

Hot Zone Series

for Fire Services



Updated May 2022





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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.
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.

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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.

Questions on this topic? Ask your Supervisor or CIRMA Risk Management Consultant.

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.

Questions on this topic? Ask your Supervisor
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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.
2. Careful consideration to "on-air" communications regarding the status of the structure ("vacant, unoccupied") to help prevent tipping off potential burglars.

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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.

Questions on this topic? Ask your Supervisor or CIRMA Risk Management Consultant.

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® 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.



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.

Questions on this topic? Ask your Supervisor or CIRMA Risk Management Consultant.

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.



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.

Questions on this topic? Ask your Supervisor or CIRMA Risk Management Consultant.

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.



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.

Questions on this topic? Ask your Supervisor or CIRMA Risk Management Consultant.

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



- 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.

Questions on this topic? Ask your Supervisor or CIRMA Risk Management Consultant.

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.

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.

Questions on this topic? Ask your Supervisor or CIRMA Risk Management Consultant.

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.

Questions on this topic? Ask your Supervisor
or CIRMA Risk Management Consultant.

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.

Questions on this topic? Ask your Supervisor or CIRMA Risk Management Consultant.

Extrication Training Drill Gone Bad

Background

The firefighter became injured during a simulated extrication drill on a small four-door sedan that was rolled on its right side with two rescue mannequins placed in the vehicle to simulate injured occupants that needed to be extricated from the vehicle. During the training exercise a firefighter was struck in the head by a piece of debris causing a large laceration and a concussion.

Incident

The department meets its yearly training by completing weekly assigned scenario-based drills, which is planned and executed by the company officer. These training exercises were to be completed during the crews regularly scheduled shifts; which were 48 hours (2 days) at a time.

This drill took place during the month of August when the daily temperature was averaging approximately between 90-95 degrees. Because of the high temperature, the training exercise was postponed several times. It was decided by the company officer that they would complete the training event on the last day of the crews shift. The training exercise was to be a simple quick evolution that would meet the objective for our training requirement. On the final day of the crews scheduled shift the outside temperature was 92 degrees.

The company officer determined that based on the training drill scenario and outside temperature that instead of wearing full personal protective equipment (PPE), that the firefighters only had to wear eye protection, gloves and bunker pants only for this drill. The vehicle was placed on its side with two mannequins placed inside the vehicle to simulate injured patients. The exercise was to use extrication tools to remove the injured patients from the vehicle. The crew stabilized the vehicle with rescue struts and their truck winch, preventing it from tipping over or excessively rocking during the extrication. The crew removed the windshield and successfully extricated the first patient.

Using one of the hydraulic extrication tools one of the crew members then successfully cut the "A" and "C" posts, and then attempted to cut the "B" post at a height of about 6ft high – based on the orientation of the vehicle this cut was being made at about eye level of the crew member. The crew member made multiple attempts to make an effective cut of the "B" post.

During one of the attempts to make the cut, the extrication tool twisted, forcing the crew member operating the tool to "open the cutter". Once the cutter opened a piece of the tool broke free and launched into the air, hitting the crew member in the forehead causing him to stumble backwards, dropping the extrication tool to the ground.

The company officer immediately gave the command to stop the drill and went over to the crew member who was now sitting on the ground. The injured crew member complained of dizziness and a headache and was bleeding profusely from his forehead. The crew member was evaluated at the scene by emergency medical technicians and was transported by ambulance to the local hospital where he received treatment for his injuries; which required 14 surgical staples to close the laceration and was diagnosed with a moderate concussion.

Investigation and Liability Assessment

- The firefighter was not wearing his helmet, since it was determined prior to the start of the training exercise that the crew did not need to wear their helmets.
- In the investigation report it was noted that members believe in this case, that if the crew member was wearing their helmet the projectile would have struck the brim of the helmet and not his forehead.
- During the interview process with the company officer, he stated "due to the severe heat that day he approved the use of limited turnout gear (PPE)" and thought that Eye, hand and lower extremity protection would be sufficient.
- Due to the extent of the injury there was an extended period of total temporary disability (TTD).
- CIRMA is 100% responsible for this work-related incident. The total direct cost of this claim, including medical expenses, equaled \$85,000.

Key Recommendations/Action Items

Based on the facts surrounding this injury, and in consultation with the CIRMA Fire Services Task Force, the below recommendations have been created to reduce the likelihood of this type of incident occurring in the future:

- Crew members should wear all required PPE during training exercises.
- Insure that a properly trained safety officer is monitoring the training exercise and enforces the required safety protocols.
- Regular review, inspection and maintenance of all extrication /tools is conducted at the beginning of each crews shift.

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- Properly maintain all extrication tools in accordance with manufacture recommendations and industry best practices.
- Conduct regular review and training of proper extrication tool placement and cutting techniques. For example limiting, when possible, the need to operate the extrication tools at eye level.

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

Questions on this topic? Ask your Supervisor or CIRMA Risk Management Consultant.

Flash Fire at Motor Vehicle Accident

BACKGROUND AND INVESTIGATION

The call for service was dispatched as a three car motor vehicle accident (MVA) in a suburban community. The response to the scene was a department commander with -1 personnel, one engine with -3 personnel, a utility vehicle with -1 personnel, and a private ambulance company with -2 personnel. The accident occurred on a two-lane rural road when the Vehicle-1 made a sudden stop to avoid hitting wildlife and was struck from behind by Vehicle-2. Vehicle-3 came around the bend in the road at moderate speed and struck Vehicle-2 in the rear.

Upon arrival of the command officer, it was relayed that Vehicle-2 sustained the heaviest damage and had a minor fuel leak from the rear. All occupants were out of the vehicle and EMS personnel were attending to the injured patients on the side of the road. All patients were clear of the area with a vehicle leaking fuel from its tank. Firefighter #1 was on a charged hose line with turnout gear and SCBA with no mask and was in standby mode standing close to the vehicle. The engineer (driver) Firefighter #2 was in a kneeling position next to the vehicle attempting to stop the leak. Firefighter #2 was wearing turnout gear and extrication gloves. His method of attempt was to use a golf-tee applied to a crimped area of the tank and secure it with duct tape. No spill-containment was in place at the time, as the leak had only made a "small puddle and stream" of the product. Firefighter #3, who was attempting to disconnect the power supply located in the rear seat of the vehicle, was also wearing basic PPE. The commander was assisting EMS with patient evaluation to determine if additional ambulances would be needed for patient care.

It is unknown if a spark was created by either Firefighter #2, who was attempting to stop the "minor" leak, or Firefighter #3, who was securing the power supply. In either case, there was a "flash fire" under the vehicle that rolled across the bottom and up the side of the vehicle, briefly engulfing Firefighter #2. Firefighter #1's focused attention on the operation allowed for immediate application of a fog pattern over the area, limiting the extent of injury to Firefighter #2. Firefighter #3 exited the cabin of the vehicle and assisted the commander in attending to Firefighter #2's injuries. The initial evaluation of the situation found the injured party dazed and confused with what was reported as "serious burn injuries to hands." The commander requested air transportation to a local burn center and additional units for assistance even though the fire was quickly extinguished.

DAMAGES AND LIABILITY ASSESSMENT

Firefighter #2 sustained minor first and second degree burns to his hands, neck and face resulting in an extended loss of time from work due to the incident. During the interview process with the department chief, he stated, *"If it was not for the attentiveness of [Firefighter #1] to the operation, the injuries could have been more significant. The total event only lasted approximately 20-30 seconds before it was over."* The initial assessment of "serious burns" was surmised by the visual appearance of the destroyed gloves on Firefighter #2's hands and the initial heat color to his face and neck with potential to a compromised airway issue. It was found that due to the prolonged work on the leaking tank area, the gloves that were worn were fairly saturated with fuel product.

CIRMA is 100% responsible for paying for this incident, as the volunteer was determined to be acting within the scope of his regular fire duties. The total direct cost of this claim, including medical expenses, equaled approximately \$54,000.

INVESTIGATION AND LIABILITY ASSESSMENT

- **Ensure the use of proper Personal Protective Equipment (PPE)** – Consider reviewing and updating the department's Job Hazard Assessments (JHA's) to ensure that they are current and include appropriate training and PPE required for completing fire duties.
- **Incident Command training for evaluating Risk Assessment** – Training should include identifying and prioritizing scene hazards upon arrival and throughout the event.
- **Ensure that there are sufficient resources available** – Consider ensuring that there are an appropriate number of personnel on scene in order to properly mitigate the event in accordance with NFPA 1091 standard.

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- **Maintain incident scene stability and safety** – This may include ensuring that a dedicated Safety Officer was present at the time of the event.
- **Review Incident Commander Roles and Responsibilities** – Regularly assess Incident Commander roles and responsibilities, including scene oversight and proper command presence throughout the entire event.

Questions on this topic? Ask your Supervisor or CIRMA Risk Management Consultant.

Mayday Confusion

BACKGROUND

Two firefighters were injured and briefly trapped in a structure fire after operating in a dangerous area. The two firefighters called a Mayday and RIC (Rapid Intervention Crew) operations became hampered by other company actions and communication failure at the command level.

INCIDENT DETAILS

An engine company was assigned RIC after arriving at an attic fire in a wood-frame two and a half-story home. It was providing mutual aid to a neighboring fire department.

The neighboring department had only recently started to request services to respond as mutual aid under a newly formed agreement and it was noted that the department was unfamiliar with the other department's operations. RIC protocol requires personnel to maintain accountability by tracking apparatus, number of operating firefighters and stability of the scene. Apparatus arrived and the RIC assembled equipment, proceeded to the command post and attempted a face-to-face with the IC (Incident Command) or ISO (Incident Safety Officer), which is normal protocol. Unable to attain crucial information from the IC and that there was no ISO, RIC placed its equipment and proceeded to do a 360° and evaluate the current conditions by place ground ladders to soften the structure. While doing so, an interior crew called a Mayday; the RIC was unsure of how many people were inside or what their location were. The operating department did not have the same method of assigning tasks that the responding RIC department had, so it created confusion as to who and where the trapped firefighters were located inside the structure.

It did not seem like the IC heard the Mayday announced on the radio. Because the only transmission was "*Mayday, Mayay*", the IC may have been unaware until the apparatus on scene began sounding air horns (a common technique used to evacuate a structure). The radio announcement was heard by the RIC, who immediately started to react by returning to the IC for equipment and orders, but there was some confusion for a short time. There was no formal announcement by the IC to repeat the Mayday and make everyone on scene aware of the situation. The truck company operating a heavy stream near the interior crew (apparently not close enough to endangering them) did not understand why they were being told to shut down their stream as they were making good headway. This also delayed the RIC's entry into the structure. Eventually the crew entered (under the discretion of the RIC officer) and met with a second interior crew and assisted with the removal. It was determined that a member(s) of the interior crew were briefly trapped by a partial interior collapse on the second floor while opening up ceilings and walls checking for extension. Firefighter #1 needed assistance along with firefighter #2, who became briefly pinned by the falling debris.

The RIC was finally initiated by the IC. Once the truck company's master stream was shut down, the RIC was met by that second interior crew on the second floor who had already started assisting with the removal. The Mayday was quickly cleared when the crew(s) exited the building, and the injured firefighters were assisted out of the building and transported with neck and back injuries.

INVESTIGATION AND LIABILITY ASSESSMENT

Firefighter #1 was admitted to the hospital with severe cervical and lumbar pain and required a 10-day stay having several needed surgical procedures. Firefighter #2 was treated and released with superficial injuries and minor bruising from his entrapment injuries.

In the investigation report, it was noted that members believe, in this case, that the crew was operating in an unsafe position on the second floor as the large caliber line was in operation. Because firefighter #2 was in a kneeling position in a protected doorway standing ready with a hose line, his injuries were less significant than that of firefighter #1. Firefighter #1 was in a standing position pulling ceilings and walls with a pike pole and was struck by a collapsing wall and ceiling causing him to fall to the floor.

During the interview process with the IC, it was clearly stated that there was "some confusion on the scene" and, after reviewing the radio log, it was noted that he did miss the original Mayday transmission and clarification was difficult. The RIC was unfamiliar

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with the home department's operating procedure and was clearly working autonomously with no oversight or direction. CIRMA is 100% responsible for this work-related incident. The total direct cost of these two claims, including medical expenses, equaled \$85,000.

KEY RECOMMENDATIONS / ACTION ITEMS

To help reduce liability, the CIRMA Fire Services Task Force has recommended the following:

- Consider including a provision in the Memo of Understanding (MOU) to review any standing Standard Operating Procedures/Standard Operating Guideline (SOP/SOG) regarding the responsibility for a RIC and their activities on scene.
- Ensure clear communications between the arriving senior department officer providing the RIC coverage and the IC.
- Consider having a communications officer assigned to the command post to ensure that no transmissions go unheard.
- Incoming RIC companies should have a face-to-face with command and a full rundown of the scene, including the number of personnel on site, location of personnel, assignments of personnel and a complete 360° of the fire scene, to ensure that safety concerns are addressed.
- Consider not allowing crews to operate in the building while master streams are in operations.

Questions on this topic? Ask your Supervisor or CIRMA Risk Management Consultant at (203) 946-3700.

Carbon Dioxide Exposure

BACKGROUND

A Fire Marshal and Building Inspector fell ill after becoming exposed to carbon dioxide (CO₂) while inspecting a restaurant.

INCIDENT DETAILS

Two members of the municipal Fire Marshal's office attempted to complete a building inspection of a local restaurant. The two officials – a Fire Marshal and a Building Inspector – both arrived at the local restaurant, made their introductions to the owner/manager on site to state their intentions, and were granted permission to proceed with their inspection. The team headed towards the basement to start their inspection. As they entered the basement, they were finding minor violations and taking notes. As they made their way to the opposite end of the basement, they noted a soda tap box system and an office across from them. The Marshal began to feel winded, like he “just ran around the building and up and down the stairs 10 times.” They made their way roughly 10 feet back toward the way they originally came into the basement and stopped to write some notes; that is when the Marshal realized that things were getting worse.

While talking with the Inspector, the Marshal noticed he was not making a lot of sense in what he was saying and was becoming more winded and had a crushing feeling in his chest. The Marshal stated to the Inspector that he was embarrassed that he was really out of shape because he (the Inspector) was not having the reaction that the Marshal was at this point. The Marshal realized that there was an issue and excused himself to exit the basement; the Inspector decided to continue the inspection as to finalize the basement area. As the Marshal made it to about the halfway point to the exit on the first floor he noticed a change in the air and when he got outside, the symptoms subsided. That's when he realized something was wrong with the air in the basement. The Marshal hastily re-entered the building, making his way back to the bar area where the owner was. The Marshal asked if the owner had been in the basement. The owner stated that he had. Then the Marshal asked if he had similar symptoms as the Marshal did. The owner replied yes, but blamed it on a cold he had been getting over. The Marshal made his way to the top of the stair and began to experience symptoms again and called for the Inspector, with no reply. He decided there was more of an issue and needed to have it checked out. The Marshal radioed dispatch and requested a full Haz-Mat response to the building. Crews responded and completed a rapid removal of the Inspector, who was in extreme respiratory distress and was transported to the local hospital. The building was metered to identify the unknown cause for the sudden on-set of illness. The engine crew made entry with full PPE and the 4 gas meter. Oxygen (O₂) levels in the basement were 17.2%. The crew(s) identified that the carbon dioxide (CO₂) tank on the outside of the business for the beer and soda had sustained a substantial leak. The tank was frosted 3/4's of the way up the tank and the leak was isolated and the building was ventilated.

INVESTIGATION AND LIABILITY ASSESSMENT

The Marshal and Inspector were admitted to the hospital for respiratory distress issues and held overnight for observation and released the next day. The two were relieved from their duties for two additional days until a medical clearance was obtained.

In the investigation report, it was noted that carbon dioxide (CO₂) gas is heavier than air and has a displacement factor for breathing air. As the line that went from the tank to the basement beverage system became compromised over time, the basement, with insufficient ventilation over time accumulated the gas (CO₂) displacing the breathing air (O₂) from the standard 19-20% to as low as 17.2%. Although this is a 1.8% drop in normal breathing air, it was enough to create mild confusion and respiratory compromise.

Common symptoms of carbon dioxide toxicity include: nausea, vomiting, dizziness, headache, rapid breathing and heart rate, and flushing. Severe cases of carbon dioxide Toxicity progress to confusion, convulsions, and loss of consciousness. Treatment for people with carbon dioxide toxicity as follows: administration of fresh air or oxygen and allow the person to rest.

CIRMA is 100% responsible for this work-related incident. The total direct cost of these two claims, including medical expenses, equaled \$41,500.

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KEY RECOMMENDATIONS / ACTION ITEMS

The CIRMA Fire Services Task Force has recommended the following to help reduce liability.

- Consider implementing a policy stating that all inspections be performed by a minimum of two persons.
- Use metering devices when entering confined space or basement areas.
- Obtain a detailed pre-inspection report of the facility from the owner(s) point of view.
- Develop a general knowledge of what type of equipment is in basement and other underground- or low-level areas prior to enter.

Questions on this topic? Ask your Supervisor or CIRMA Risk Management Consultant at (203) 946-3700.

Workplace Violence

OBJECTIVES

The objectives of this large loss claim review are to:

- Examine an incident within the Fire Services related to workplace violence;
- Understand the impact associated with these types of incidents;
- Understand the risk faced by departments
- Develop specific risk management best practices to either prevent or mitigate future losses for Connecticut fire agencies based on lessons learned.

BACKGROUND

On the date of the incident the claimant had entered the kitchen area of the fire station where he engaged with the perpetrator in conversation. At some point during the conversation the perpetrator became agitated with the claimant. After a brief argument the perpetrator grabbed a large knife from the counter and stabbed the claimant several times.

INVESTIGATION

- The department is identified as a combination department consisting of both full time employed fire fighters between the hours of 7:00 am and 5:00 pm as well as 63 active volunteer fire fighters
- The incident occurred around 12:00 pm – lunch time
- Often, volunteers would come to the fire station during the day for a variety of reasons, including to have lunch
- The claimant is a 37-year-old volunteer fire fighter. He is a 12-year veteran of the department
- The perpetrator is a 29-year-old full-time (paid) fire fighter. He has been with the department for just under 2-years and was the newest fire fighter on the day crew
- On the date of the incident, the claimant was in the area of the fire station at lunch time and thought he would stop in and have lunch with the “day crew”
- After arriving at the fire station, the claimant entered the fire station and stated that he smelled something good and proceeded to the kitchen
- Once in the kitchen, the claimant found the perpetrator who seemed upset; he was talking under his breath, cursing out loud and making vulgar hand gestures towards the officer, offices and bunk room areas. All of these areas were located directly across from the kitchen
- The claimant said “hello” and stated that “lunch smelled great”, he then asked the perpetrator what he was making to which the perpetrator replied, “Go to hell” and also used other vulgar language
- The claimant started to ask what was wrong, however, the perpetrator continued to yell and scream at him, he also made unnecessary derogatory comments about the claimant’s stature.
- The claimant admits that he lost his temper after enduring several minutes of being barraged with insults and vulgar language, ultimately telling the perpetrator to, “Shut up and just make lunch rookie”. The perpetrator then picked up a large knife off the counter and charges the claimant
- A scuffle ensues and the perpetrator stabs the claimant several times in the upper extremities and torso.
- Hearing the scuffle and the claimants yells for help, several fire fighters enter the kitchen and find the claimant lying on the ground bleeding. The perpetrator was sitting at the kitchen table
- Local law enforcement was called and they arrived within minutes taking the perpetrator into custody without any further violence
- During law enforcement’s interview of the perpetrator, it was noted that the perpetrator had been, “fed up” with how he had been treated by the other fire fighters within the Department.

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- The perpetrator was able to provide evidence which included saved emails, text messages, and social media posts which indicated he had endured a significant pattern of abuse by his fellow fire fighters
- Investigation by the Town noted a total of six (6) complaints that were made by the perpetrator to the Town's Human Resources office. None of which had been investigated.
- On the date of the incident ,the perpetrator had been demeaned several times by his crew for making another complaint to the Town's Human Resources Director. After several hours of enduring this ,the perpetrator was told, "To go do something useful, and make them lunch...and it better be good."

INJURIES AND DAMAGES

- During the attack the claimant sustained the following:
 - Five (5) lacerations to his arms and legs, requiring over thirty (30) sutures to close.
 - Two (2) stab wounds to his abdominal area, each closed with sutures
 - A minor concussion from striking his head on the ground from falling as a result of the attack
 - Suffers from nightmares as a result of being attacked
- Although his lacerations healed without complication, the claimant was not able to return to fire department as a result of the attack and resigned shortly after.
- The total demand made by the plaintiffs was \$1 million dollars.
- After reviewing several significant factors, such as;
 - Statement and evidence provided by the perpetrator
 - The written complaints made to the town's human resources office,
 - The lack of any follow up to the perpetrator's complaints, and,
 - Depositions of the commanding officers - which indicated that a pervasive hostile work environment existed
- It was determined that this case was best suited for a settlement strategy. Negotiations extended several months, however, they ultimately concluded in an agreed settlement amount of \$250K plus attorney fees and expenses.

CONCLUSION

Many American workers report having been victims of workplace violence each year. Unfortunately, many more cases go unreported. Research has identified factors that may increase the risk of violence for some workers at certain worksites. Such factors include exchanging money with the public and working with volatile, unstable people. Working alone or in isolated areas may also contribute to the potential for violence. Providing services and care, and working where alcohol is served may also impact the likelihood of violence. Additionally, time of day and location of work, such as working late at night or in areas with high crime rates, are also risk factors that should be considered when addressing issues of workplace violence. Among those with higher-risk are workers who exchange money with the public, delivery drivers, healthcare professionals, public service workers, customer service agents, law enforcement personnel, and those who work alone or in small groups.¹

The fire service has unique organizational dynamics that can lead to harassment and bullying and, at the same time, are the critical reasons for working to eliminate intentional and unintentional unfair treatment of employees. Recent literature and studies show that the battle to eradicate harassment and bullying is far from over.

The International Association of Fire Chiefs (IAFC) has taken steps to identify areas of bullying and discrimination and is working diligently to enforce and develop effective strategies to mitigate these issues. Future research will include continued studies of the US fire service as well as studies of non-US fire services. Additional research will also focus on the effects of bullying, sexual harassment and discrimination on bystanders and volunteer firefighters.²

¹<https://www.osha.gov/workplace-violence>

²https://link.springer.com/referenceworkentry/10.1007/978-981-10-5308-5_15

RECOMMENDATIONS

Recommended solutions include:

- Ensuring harassment and bullying are not tolerated by communicating to all employees that a policy exists and how to follow it.
- Have a well-written and implemented workplace violence prevention program, combined with engineering controls, administrative controls and training to reduce the incidence of workplace violence in the fire Services.
- Correct identified behaviors
- Follow up to all complaints in accordance with department and town policy
- Educate officers on the towns policy, behavior identification and follow up requirements
- Keep lines of communication open, empower employees to report bullying, harassing behaviors

FIRE SERVICES TASK FORCE ACTIONS

CIRMA Risk Management is seeking feedback from the Fire Services Task Force on the recommendations to reduce the potential for workplace violence to occur. Following the meeting, any additional thoughts or comments should be directed to Joey Barbera at jbarbera@ccm-ct.org.