



Safety Brief

JCFPD Training and Safety Division

January 2017

2017-01



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Water and Ice Rescue Safety

JCFPD personnel should be aware of the hazards associated with water and ice rescue. As many of us know and some experienced, these rescue situations can quickly become our own emergency, which can quickly become deadly. There are many ponds and lakes, as well as the possibility of river and creek flooding in our response areas. JCFPD has a Water Rescue Division consisting of operations-level and technician-level personnel who are trained and equipped to conduct water rescue activities. These personnel are capable of conducting rescues on the surface of water, ice, and dive rescue/recovery operations.

Hazards for Firefighters

Most of us have experienced that adrenaline rush while responding to a call that makes us want to go a hundred miles an hour when we arrive on scene. We should all remember our basic training though as we arrive on scene and remember that we do not attempt operations in which we are not trained to do. An average of seven public safety responders die each year in water-related incidents. Not all of these are instances in which individuals were attempting to do something they are not trained to do. We all know that this is a hazardous job, and unfortunately some things cannot be accounted for or anticipated and injuries and deaths to firefighters can occur.

Avoiding Injury

Firefighters must recognize that environmental hazards can place responders at risk. Some environmental hazards present at water rescue incidents include:
In still water, body heat is lost at a rate 25 times greater than in air at the same temperature.
Weather- Cold air or water temps create conditions that can lead to hypothermia or frostbite and it affects the ability to think clearly and perform fine motor skills. Cold can also cause equipment malfunctions. A warm day in winter can also create problems as it can trick the mind into thinking that your not as cold as you really are until the symptoms become obvious. Rain, snow, fog, and high winds can accelerate hypothermia.
Aquatic environment-Animal life, fish, and insects can present hazards to rescuers. Plant life in the water can reduce vision and create tripping or entrapment hazards. Water can also harbor bacteria, viruses, and possibly biohazards from pollution.

Utilities-Electricity, gas, sewer outlets, and communication wires can present problems for responders. Hazardous materials can also be present. Scene condition hazards-The water's edge can contain tripping and falling hazards. Steep slopes can be slippery. Hidden obstructions can present problems during night operations. There can also be holes and drop-offs at the edge of the water, or just under the surface of the water. For examples of these conditions, just look down the riverbank as you drive over black water river.

Protect Yourself

Firefighting PPE is dangerous in a water rescue incident. Firefighters operating at or near the water's edge should be wearing the personal flotation devices (PFDs) provided on JCFPD engines.
Request the Water Rescue Division early in the incident. Upon arrival at the incident, as with any other incident, the first unit on scene sets up command. Command can and should be transferred to personnel with a higher level of training in water or ice rescue as other units arrive on scene. A quick size-up should be conducted to determine the type of water rescue incident involved. Is it a surface rescue? Is it an ice rescue? Is it a dive rescue or recovery? What is the scope of the incident? Is it a pond, or have the floodwaters extended the possible victim location downstream in rivers or creeks.
Assess the hazards of the scene quickly and report the information by radio so other responders receive updates while en route. Identify the location and number of victims. Provide the Water Rescue Division of the best way to access the scene—consider providing guides for arriving responders. Become familiar with the water rescue division apparatus and equipment that will be responding to incidents to better guide them to access points.
If victims are close to the shoreline, consider using the rescue ropes or throw ring provided on apparatus. Maintain voice contact with victims to try and keep them calm if the throw rope or ring is not an option or successful.

Remember to operate within the limitations of your training and equipment. We do not want to become part of the problem. Wait for the Water Rescue Division to conduct technical rescues and be able to go home safe.



Safety Brief

JCFPD Training and Safety Division

May 2017

2017-05



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(Initial and Date
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Backdraft

A backdraft is a smoke explosion that can occur when additional air is introduced into a smoldering fire and heated unconsumed gases enter their flammable range and ignite with explosive force. Backdrafts are air-driven events which require the introduction of air, unlike a flashover, which occurs when all contents in the involved area reach their ignition temperature.

Hazards for Firefighters

As we arrive on the scene and the fire grows in the compartment, large amounts of unburned gasses can collect at the ceiling and build up in the structure.

According to William E. Clark, in his text *Firefighting Principles and Practice*, there are three types of backdrafts that can occur:

Type I: A smoldering, oxygen starved fire which suddenly gets enough oxygen to support combustion;

Type II: Visible flames producing carbon monoxide and hydrogen which is flammable at high temperatures; and

Type III: Sufficient oxygen is present yet the temperature inside the structure is not high enough to ignite the flammable gases trapped inside.

Some of the things that can arise from a backdraft are:

- Serious injury or death to fire personnel or civilians;
- Damage to fire apparatus and/or civilian vehicles; and
- Damage to nearby structures.



Avoiding Injury

We should all know the following conditions which are indicators that a backdraft could occur:

- Pressurized smoke exiting from small openings around the structure;
- Black smoke which becomes dense gray yellow or is dense grey yellow on arrival;
- Confinement of the fire and very intense heat; Little or no flames visible during initial scene size up;
- Smoke puffing out of the small openings in the building which could appear like the building is breathing; and
- Smoke stained windows in the structure.

If you arrive on the scene and discover that even one or two of these conditions are present, the next step is to know how to properly ventilate the building. Backdraft potential can be greatly reduced by implementing proper vertical ventilation by opening a

ventilation opening at the highest point of the structure possible.

Protect Yourself

Know the signs of a potential backdraft and use care when gaining access to a burning structure. Remember to also check for the signs of a backdraft when arriving on the scene; recognizing the signs of a backdraft could save someone's life, either fire personnel or civilians inside and outside the structure.



Safety Brief

JCFPD Training and Safety Division

June 2017

2017-06



Station _____
(Initial and Date
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knowledge of
contents)

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Battling the Summer Heat

As a district everyone has already become aware of the rising temperatures. With the Missouri heat setting in we need to be aware on how this will change our scene environments. Everyone in JCFPD needs to be able to understand how the heat will affect them and their crews, and knowing how to have an effective rehabilitation area.

Hazards for Firefighters

The stomach can absorb about 1 quart of water in an hour. Though, after using 2 bottles of air the body can lose as much as 2 quarts of fluids. While on scene it is nearly impossible to prevent from becoming dehydrated. As a department we can work to slow down the dehydration process and acknowledge when a crew member needs help. When in the summer heat 80-90 degrees may not feel hot but after donning PPE it can become enough to become cautious. Once it reaches 91-100 it's time to realize there can easily be some heat exhaustion or advance into a heat stroke.

While some people may use heat exhaustion and heat stroke interchangeably as a JCFPD volunteers it is critical to understand the difference. Heat exhaustion is a mild form of shock that occurs when the circulatory system begins to fail because the body can no longer expel all the excessive trapped heat. Some common symptoms are rapid, shallow breathing, weakening pulse, and cold clammy skin. In this stage the body can still produce sweat. Though once the body stops producing sweat the body is moving into a heat stroke. Once a heat stroke sets in the body is in a critical and potentially fatal state because it can no longer regulate temperature. The symptoms can be as simple as a headache, but can become as extreme as a body temperature over 105 degrees, a rapid pulse, hot skin (because of lack of sweat), confusion, and unconsciousness.

Rehabilitation isn't a commonly utilized tool but is in increasing in need for the summer months. The main purpose is to provide a period of rest and recover while on scene. While not all scenes may need to have a rehab area, command should be able to identify when it is needed. If the firefighters are going to be on scene for a while, it is hot day without donning gear, and if any of the crews are showing signs of the previously mentioned medical issues, then rehab should be put into effect immediately.

An effective Rehab area needs to be created systematically, by either command or an assigned crew. A proper Rehab area should be located away from the scene, in the shade, and near an ambulance crew. A crew of medical personnel should be assigned to watch the crews in rehabilitation. All personnel should not be ask, by command, to do any more tasks, they should be drinking water or Gatorade, if available, as well as eating healthy light food. At minimum all JCFPD trucks should have a case of water for moments exactly like this. If the scene progresses to needing Gatorade or food, command should ask for the JCPD auxiliary unit to be dispatched.

After 30 minutes a crew can then be evaluated to go back to work. All crew members should be rested, refreshed, and rehydrated. Also, medical personnel should be clearing each individual firefighter based on their vitals reaching an acceptable healthy level. If after the 30 minutes of rehabilitation crews or individual members are not improving or becoming worse, they should be put out of service and command should consider needing another unit to respond. Though, if a crew shows signs of early return to work it is not recommend for them to return more than 10 minutes early.

Protect Yourself

While we can never predict when the tones will drop for a long call, we need to try to be proactive. During the hot summer days you need to keep well hydrated and eating lighter foods, so when you arrive on scene you aren't already dehydrated and lethargic. Also, don't be afraid to express the possible need for Rehab station to be set up.

Avoiding Injury



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JCFPD Training and Safety Division

September 2017

2017-09



Station _____
(Initial and Date
to indicate
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contents)

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Meth Lab Awareness

Although Missouri cannot claim the title of being the meth capitol of the world as of 2016, which is a great thing, there were still 207 meth labs reported by law enforcement agencies throughout the state, including laboratories identified, chemicals/equipment/glassware seized, and dumpsites identified. Of the 4,527 reports nationally, Missouri had 207 meth lab incidents, according to the Missouri State Highway Patrol. Though Johnson County did not have any reported incidents, some surrounding counties had incidents reported. This suggests that meth may be transported through our fire district, even if it is not manufactured here.



Meth labs are a public health, hazardous materials, and environmental problem. But meth labs are also a law enforcement problem, and all suspected meth labs should be considered a crime scene. This means that they should be disturbed as little as possible by fire service personnel as you recall in evidence preservation training.

Hazards for Firefighters

Because of the many chemicals used in producing meth, many meth labs are discovered as a result of a fire or explosion. Flammable liquids, corrosives (including acids and bases), and reactive metals are commonly used in the meth production process. Chemicals in their containers still pose a fire or explosion risk. First responders who come in contact with these chemicals or smoke from a burning meth lab can receive eye, skin contact and respiratory system injuries. Also, whether there is a fire or not, any surface in a suspected meth lab should be considered contaminated and precautions should be taken to eliminate exposure.

Firefighters could encounter meth labs while responding to structure fires, smell of strange odors, wildland fires, vehicle fires, and vehicle accidents. Some of the signs of a possible meth lab include:

- Strong chemical odors when approaching the scene;

- Blacked out windows, barred windows and doors reinforced against entry;
- Chemical containers and waste, including antifreeze containers, drain cleaner bottles, lithium batteries, and piping with blue or green rust or residue;
- Chemical staining in bathrooms or kitchens, including coffee filters with red or rust-colored stains;
- Glass containers, including containers with separated liquids or liquid-solid separation;
 - Cooking bowls with white powder or residue.

Avoiding Injury

Firefighters and officers who spot items suggesting a possible meth lab should take the following precautions:

- Do not smoke or allow smoking in the area.
- Do not open or move any chemical containers.
- Do not touch unknown substances with bare skin.
- Do not smell the contents of any container.
- Do not plug in or unplug any electrical devices or flip any light switches.
- Leave the area and seek medical attention if you have difficulty breathing, are dizzy or confused, or feel a burning sensation on your skin, in your respiratory tract, or other mucous membranes.
- Call for law enforcement assistance.

Protect Yourself

Meth labs can be found nearly anywhere you can think of. From sewers, sheds, the normal single family house, vehicles of any kind, and up to the largest houses in our response areas. The best thing we can do is know the indicators of a possible meth lab, don't disturb possible evidence, and request law enforcement even if you have the slightest doubt.



Safety Brief

JCFPD Training and Safety Division

October 2017

2017-10



Station _____
(Initial and Date
to indicate
knowledge of
contents)

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Air Ambulance Operations

As of 2015, the number of HEMS(Helicopter Emergency Medical Services) crashes has decreased from a recent spike that was seen from 2006 to 2010. During the 2006-2010 timeframe, 58 HEMS crashes resulted in 63 fatalities including both the crew and patients on board. Though these numbers have been on the decrease in recent years, this is an operation in which we can never let our guard down, as the result can be catastrophic.

Hazards for Firefighters

There are many hazards associated with creating a landing zone and the actual landing and takeoff of the helicopter. In nearly all cases, our biggest concern is going to be flying debris. Any object in the area of the landing zone can become a piece of flying debris that can injure or even worse, kill a first responder.

During the landing of the helicopter, radio communications need to be established and maintained during the entire operation. This will allow you to advise the pilot of any issues at the LZ site and the pilot to do the same.

Another issue that we must be aware of is roadway safety. Though some of our LZ's are set up for strictly medical calls in which we are toned for an LZ, most are the result of MVC's which means we are operating around a roadway. Refer to July 2017 safety brief for more information regarding roadway safety.

Avoiding Injury: Setting Up the LZ (Information Directly from LifeFlight Eagle)

How to Select a Landing Zone:

The LZ should be a flat, firm area of 100 ft. X 100 ft. A larger area should be used during windy conditions or at LZs with tall hazards on 2 or more sides. Site should be clear of people,

vehicles, obstructions and debris. The LZ coordinator should assume command of the LZ. The LZ coordinator is responsible for keeping bystanders away from the aircraft, especially the tail rotor. All people involved with hot loading (rotors turning) of helicopter must observe safety rules.

Day Operations:

Radio contact between the pilot and the LZ coordinator should be established, if possible. LZ Coordinator should describe wind direction and speed as well as any hazards near the LZ, such as power lines, light poles, trees, street signs, and any other obstacles within 1/4 mile of the landing zone.

The LZ coordinator should stand with his/her back to the wind and arms pointing to the center of the LZ. The LZ coordinator should turn his back and move quickly out of the area once the aircraft is on final approach. The waving of arms overhead indicates the LZ is unsafe.

Night Operations:

Scenes are easily identified by strobe lights on emergency vehicles at night. Battery-powered strobe lights can be used to indicate the LZ.

Alternately, the LZ may be outlined with four to five vehicles with headlights on low beam. If unavailable, use flashlights. Flares should not be used, as they present a fire hazard. Bright lights pointed at the pilot can cause temporary blindness.

Protect Yourself

- STAY AWAY from the tail rotor
- NEVER approach aircraft without pilot direction
- ALWAYS follow flight crew safety instructions
- ALWAYS approach and depart the aircraft in the line of sight of the pilots, even if the aircraft is shut down
- NO smoking within 100 feet
- NO running within 100 feet





Safety Brief

JCFPD Training and Safety Division

November 2017

2017-11



Station _____
(Initial and Date
to indicate
knowledge of
contents)

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Buildings Under Construction on a Fire Scene

Hazards for Firefighters

The five different construction types: Fire-Resistive, Non-Combustive, Ordinary, Heavy Timber, and Wood Frame, can all be found within our run areas. When a building is being constructed, normal expected fire behavior can be altered completely. Fire-Resistive buildings could have not been treated, and Wood Frame houses may have studs but could lack gypsum coverings to create a fire protection barrier. These buildings will be self-ventilated and completed exposed to the environment around them.

With these unstable buildings they pose a new threat. The collapse potential in these buildings are in at a higher-risk. While, most completed buildings have a form of fire alarm/detection system since these buildings may not be considered "habitable" yet and won't require one. These buildings could be burning for some great time without going noticed or reported. Depending on how far in the process the construction is, raw materials may be placed at random throughout the scene. Wet concrete may have recently been poured and stacks of lumber or tools could create a trip hazard. Civilians are of course needing to be thought of within these hazards. Some residents could be living in some construction areas, along with workers, or unwanted visitors depending on the time of day.

Avoiding Injury

When approaching a building that may be under construction the IC and each crew member need to be able to understand which classification of construction it is. The five general classifications of construction are renovations, rehabilitations, conversions, expansions, and new constructions.

Renovations and rehabilitations can be found in both a personal home and business. These both include older buildings that are being restored,

this could affect the integrity of the structure and leave different components of the building exposed. A key difference to understand is the likelihood of people living within the structure. Rehab buildings generally are inhabitable until the construction is complete. Conversions are the change from one occupancy to another. This could be from a house to a business, or a retail store to a restaurant. This can leave new appliances or items stored in odd locations within the building and can make search and rescue or emergency egress a little more difficult. Expansions are mostly secluded to a specific part of the structure but does leave the rest of the building functional. Structures like this can be deceiving, floors could randomly have holes, or a kitchen can turn into a garage at the most random moments. New construction starts from the ground up, this takes some critical thinking to understand how to attack.

Protect Yourself

The best ability to prevent injuries is always to be proactive. While we do not enforce fire codes within Johnson our run area, we all live and drive within our run area. Keep mental notes of different construction types and buildings being erected that may be a potential location for a fire scene. Also, in large subdivision house construction many of the houses have similar floor plans. Keeping your eyes open on calls on how one house may be constructed can be context clues for the next call.

It is also beneficial to remember your basic structure firefighting skills. With the increased collapse potential there is a constant need to be alert and aware. Looking for signs of potential collapse could save lives. This also, falls on the IC shoulders to know if the structure is worth saving and worth risking a lives to ensure that everyone goes home.



Safety Brief

JCFPD Training and Safety Division

December 2017

2017-12



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Cold Weather Safety

Even though the last few winters have not been anywhere near normal for precipitation or temperature, many of our members have had the chance to experience what it is like to operate in the harsh winter conditions that Missouri can offer.

Hazards for Firefighters

There are many medical emergencies that we can run into during cold weather incidents. The following are the most common conditions that we could face on scene.

Hypothermia - occurs when your body loses heat faster than it can produce heat, causing a dangerously low body temperature. Anyone suspected of being hypothermic needs immediate medical evaluation and treatment.

Frostbite - an injury caused by freezing of the skin and underlying tissues. Frostbite comes in stages, the first being frost nip which can be treated with first aid including rewarming the effected area. All other frostbite will require medical attention.

Along with the medical emergencies, cold weather months also can present other hazards. Slips, trips, and falls can become prevalent during these months. Inclement weather conditions including snow and ice/sleet can make footing unstable from the time we leave our house to respond to the station through the duration of the incident. This also affects the road conditions during our response and general driving by the public.

Avoiding Injury

There are many things that we can do to help prevent these medical emergencies and the other hazards that can present themselves during the upcoming cold weather months. **The best thing that we can do to prepare for the cold weather is to dress**

appropriately for the weather conditions and know the signs and symptoms of hypothermia and frostbite.

- The early signs and symptoms of hypothermia are shivering, dizziness, hunger, nausea, trouble speaking, and a lack of coordination in a mild case. Clumsiness or lack of coordination, slurred speech or mumbling, and poor decision making are major signs of moderate hypothermia.

- The signs and symptoms of frostbite are cold skin and a prickling or numb feeling, change in skin tone or color, hard or waxy-

looking skin, and blistering after rewarming, in severe cases.

General driving and response to emergencies may be hazardous.

- Ice covered and snow packed roads will be common in the coming months. Greater distance will be needed to stop even at slow speeds so keep your distance from other vehicles on the roadway and reduce speed when needed.



Remember that structural firefighter PPE is great keeping us safe from the heat released from a fire, but once soaked in water as often happens on our fire scenes, will speed our bodies rate of heat loss.

- Throw an extra change of clothes on the truck in the event that your clothes become wet on scene.

Protect Yourself

Caution is a must while driving to and from, and on scene. Keep an eye on your crew and yourself and recognize the signs and symptoms of cold weather emergencies early. Remember if we don't make it to the scene or get injured on scene, we can no longer help the public.