to assist and witness entry, eliminating any possible concerns and establishing a chain of custody for the structure.

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2. Careful consideration to “on-air” communications regarding the status of the structure (“vacant, unoccupied”) to help prevent tipping off potential burglars.
3. Entry techniques should be regularly practiced to help eliminate or minimize the damage when a forced entry is required.
4. Tactical considerations should be evaluated to help limit the damage if a non-emergency entry is needed. The path of entry should be one least noticeable by the public and with the least damage.
5. Proper securing of the structure upon departure of all agencies shall be required.
6. Follow-up process put in place to ensure that the structure remains secure until confirmation by the owners is received.

For more information, please contact your CIRMA Risk Management Consultant at (203) 946-3700.

## Fentanyl Exposure and Emergency Responders

### Background

A police officer and two EMT's needed treatment for potential exposure to heroin and fentanyl after responding to a drug overdose. In this community the local police department serve as the supplemental first responder as the local fire district provides the R-1 volunteer service.

### Incident

The emergency call was received by a central communications dispatch for a 20 year old unconscious female found on the floor in a living room of a two story residential structure in a suburban neighborhood. Police and EMS were immediately dispatched to the location. The responding officer in that area requested additional information while in route and was advised that the parent arriving home from work found the patient unconscious and unresponsive with no prior medical history. Dispatch also advised all responding units that CPR was in progress. Approximately 4 minutes after dispatch the officer arrived on scene, made an initial assessment to determine if the patient had a pulse. Determining that no pulse was present the officer continued CPR. While the officer was performing CPR on the 20 year patient, the parent sat back into a chair clutching her chest complaining of chest pain.

The officer continued CPR on the initial patient and radioed for an additional EMS unit for the parent experiencing chest pain. A second ambulance was dispatched to the location. EMS arrived on scene and began to assess the unresponsive patient, and requested that the officer continue CPR while they began Advanced Life Support (ALS) efforts. At some point during patient care the officer became dizzy and his heart began to beat rapidly, originally thought to be symptoms of high adrenaline and over exertion the officer turned over CPR efforts to the EMS crew on scene.

A second officer arrived on scene and began to gather information from the parent who began to exhibit the same signs that the initial officer was displaying, despite being in a seated position. The second ambulance arrived on scene and the officer communicated that the first officer and the parent were exhibiting similar symptoms, despite very different activity levels on scene. The EMS Captain on scene requested additional resources identifying that this may be an opioid overdose scene; with a potential fentanyl exposure. The captain requested additional law enforcement, EMS and paramedic personnel to handle up to 8 patients – this includes all first responders, the parent and unresponsive patient.

The arriving paramedic administered two doses of Narcan<sup>®</sup> to the unresponsive 20 year old patient, which immediately revived the patient back to a semi-conscious state. The patient then began to have a regular heart rate and was able to breathe unassisted.

The initial officer's condition began to rapidly deteriorate and the paramedic administered one dose of nasal Narcan to the officer. A member of the attending EMS personnel began to feel similar effects and immediately removed themselves from the premise as additional ambulance crews arrived.

In all, the officer, parent and two EMS personnel all exhibited similar symptoms on scene and were transported to the local hospital for evaluation and treatment associated with a fentanyl exposure.

Upon examination of the scene it was determined that red flags were present that indicated that the 20 year old patient was experiencing an opioid overdose. These indicators consisted of body position the parent found the young female, a "nose cone", and small baggies with a label known to be associated with opioid's; specifically fentanyl.

The subsequent investigation revealed that the patient was given this product to "try or experiment with" and when the package was opened on her bedroom dresser, skin contact was made with the patient's hands. After eating and touching her eyes, the patient began feeling ill and went to the living room to dial 911 but was concerned that she would be exposed to the illegal activities that were taking place so she returned the phone to its receiver. The parent then used the same phone to dial 911 thereby exposing her to the drug. She then tried to perform CPR on the patient which added additional product exposure to the patient's chest. When the officer arrived, he also touched the patient's chest while trying to illicit a painful stimulant response – Sternal Rub. The patient had vomited on her chest and face. The officer was not wearing his personal protective equipment (PPE) at this time. A member of the EMS personnel relieved the officer, touching the patient's contaminated skin exposing them to the opioid as well. The two EMS personnel on the scene were treated for symptoms, but did not need Narcan.

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## **Incident** *(continued)*

The incident represents the first time that first responders needed to be treated for a possible overdose while responding to a call and accentuates growing fear among emergency responders around the country about possible contact with opioids while at an emergency scene.

## **Damages**

The officer and the two EMS personnel were remanded for overnight observation and released the following day. All three were placed on two week leaves for evaluation and further testing related to their opioid exposures. The initial combined reserve for the three claims was \$10,000. All three claims ultimately were closed with a total net incurred of \$4,000.

## **Liability**

The liability is 100% based on the statements and reports that were released for review.

## **Key Recommendations**

- Educate first responders on indicating red flags of opioid overdose scenes.
- Communicate the importance of wearing proper personal protective equipment (PPE) when initiating patient care.

For more information, please contact your CIRMA Risk Management Consultant at (203) 946-3700.

## Highway Accident Scene Safety

### Background

An EMT and firefighter are treated for injuries related to a motor vehicle accident on a limited access highway while attending to an accident scene. The local fire department holds the R-1 and a commercial vendor provides the transportation services in this community. One of the two travel lanes were blocked to protect the accident scene while emergency personnel worked on scene. A vehicle traveling at a moderate rate of speed was unable to merge into the single file traffic pattern and struck the "blocking" apparatus forcing it into the work area and striking the two emergency personnel.

### Incident

The emergency call was received by a central communications dispatch for a multi-vehicle accident on a limited access two lane highway. A normal fire response and EMS response from the covering services responded. While in route, dispatch advised all responding units that the accident was in the high speed lane and appeared to be minor with all occupants out of the vehicles. State Police was not on scene at this time. The first arriving unit was an ambulance from the private service and was positioned in the high speed and shoulder portion of the road pulled just past the scene. The two medical personnel began assessing the occupants of three vehicles involved. It was at this time that the first piece of fire apparatus arrived on scene.

The fire department response was three pieces of equipment. The first out was an F-550 mini-pumper manned by two in-station career personnel. The second piece was a heavy rescue truck staffed by a career driver who waited until three additional volunteers arrived in quarters. The third was a Class A pumper responding with two additional volunteers from a substation. All three vehicles responded in emergency mode to the location.

First to arrive on scene was the mini-pumper and their vehicle was placed in the high speed lane just prior to the accident scene by approximately 25 feet. With emergency warning devices activated, the two personnel exited the vehicle. They placed 3-cones across the rear of their apparatus in a staggered pattern approximately 2 feet, 6 feet and 10 feet from the vehicle rear bumper of the apparatus to indicate that the lane was closed. They then proceeded to assist EMS personnel and begin to make the vehicles safe.

The firefighter acting in the command position called off other responding apparatus that was in route as the accident appeared to be minor in nature. All three vehicles were off in the shoulder and there were no fluids down or hazards at this time. The State Police had one vehicle on scene and it was placed past the accident scene in front of the ambulance.

As EMS personnel were completing their paperwork and the firefighters were insuring that the vehicles are made safe, there was a loud collision and the mini-pumper was thrown into the work area tossing an EMT to the ground with a right shoulder and arm injury and the fire fighter into one of the stationary vehicles causing significant head trauma. The acting commander summoned for additional ambulances and also requested the return of the two cleared fire units to the scene. State Police also requested additional units and closed the highway.

The subsequent investigation revealed that the run off lane for merging vehicles from the high speed to low speed lane was not sufficient enough for drivers to reduce speed and effectively merge traffic into a single file pattern. Firefighters on scene were not wearing any personal protective equipment (PPE) and were dressed in their "station ware" as opposed to reflective items and proper helmets. The two EMS personnel were wearing vests and were not provided helmets for their own safety.

### Damages

The EMT's were covered by their own private firm's Workers' Compensation program and are not considered as part of the claim. The firefighter received significant head trauma, loss of consciousness and required significant rehabilitation with a partial disability rating.

### Liability

The liability is 100% based on the statements and reports that were released for review.

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## Key Recommendations

- All personnel who respond on limited access highways should receive training on highway safety and apparatus placement for scene protection measures.
- A Standard Operational Procedure (SOP) should be developed and put in place regarding proper lane closure procedure.
- Within that SOP there should be definitions as to when to take a lane and proper apparatus placement between the accident scene and the first warning vehicle for blocking.
- Within that SOP, proper type and size of apparatus should be specified to be used for blocking.
- All personnel should be in appropriate PPE for personnel safety at ALL times when operating at any emergency scene.

For more information, please contact your CIRMA Risk Management Consultant at (203) 946-3700.

## Traffic Control Program Safety

### Background and Damages

The incident occurred in a rural area of the town on a two-lane, state-owned road. This road ran parallel to the interstate highway and had an access point for both directions of the highway just past the incident scene.

An 80-year-old volunteer fire police officer (FPO) was seriously injured when he was struck by a vehicle while performing traffic control at the scene of a structure fire. The FPO was unconscious and unresponsive while on scene the seriousness of his injuries required the responding paramedics to intubate him on scene to secure his airway. The FPO remained intubated and was placed on a ventilator after arriving at the hospital.

### Incident

The fire services received a call at 1600 for a reported residential structure fire. The fire department was dispatched. The first engine arrived on scene and the engine officer confirmed that there was a well-involved structure fire on the first and second floors of a large, occupied farmhouse, located approximately a half mile off of the roadway.

Because of the lack of water in this rural area, the officer on scene assumed command and requested a second alarm and mutual aid request for tankers, and a 'dumpsite' was set up at the end of the driveway for ease of access and egress. A controlled lane patten was set up with orange cones so both lanes of traffic could continue to flow as the tankers would offload onto the soft-shoulder area.

There were two FPOs along with their vehicles staged at either end of the patten. Neither of the FPOs activated their vehicle warning lights. Instead, they were in the roadway using their flashlights to warn oncoming traffic of the incident scene. Both fire FPOs were wearing ski caps, gloves and yellow winter jackets which were believed to be high-visibility clothing by the department.

Approximately one-hour into the incident, after several successful water drops were made, a tanker was on the right side shoulder off-loading its cargo when a speeding motorist approached the scene. Without warning, the motorist moved through the coned-off area at a high speed. The motorist's vehicle made contact with an FPO and projected him into the off-loading tanker and then onto the frozen, snow-packed shoulder. Firefighters on scene as well as the other FPO witnessed the incident and immediately began to administer care to the injured FPO. The vehicle failed to stop, proceeded down the road and entered the highway. The other observant FPO was able to identify a partial plate number, description of the car and establish the direction of travel to report to the trooper on scene. Armed with this intelligence state police were able to locate the vehicle on the highway and initiate a traffic stop. The driver of the passenger vehicle was cited for speeding, reckless driving, leaving the scene of an accident and failure to obey an authorized person directing traffic.

A paramedic unit was requested. Once the unit arrived on scene, advanced life support was initiated, securing the unconscious and unresponsive FPO's airway. The FPO was transported to a nearby trauma center and admitted with the following injuries: a closed-head injury, fractured ribs, fractured femur, fractured collar bone. He was also placed on a ventilator to assist in his breathing.

### Investigation

The supervisor's accident review identified the below contributing factors:

- Although the FPO was wearing a yellow winter jacket, the garment was not rated for, nor did it meet requirements for high-visibility clothing classification.
- Because the FPOs were operating as traffic attendants, their presence in or near the roadway posed significant risks—road-side signage should have been used in place of human markers.
- The FPOs were operating as traffic attendants. Furthermore, it was noted that the cone pattern was not set to standard for the speed of the roadway and did not meet the Manual of Uniform Traffic Control Devices (MUTCD) requirements for shifting lanes.
- It was noted that neither of the FPO's vehicle warning lights were activated, which would have provided a visual indicator that there was an emergency scene or variance to the flow of traffic.

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## CIRMA Liability Assessment

CIRMA is 100% responsible for this work-related incident. The total direct cost of this claim, including medical expenses, totaled \$150,000.

## Key Recommendations/Action Items

After reviewing facts pertaining to the case, CIRMA's Fire Service Task Force recommends the following:

- a. Ensure proper use of high-visibility personal protective clothing (hats, jackets, and vests) and equipment (signage, barriers, cones, wands, and vehicle lighting).
- b. Conduct annual refreshers on an official Traffic Control program.
- c. Ensure proper temporary lane setup according to MUTCD guidelines.
- d. Develop clear Standard Operational Procedures for all emergency scene set up actions performed by FPO personnel.
- e. Use department vehicles that are fully illuminated with appropriate lighting.
- f. Use department vehicles rather than personnel directing traffic.

For more information, please contact your CIRMA Risk Management Consultant at (203) 946-3700.

## Acting Officer in Charge

### Background and Damages

A 24-year-old male firefighter received first and second-degree burn injuries sustained at an apartment house fire. The firefighter was part of a four man crew responding on a mutual aid request to a neighboring town. The crew was composed of a 58 year old driver, a 24 year old Acting Officer in Charge (AOIC), a 32-year-old (FF #2) and 47 year old (FF #3). The four-person crew arrived on scene and reported to command where the three (3) fire personnel were instructed to clear all first floor apartments (per protocol, the driver stays with apparatus) and where then instructed to engage in fire suppression and overhaul efforts.

The crew received a mutual-aid call for a working apartment fire in a neighboring town. Upon arrival at the scene, firefighters were initially assigned to clear the first floor. After a quick primary search, all apartments were found to be clear and the fire was still doubtful on the second floor and advancing through the third. The three firefighters returned to command and were reassigned to operating a line on the third floor as a relief crew. They were asked to pull the ceilings and begin searching for extension into the attic of the third-floor apartments. Upon their arrival on the third floor, it was evident that the need for more hose and more personnel would be needed. This request was relayed and the crew was advised that it would be a few minutes until additional arriving crews would be available. The crew of three evaluated the situation and decided they would continue their efforts until lines could be added. Sending one (FF #2) firefighter to grab a 'high-rise' pack from the pumping engine. Upon his return, the other (FF #3) firefighter assisted with breaking and adding additional lines.

As the two crew members, (FF #2) and (FF #3) went to the landing to add and advance more hose, the AOIC stayed within the room to monitor the conditions. While this was occurring, the AOIC attempted to establish the extent of fire in the attic and began to investigate by pulling small areas of the ceiling down. At some point, while navigating through the moderate smoke condition and attempting to open up areas in the ceiling, the door to the unit closed with the uncharged hose under it. The AOIC noted that conditions were changing rapidly as fire was showing from the rafter area, the AOIC requested to have the team "step-up" the procedure.

Once the added lines were in place, the pump operator charged the hose-line on the orders of the AOIC in the room and it was at this time that the charged hose-line forced the door into the door frame, jamming it shut. The AOIC began to panic as there was no water available and conditions were worsening.

The two firefighters that had been in charge of adding lengths hastily returned to the third-floor apartment door that was closed. Hot gases and flames were present two feet down from the ceiling and items were beginning to off-gas at the floor level. One of the firefighters who was assisting in the addition of the line began to radio a mayday as it became evident that the firefighter in the room had become trapped because of the door being jammed closed. The trapped firefighter started to panic and began yelling and kicking the door. The AOIC attempted to locate another means of egress but lacking a ground ladder or other method, no way was found to evacuate the apartment safely.

The two firefighters outside the apartment worked together to gain entry through the jammed door. The door was forced open, and the trapped crew member was able to escape to the landing where the Mayday was then canceled. The AOIC was assisted to the ground level and evaluated by EMS, transported to a local medical facility where it was noted he received first and second-degree burns on his neck and wrist areas. He was sent by ground transport to the Burn hospital for treatments where he remained for five days. The firefighter was unable to return to work for 90 days due to his injuries.

### Investigation

The supervisor's accident review identified the below-contributing factors:

- Turnout gear revealed the following:
  - The neck collar on the gear was not up or fastened under the chin as required
  - Helmet ear-flaps were not in the down position
  - Firefighting gloves were worn, however, cuffs were turned down
  - Wristlets on the coat were worn
  - A Nomex® hood was worn

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- The entire crew should have vacated the area, once the safety feature (hose line) was no longer in place
- The AOIC should have been assigned to a senior member of the crew as opposed to the first person in the seat
- Proper personal protective equipment (PPE), although worn, was not worn completely

### **CIRMA Liability Assessment**

CIRMA is 100% responsible for this work-related incident. The total direct cost of this claim, including medical expenses, totaled \$150,000.

### **Key Recommendations/Action Items**

CIRMA Risk Management is recommending the following best practices to reduce liability associated with this type of claim:

- On-scene, senior management follow-up on overall operation
- Elimination of freelance actions by incoming crews
- Proper accountability and deployment of resources through Incident Command System (ICS)
- Ensure proper span of control and back-up crew availability
- Based on the size of the incident, additional sector supervision with appropriate workgroups
- On-going knowledge by incident commander of tasks in operation at all times
- Ensure proper personal protective equipment (PPE) is worn properly
- Yearly inspection for gear failure
- Ensure that a mentor program is in place to help direct younger, less-experienced officers
- 'Practice like you play' fire-ground training should be identical to fire-ground operations
- Instill and reinforce a culture of vigilance to eradicate complacency

For more information, please contact your CIRMA Risk Management Consultant at (203) 946-3700.

## Carbon Monoxide Poisoning

### Background and Damages

A three-person crew, including senior firefighter (supervisor), and two rookie firefighters (Emergency Medical Services - EMS) were en route to a 'lift assist' in the basement of a home. It was a fall evening after a major thunderstorm had taken place, and much of the area was affected by a power outage. As the crew arrived to the home, they immediately exited the medical unit vehicle. The supervisor noticed that the homes along the street looked as if they did not have power. The residents in the house across the street from the scene was running a generator just outside of their open garage door. When the crew approached the front door, the reporting party met them and stated that her husband had fallen in the basement. She also mentioned that she wanted them to tell her neighbors to turn off their generator because it was "too loud" and that she was feeling a little light-headed.

The crew entered the residence and noticed that the home was without power, and a strong smell of an unknown-type odor was present in the home. The supervisor instructed one of the firefighters to get the four-gas meter from the truck, which he did. The supervisor and other firefighter made contact with the patient in the basement and were yelling for the third firefighter to assist them. As the supervisor entered the basement, he noticed there was about one to two inches of water on the concrete floor and could hear the sound of a motor running, which was coming from a far-back room in the basement.

The supervisor observed that the patient was a middle-aged male, lying face down in the water. He was responsive only to pain, his face was beet red, and his eyes were wide open. He was stiff and his upper and lower extremities were ashen. They quickly triaged this patient as a 'code red' (critical), and one of the firefighters ran to get a spinal board to transport the patient and make a quick emergency move up a narrow staircase. By this time, the four-gas monitor began chirping upstairs and the firefighter that was getting spinal board had made it back into the home and reported that he was getting carbon monoxide (CO) readings as high as 499 parts per million (PPM) at the front door (the monitor only reads up to 499 PPM). The crew quickly rolled the patient onto the spine board and immediately vacated the residence. The supervisor quickly opened all the windows for natural ventilation and it was at this time he became nauseous and light-headed. It was reported that the crew was inside for less than five minutes and all were all feeling the effects of the extremely high CO levels. The ambulance crew was now experiencing difficulty with patient care and at that time, the supervisor decided to request additional fire and EMS personnel to the scene. The engine arrived on scene with two other firefighters, a second ambulance, a crew of two and the department chief. Two firefighters in SCBA entered the residence to find the cause of the CO. They found a generator running in one of the back rooms in the basement and shut it off. The chief then requested two additional ambulances for treatment of the first responders. All three of the initial responders along with the patient and the wife were transported to the hospital for evaluation.

### Investigation

The patient was transferred to a hospital an hour away for a higher-level of care and stayed there for about a week. The hospital said that he had about 44% CO content in his blood at the time of arrival and his wife had about 20% upon her arrival. The wife was treated at the local hospital and released the next day. The two firefighters and supervisor ended up receiving medical treatment for elevated CO levels in their system and were released that evening. A return follow-up was required 72 hours after and a mandated release from duty was initiated until the follow-up was proven clear.

The supervisor's accident review identified the below contributing factors:

- The crew entered the structure for a routine 'lift assist' without proper equipment
- The crew as a whole should have vacated the area, once the meter was activated
- Immediate notification for additional resources should have been requested
- Proper SCBA should have been to "open windows"

### CIRMA Liability Assessment

CIRMA is 100% responsible for this work-related incident. The total direct cost of this claim, including medical expenses, totaled \$110,000.

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## Key Recommendations/Action Items

CIRMA Risk Management has provided feedback based on recommendations from the Fire Service Task Force Committee on best practices to reduce liability associated with this type of claim.

- Review situational awareness guidelines and best practices for all first responders.
- Establish educational and procedural guidelines for this type of specific incident.
- Purchase single-use CO meters for all first-responder jump kits.
- Share information with additional first responder organizations (police and ambulance departments).
- Review current in-house procedures related to running apparatuses in or near bay entry ways.

For more information, please contact your CIRMA Risk Management Consultant at (203) 946-3700.

## Fall From Ladder During Training Exercise

### Background and Damages

The injury occurred while an acting lieutenant attempted to exit the 2nd-floor window of a training facility onto a bedded 24-foot ladder. The 3-person truck company crew had just completed a Vent-Enter-Search (VES) scenario:

- The firefighter was the simulated victim inside the 2nd floor of the building during the training exercise;
- The acting lieutenant was the crew member that entered the building and completed the search of the 2nd-floor bedroom off the 24-foot ladder; and
- The engineer was on the ground and approached the window on the ladder to receive the victim.

The ladder was tied-off and secured. The evolution was completed and was successful. Once the evolution was completed, the firefighters' equipment (helmet, mask, etc.) was still in the 2nd-floor bedroom. The acting officer inside the room handed the equipment out of the window. The acting lieutenant determined not to hand down the SCBA; instead, he exited the window with the air-pack over one shoulder. While exiting the plane of the window, the air-pack swung out and pulled the acting lieutenant off the ladder. He fell approximately fifteen feet to the concrete ground.

The acting lieutenant suffered a severe head laceration and brief loss of consciousness as his helmet was dislodged in the fall. EMS crews were dispatched to the scene and arrived within six minutes. On scene BLS personnel maintained the patient's status until ALS services arrived.

### Injury and Damages

The lieutenant lost several units of blood and was transported to the local trauma center. The injured officer was diagnosed with a skull fracture, received 18 staples to the head and spent three days in the trauma center for observation. A mandated release from duty was initiated until the follow-up was proven clear. The officer was out for a total of 147 days before he was able to return to his position.

### Investigation

The supervisor's accident review identified the below contributing factors:

- The crew held the training scenario without proper EMS coverage available;
- The crew never completed a pre-assessment of the training ground and what steps to take in the event of a true emergency;
- The crew or crew officer never discussed standard use of PPE during evolution;
- Improper procedure in removal of equipment from training grounds; and
- Improper planning of drill. No plan on file.

### CIRMA Liability Assessment

CIRMA is 100% responsible for this work-related incident. The total direct cost of this claim, including medical expenses, equaled \$83,000.

### Key Recommendations/Action Items

CIRMA Risk Management has provided recommendations based on feedback from the Fire Service Task Force on some best practices to reduce Workers' Compensation costs associated with training events. Those recommendations include:

- Establish EMS crew that is assigned to all training events;
- Establish SOP regarding proper use of PPE on training grounds;
- Establish criteria for allowing proper supervision of crew management;
- Establish or review department procedural guidelines for independent company crew training;
- Require an on-site, independent Safety Officer present at all operational drills;
- Review operational and training safety procedures with staff; and
- Always complete a walk through and emergency procedure process in all training scenario events.

## Rappelling Incident During Training Exercise

### Background

During Rope Rescue training, members were practicing with a new Multi-Purpose Device (MPD), which replaced an older system. The intent of the MPD, which utilizes numerous working parts, is to make lowering and raising during rope rescue more streamlined and efficient.

### Incident

Members were working on the top of a four-story drill tower with a tripod as a high point anchor system. The MPD was being used on the mainline with another MPD on the belay to raise and lower a training dummy in the litter basket. Once the initial drill with several evolutions was completed, a firefighter (FF-1) asked if he could do some rappelling. Since FF-1 did not have much exposure to rope rescue, the training opportunity was approved by the instructor. The training involved FF-1 being lowered over the edge of the tower and then locked off with the MPD on the mainline. An overhand knot ensured that the mainline was locked off.

During FF-1's descent, it was noted that the rope had some minor slippage when passing through the MPD. The slippage was more than likely due to the age and wear of the rope. The belay line was still in place with the other MPD. After some basic instruction from the lead trainer, FF-1 began his descent on the eight plate. It was noted that FF-1 had "good control for a firefighter with minimum experience" in this type of activity.

At this time, while FF-1 was rappelling, another firefighter (FF-2) seemed confused as to why the MPD on the mainline was locked off and not being used. FF-2 then untied the mainline and unlocked the MPD as he thought it would be needed to lower FF-1 who was rappelling. When FF-2 opened the MPD and began to lower FF-1, FF-1 dropped uncontrollably to the ground at a rapid speed. Fortunately, FF-1 was only approximately fifteen to twenty feet off the ground and the rapid descension to the ground did not cause a fatal injury. Instead, FF-1 sustained closed fracture injuries to both lower extremities and a concussion-based head trauma. Due to the extent of injuries resulting from the fall, FF-1 was flown to the local trauma center by helicopter for care. The sustained injuries resulted in both lost time from work and an extensive prolonged recovery process.

### Investigation

The firefighter (FF-2) who untied the rope, quickly realized the principals of rappelling with an eight plate and lowering with use of the MPD, understanding that the eight plate needed a static line during operations. The lead instructor also discussed the importance of considering any actions, especially during high-risk training, with the rest of the team to ensure appropriate measures. It is never acceptable to untie any line with another firefighter on it or if the line is in operation.

### CIRMA Liability Assessment

CIRMA is 100% responsible for this work-related incident. The total direct cost of this claim, including medical expenses, equaled \$110,000.

### Key Recommendations/Action Items

- Instructor approval of deviation from the drill schedule and should have reset training area.
- Safety officer supervision should have been provided at each station of the drill site.
- A review process of the "current activity" should have taken place to explain the objective.
- Although stated in the investigation, the lead instructor should have reviewed changing the line operations during the evolution and its consequences.
- Not knowing the level or skillset of FF-1 related to rappelling capability, the instructor should not have allowed FF-1 to rappel freely.