The purpose of these operational guidelines is to make clear expectations for company performance, safety, and efficiency, eliminating the potential for confusion and duplication of effort at the emergency scene.

It is understood that extraordinary situations may dictate a deviation from these guidelines. Deviation can only be authorized by the officer/acting officer of an apparatus or the incident commander. Any deviation must be communicated over the incident talk group.

The following guidelines are meant to clarify best operational practices for the MFD. They are not intended to be all-inclusive and are designed to be updated as necessary. They are guidelines for you to use. However, there will be no compromise on issues of safety, chain of command, correct gear usage, or turnout times (per NFPA 1710).

These operating guidelines will outline tool and task responsibilities for the specific riding positions on responding units. While the title of each riding position and the assignments that follow may not always seem to be a perfect pairing, the tactical advantage of knowing where each member is supposed to be operating at a given assignment will provide for increased accountability and increased effectiveness while performing our response duties.

Within the guidelines, you will see run-type specific (and in some cases, arrival order specific) tool and task assignments. On those responses listing a ‘T (or R)’ as the response unit, the Company will be uniformly listed as ‘Truck’ for continuity. The riding positions are as follows:

**ENGINE RIDING POSITIONS**

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>HEO</th>
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<tbody>
<tr>
<td>NOZZLE FF</td>
<td>BACKUP FF</td>
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</tbody>
</table>

**TRUCK RIDING POSITIONS**

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>HEO</th>
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</thead>
<tbody>
<tr>
<td>VENT FF</td>
<td>FORCE FF</td>
</tr>
</tbody>
</table>
SAFETY

If you see something that you believe impacts our safety, it is your duty to report it to your superior Officer immediately. If, in the course of carrying out an assignment, the situation deteriorates or changes in such a way as to affect your safety, immediately retreat to a more tenable atmosphere and report the hazard to your superior Officer. If an Incident Safety Officer orders you to stop what you are doing based on an assessment of the conditions, stop and report it to your superior Officer immediately.

In all cases, the rig should be used as a barrier between the flow of traffic and where fire or EMS crews are, or will be, operating. This means coordinating with law enforcement to use the rig, along with cones, to shut down all or part of the roadway.

Seatbelts must be used at all times when a department vehicle is in motion. Reflective safety vests must be worn any time a company is operating on a roadway or in a vehicle traffic area, except during firefighting operations or while in the hot zone of a vehicle extrication.

CHAIN OF COMMAND & COMMUNICATIONS

You report to your superior Officer, period. Any orders coming from an Incident Commander to HEOs or FFs are to come through your respective Company Officer.

If, in the course of carrying out your assignment(s), you are directed by another Officer (Company or Chief) to do something else, advise them that you are already carrying out an assigned objective. In an extraordinary situation requiring immediate attention (FF trapped at window needing ladder rescue, etc.), report the change or delay to your superior Officer as soon as is practical. Keep in mind that any deviation must not delay hoselines getting into operation, as this single action will reduce and/or eliminate most other hazards. Let your superior Officer know any time you complete your assignment(s) and/or change your location.

Input of later arriving Bureau or recall staff personnel must be approved and transmitted through the Incident Commander & Operations Chief via the established Chain of Command.

FIREFIGHTING ENSEMBLE

Per MFD documentation, full firefighting ensemble is considered to include: bunker pants with suspenders, bunker coat, boots, SCBA w/ facepiece, hood, helmet (with Company front piece), gloves, and safety glasses (carried in pocket). On runs requiring respiratory or thermal protection, members are required to be wearing all of the above items.

RECEIPT OF ALARM AND TURNOUT TIME

Upon receipt of an alarm in quarters, the member nearest the CAD shall receive the alarm and all members shall respond quickly to the rig. Response time from quarters should be consistent and swift, regardless of the time of day or type of call. Companies should have no trouble turning out from quarters within the industry-accepted standard prescribed in NFPA 1710 (60 seconds for EMS responses and 80 seconds for fire/special operations responses) from the time the alarm tones sound.
1.0 – ALARM (Alarm Sounding)

Units Dispatched: E + T (or R)

**GENERAL**

Alarm Sounding responses have the potential to become one of the most dangerous responses for urban firefighters. The frequency with which they are transmitted (and found to be False Alarms) has the ability to dull Company urgency or situational awareness. All such responses should be regarded as potential working fire incidents until a thorough investigation proves otherwise. Always anticipate a working fire and operate accordingly.

**Residential** alarms generally are easier to investigate as the structure size is relatively small and there is usually visual access that can be gained, if even from a ladder. If no smoke is visibly apparent, contact MFD Dispatch for keyholder information. Whether or not smoke is observed in or from the building (and attempts to gain access via the doorbell, door knocking, or keyholder fail), forcible entry is indicated. By declaring a False Alarm, the Officer is declaring with no equivocation that there is no emergency at the given location. To declare a False Alarm without a complete investigation places the Officer, the Department and the City at great potential liability.

If the distinct odor of burnt food is noted on the exterior of the building, consider bringing the **multi-purpose dry chemical extinguisher** in case it is a Class B stovetop fire. Do not rely on occupant reports that the fire is ‘out.’ **Always perform a professional and thorough investigation.**

**Multi-family dwelling** alarms can be problematic in that the building size is larger and some annunciator panels do not indicate the specific location of the alarm in a clear or understandable manner. A thorough interior investigation is indicated as large buildings can hide large amounts of smoke, and the sheer size of many buildings can make pinpointing the cause of the alarm difficult. If the annunciator panel gives a clear alarm location, focus the investigation on that location while remaining vigilant of the conditions on the floors below that location. Every floor must be investigated and cleared by responding companies through a coordinated effort. Be sure to **chock** exterior and interior lobby/foyer doors as they are usually self-locking. Do not rely on occupants, police officers, or passersby to hold or secure doors in the open position. It is important to note that any door through which a hoseline (charged or uncharged) will pass must be chocked open to prevent delays in water and to facilitate rapid egress should interior conditions deteriorate.

**Commercial buildings or large institutional buildings** (schools, nursing homes, high-rise residential & high-rise commercial, etc.) also require a thorough investigation. Many times, a building superintendent or security guard is present and can verify the status of the building and provide access as needed. In cases where no keyholder is available and the building is secured, attempts should be made to locate a KnoxBox to access the interior (check the run sheet for KnoxBox information). If visual access cannot be gained to all areas of the building, forcible entry is indicated.
If an exterior sprinkler system alarm gong is activated, forcible entry is indicated. This indicates a positive waterflow somewhere in the system, the most serious cause of which would be a sprinkler head activated due to a fire. As you are investigating, listen and feel sprinkler risers as you pass them; often, you can hear a humming sound and feel a vibration if the riser is flowing water. This will help you locate and isolate the location of the activated sprinkler(s). Although you can certainly shut down the flow of water from a sprinkler head, using door chocks or sprinkler tongs, never shut down the building's sprinkler system in full.

When using elevators to investigate an alarm sounding on an upper floor of a high-rise building, the elevator should be placed in Firefighter Mode. Stops should be made every five floors to ensure elevator control. At these stops, shine a flashlight up the shaft to inspect for the presence of smoke. Firefighters should exit the elevator five floors below the reported alarm location and ascend via stairs the rest of the way, giving a cursory check of each floor for smoke/fire conditions and taking note of the floor layout.

Any time access to a building is obtained via forcible entry, request “10-53 for forcible entry” via MFD Dispatch, so that the Milwaukee Police Department can secure the building upon our departure. Further, if on arrival, evidence of a break-in is found, use caution and request 10-53 for investigation. If proven to be a False Alarm, MFD companies shall not deactivate any alarm systems. This is the building owner’s responsibility.

### ENGINE

<table>
<thead>
<tr>
<th>OFFICER</th>
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<tbody>
<tr>
<td><strong>Tools:</strong> Full PPE with SCBA, portable radio, flashlight, TIC, halligan tool</td>
</tr>
<tr>
<td><strong>Duties:</strong> Initiate Command, direct apparatus placement, V-Tac, begin size up and investigation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tools:</strong> Full PPE, portable radio</td>
</tr>
<tr>
<td><strong>Duties:</strong> Engine and pump operations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOZZLE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tools:</strong> Full PPE with SCBA, portable radio, axe, door chocks</td>
</tr>
<tr>
<td><strong>Duties:</strong> Standby with HEO ready to lay hoseline if needed</td>
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<tr>
<th>BACKUP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tools:</strong> Full PPE with SCBA, portable radio, water extinguisher, flathead axe, door chocks, CO detector</td>
</tr>
<tr>
<td><strong>Duties:</strong> Investigate with Officer</td>
</tr>
</tbody>
</table>

On arrival at ALARM assignments, care should be taken to size up conditions on the exterior of the building and to place the Engine appropriately. Ensure the rig V-Tac is set to the proper incident talk group. If there is a hydrant within 100 feet, the HEO should position the rig to take the hydrant, making sure to leave as much of the road passable as possible. If no hydrant is available within 100 feet, the HEO should position the Engine in front of one...
of the adjacent lots, leaving the front of the building for the Truck Company. Attention should be paid to the expected direction of arrival of the Truck Company. Transmit your initial findings via radio on the Dispatch talk group.

Take the time to observe conditions along the roofline, through windows and doors, and interior. Use of the TIC on the exterior will often indicate areas of heat buildup that may not otherwise be evident from the exterior. The Engine Officer will attempt to gain a view of the rear of the structure to complete a 360° survey of the structure. Small multiple dwellings (20-25' frontage, with depths up to 85') usually allow for a complete survey. Conversely, large multiple dwellings (50-100' frontage, with depths greater than 85') may require a member of the truck company to report on conditions in the rear. A full 360° survey should always be done as part of your investigation.

On arrival at any possible fire incident, identify the presence and location of the nearest hydrant(s) and Fire Department Connection(s) (FDC). It is also a good practice for the HEO to find and flush the closest hydrant to ensure its serviceability. This ensures and speeds its usability in the event the incident escalates to a structure fire. The HEO should relay any hydrant or FDC related problems (broken stems, out-of-round or damaged threads, frozen, etc.) to the Engine Officer immediately and begin locating the next nearest hydrant. In the event of a damaged FDC, consider supplying the first floor outlet in buildings equipped with standpipes.

When investigating an alarm sounding at a smaller structure, the Engine Officer and Backup FF should begin conducting an exterior and interior investigation, leaving the HEO and Nozzle FF standing by to initiate a hose stretch if needed. The Engine Officer should communicate with, and transfer command to, the Truck Officer on their arrival.

On arrival at large structures, the Engine should initially position to take a hydrant, and where none is available, they should position themselves near the main point of entry; the Engine HEO can always adjust the rig positioning based on size-up and investigation information. When investigating an alarm sounding at large structures, allow the Truck Company to make the interior investigation. The Engine Company Officer should complete as much of an exterior size-up as is practical and attempt to gain access to the main point of entry and/or speak with any available building staff or fleeing occupants. While the Truck Company is investigating the interior of large structures, the Engine Company can prepare for the possibility of needing to initiate fire suppression (locating and connecting to FDC(s), locating, flushing and connecting to the nearest appropriate hydrant, identifying avenues for potential hose stretches, readying Hotel Packs for deployment, etc.)

If a Single Engine Company arrives before a Truck Company and there is evidence of a fire, the Engine Company shall begin attacking the fire (following Structure Fire guidelines) after requesting a Full Assignment.

In addition to the standard equipment carried on ALARM responses, Engine Companies responding to Alarm Soundings at High-Rise Buildings, or other standpipe equipped buildings, should carry their Hotel Pack and High-Rise Bag while investigating. In High-Rise investigations, both Firefighters should travel with the Officer, as they will both be functional immediately if an upper floor fire is located. This is, of course, after it has been determined that the location of the fire makes a hose stretch from the Engine apparatus

Operational Guidelines
ALARM (Alarm Sounding)
impractical or impossible and search operations have been coordinated between the Engine and Truck Company Officers.

Radio communications can be severely hampered in tall structures built with large amounts of steel and masonry. The “conventional mode” (selector B-channel 1) feature on our portable radios can be utilized in this situation at the discretion of the incident commander.

Requests for additional resources should be based on as complete an investigation as is timely, safe and practical. Refer to the guidelines for the response type requested for further guidance.

<table>
<thead>
<tr>
<th>TRUCK</th>
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<tbody>
<tr>
<td><strong>OFFICER</strong></td>
</tr>
<tr>
<td>Tools: Full PPE with SCBA, portable radio, flashlight, TIC, halligan tool, tagline</td>
</tr>
<tr>
<td>Duties: Assume Command if Engine company interior, V-Tac, assist with investigation</td>
</tr>
<tr>
<td><strong>HEO</strong></td>
</tr>
<tr>
<td>Tools: Full PPE with SCBA, portable radio, axe, door chocks, tagline</td>
</tr>
<tr>
<td>Duties: Aerial operations or as assigned by Officer</td>
</tr>
<tr>
<td><strong>VENT</strong></td>
</tr>
<tr>
<td>Tools: Full PPE with SCBA, portable radio, axe, pike pole, Porta-Power with door spreader, door chocks, tagline</td>
</tr>
<tr>
<td>Duties: As assigned by Officer</td>
</tr>
<tr>
<td><strong>FORCE</strong></td>
</tr>
<tr>
<td>Tools: Full PPE with SCBA, portable radio, water extinguisher, flathead axe, door chocks, tagline</td>
</tr>
<tr>
<td>Duties: Travel with Officer</td>
</tr>
</tbody>
</table>

Upon arrival, position the Truck Company in front of the building, preferably with the turntable at the corner of the building so that two sides may be covered with the aerial ladder for rescue or suppression, and so that the wide range of tools carried on the Truck are readily available for use. Ensure that the Truck placement allows for hydraulic jack extension, ground ladder removal, and aerial ladder use. Ensure the rig V-Tac is set to the proper incident talk group.

Upon arrival, the Truck Officer should confer with the Engine Officer and assume command, reporting this assumption of command via Dispatch.

Truck Companies should be the primary investigating unit at large structures where the existence and/or location of fire is unknown. This leaves the Engine Company available to stretch a hoseline if needed at the Truck Company’s direction. In such circumstances,
consideration should be given to the most advantageous entry point for laying the hoseline, as it may be different than the initial investigation entry point.

If fire is found during the investigation and standpipes are unavailable or are not the most advantageous means of attacking the fire, both Truck FFs may be used to assist the Engine Company with getting the initial hoseline in operation. To that end, if forcible entry presents a major challenge, both Truck FFs shall travel with the Truck Officer to clear whatever obstacles are in the way for the smooth deployment of the hoseline.

Radio communications can be severely hampered in tall structures built with large amounts of steel and masonry. The “conventional mode” (selector B-channel 1) feature on our portable radios can be utilized in this situation at the discretion of the incident commander.

Requests for additional resources should be based on as complete an investigation as is timely, safe and practical. Refer to the guidelines for the response type requested for further guidance.
Responses for APPL (Appliance Fires) generally involve stove or clothes dryer fires, but may include furnace, compactor, microwave, refrigerator, industrial, HVAC or other electric or natural gas powered equipment. While a wide range of types, makes, models, and ages of equipment may be encountered, several principles should guide the fire department response.

First, treat this response as a serious fire condition until proven otherwise or the situation is mitigated. If there is smoke or fire present in the structure, occupants should be evacuated to the outside until the situation is controlled. Check for injuries and request EMS resources as needed. Life safety is paramount; if the appliance fire has produced a great deal of smoke, a rapid primary and thorough secondary search are indicated. Further, all members shall employ their SCBA while operating in smoke.

In all investigations for fire or other hazardous conditions, ensure that entry, lobby, foyer, and/or stairwell doors are choked open to facilitate rapid egress should conditions deteriorate. This action will also provide subsequent arriving companies with an immediate route to locate you and assist in your efforts.

No matter the apparent size or intensity of smoldering or burning in or around the involved appliance, all power sources should be shut off to that appliance. Initial attempts to isolate power to the involved appliance should be at the appliance, by unplugging the unit and/or shutting off the gas at the stopcock. If this is not possible, the gas and/or electric supply to the involved appliance should be shut off at the next available isolation valve or breaker switch.

In a single-family or two-family residence, this may necessitate shutting down gas or electric at the gas meter or at the main fuse or breaker panel. Every effort should be made to isolate the specific circuit or gas line prior to shutting down gas at the meter or the main electric at the panel. In a multi-family dwelling, limit utility shutdown to the unit that contains the involved appliance. In a large commercial building or industrial setting, work closely with available maintenance personnel to isolate the involved appliance. Any time natural gas or electric service to an appliance is disconnected, contact We Energies (specify electric or gas) via dispatch. They will provide additional resources for the occupant, such as restarting their service, relighting pilot lights, and follow-up gas testing.

Consider any burning electrical appliance to be a Class C (Electrical) fire, and select the appropriate extinguisher containing a non-conductive agent, such as a multi-purpose dry chemical or carbon dioxide extinguisher. Water should not be used on electrically charged appliance fires. Only after electrical appliances have had the electricity feed shut down or disconnected can they be treated as Class A (Ordinary Combustible) fires. In clothes dryer
fires (both residential and commercial laundry mat models), make sure to check beneath the panels that make up the body of the dryer. Often, lint builds up here and smolders. Also, check the lint trap and dryer exhaust hose for burning or smoldering lint.

In any motor driven appliance (forced air furnace, AC compressor, washer and dryer, etc.), there exists the possibility of a burnt belt from unit malfunction. This is identified by a distinct burnt rubber odor. Other symptoms of belt failure or burnout may include overheated drive motors and/or lack of motion where expected (blower squirrel-cage, washer or dryer drums, etc.). Always ensure that the unit is de-energized and that no fire extension has occurred within the unit before investigating further.

If the fire involved refrigerant, as in a freezer, refrigerator, or air conditioner, consider contacting the Hazardous Materials Team via company assigned cellphone (from a safe atmosphere) for technical assistance. They can also be requested to the scene immediately via dispatch if the need is obvious. If a window air conditioning unit is involved, removing the unit from the window will eliminate the falling hazard and facilitate salvage and overhaul, if needed, in the surrounding window opening.

Great care should be taken when removing a previously burning appliance to the exterior. Ensure that you have achieved complete extinguishment, as numerous accounts of flare-ups in stairwells or narrow hallways have resulted in injury and/or fatality to firefighters.

It is common for a small contained cooking fire (scorched food) to be reported as an appliance fire. If this is identified as the cause, it should be treated as a Class B (Flammable Liquid) fire. Again, the multi-purpose dry chemical or carbon dioxide extinguisher is the appropriate extinguisher for such fires. A simpler solution for contained cooking fires, when possible, is to place a lid over the burning or smoldering pot or pan and carefully remove it to the exterior of the structure prior to extinguishment. This reduces the amount of smoke and steam generated inside the occupancy and reduces the potential for extension from the splashover of burning liquids. In instances where the unmistakable odor of scorched food is apparent in a common hallway of a multi-family dwelling or duplex, and attempts to get an occupant to open the door fail, forcible entry is indicated. It can be difficult to determine the exact apartment unit from which the smoke is originating; pressing in on the top corner of the doors and watching for a puff of smoke will often speed the process of locating the involved apartment.

At the completion of an APPL assignment, make sure to record the make, model, year, and serial number of the involved appliance, along with any other pertinent information, for your EIS report. This information is collected to determine whether an appliance should be recalled due to a defect in its design. According to the USFA, fifteen million appliance units have been recalled in the past five years for recognized defects that could cause a fire. Further, advise the resident that they should not attempt to re-start or use the appliance until it is serviced by a qualified technician or replaced.
**ENGINE**

<table>
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<tr>
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<tbody>
<tr>
<td>Tools: Full PPE with SCBA, portable radio, flashlight, TIC, halligan tool</td>
</tr>
<tr>
<td>Duties: Initial IC, direct apparatus placement, V-Tac, begin size up and investigation, communications</td>
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</tbody>
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<thead>
<tr>
<th>HEO</th>
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</thead>
<tbody>
<tr>
<td>Tools: Full PPE, portable radio</td>
</tr>
<tr>
<td>Duties: Engine and pump operations</td>
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<tr>
<th>NOZZLE</th>
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</thead>
<tbody>
<tr>
<td>Tools: Full PPE with SCBA, portable radio, axe, door chocks</td>
</tr>
<tr>
<td>Duties: Standby with HEO ready to lay hoseline if needed</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>BACKUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools: Full PPE with SCBA, portable radio, multipurpose dry chemical or CO₂ extinguisher, flathead axe, door chocks, CO detector</td>
</tr>
<tr>
<td>Duties: Investigate with Officer, begin extinguishment if needed</td>
</tr>
</tbody>
</table>

On arrival at APPL assignments, care should be taken to size up conditions on the exterior of the building and to place the Engine appropriately. Ensure the rig V-Tac is set to the proper incident talk group. If there is a hydrant within 100 feet, the HEO should position the rig to take the hydrant, making sure to leave as much of the road passable as possible. If no hydrant is available within 100 feet, the HEO should position the Engine in front of one of the adjacent lots, leaving the front of the building for the Truck Company. Attention should be paid to the expected direction of arrival of the Truck Company. Transmit your initial findings via radio on the dispatch talk group.

Take the time to observe conditions along the roofline, through windows and doors, and interior. Use of the TIC on the exterior will often indicate areas of heat buildup that may not otherwise be evident from the exterior. The Engine Officer will attempt to gain a view of the rear of the structure to complete a 360° survey of the structure. Small multiple dwellings (20-25' frontage, with depths up to 85') usually allow for a complete survey. Conversely, large multiple dwellings (50-100' frontage, with depths greater than 85') may require a member of the truck company to report on conditions in the rear. A full 360° survey should always be done as part of your investigation.

On arrival at any possible fire incident, identify the presence and location of the nearest hydrant(s) and Fire Department Connection(s) (FDC). It is also a good practice for the HEO to find and flush the closest hydrant to ensure its serviceability. This ensures and speeds its usability in the event the incident escalates to a structure fire. The HEO should relay any hydrant or FDC related problems (broken stems, out-of-round or damaged threads, frozen, etc.) to the Engine Officer immediately and begin locating the next nearest hydrant. In the event of a damaged FDC, consider supplying the first floor standpipe outlet.

When investigating an appliance fire at a smaller structure, the Engine Officer and Backup FF should begin conducting an exterior and interior investigation, leaving the HEO and Nozzle FF standing by to initiate a hose stretch if needed. The Nozzle FF should conduct an independent size-up of potential hoselay entry points, layout hazards, stairwell locations, and an estimate of the number of sections of hose that may be needed. The Nozzle FF

Operational Guidelines
APPL (Appliance Fire)
shall monitor the incident talk group and remain in contact with the HEO in case the Officer calls for a hoseline to be stretched. The HEO may assist in the hose stretch up to the point of entry.

The Engine Officer should communicate with, and transfer command to, the Truck Officer on the fireground talk group on their arrival. As the investigation continues, the Engine Officer should note the presence, color, volume, and odor of any smoke. It should be noted that many stove-top fires extend to the underside or front veneer facing of kitchen cabinetry, as well as into soffits containing range hood vent ductwork and built-in microwaves. This can produce a large volume of smoke while causing relatively minor fire damage. The TIC, used in conjunction with deliberate and purposeful salvage and overhaul procedures, should be used to check for fire extension. Attempting to preserve property by performing an inadequate inspection can lead to much greater property loss if the presence of hidden fire is not discovered.

Requests for additional resources should be based on as complete an investigation as is timely, safe and practical. Refer to the guidelines for the response type requested for further guidance.

**TRUCK**

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE with SCBA, portable radio, flashlight, TIC, halligan tool, tagline</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Assume Command if Engine company interior, V-Tac</td>
</tr>
<tr>
<td>HEO</td>
<td>Tools: Full PPE with SCBA, portable radio, axe, door chocks, tagline</td>
</tr>
<tr>
<td></td>
<td>Duties: Aerial operations, Ventilation as needed, PPV and Generator as needed</td>
</tr>
<tr>
<td>VENT</td>
<td>Tools: Full PPE with SCBA, portable radio, axe, door chocks, tagline, 6’ pike pole</td>
</tr>
<tr>
<td></td>
<td>Duties: Ventilation as needed, PPV and Generator as needed</td>
</tr>
<tr>
<td>FORCE</td>
<td>Tools: Full PPE &amp; SCBA, portable radio, tagline, multi-purpose dry chemical or CO₂</td>
</tr>
<tr>
<td></td>
<td>extinguisher, flathead axe, door chocks, tagline, Box Fan (as needed), door spreader</td>
</tr>
<tr>
<td></td>
<td>or hydra-ram (as needed)</td>
</tr>
<tr>
<td></td>
<td>Duties: Travel with officer, Force entry as needed</td>
</tr>
</tbody>
</table>

Upon arrival, position the Truck Company in front of the building, preferably with the turntable at the corner of the building so that two sides may be covered with the aerial ladder for rescue or suppression, and so that the wide range of tools carried on the Truck are readily available for use. Ensure that the Truck Company placement allows for hydraulic jack extension, ground ladder removal, and aerial ladder use. Ensure the rig V-Tac is set to the proper incident talk group.

Upon arrival, the Truck Officer should confer with the Engine Officer and assume Command, reporting this assumption of command to dispatch. The Truck Officer shall monitor the fireground talk group on the rig radio and the dispatch talk group on the portable radio while approaching the scene (due to V-Tac). If the Engine Officer requests
that the Truck Company standby, resist the urge to go in and help. Often, the Engine Company will have the situation handled and going inside would simply crowd the interior.

If the Engine Company indicates that they will need forcible entry for scorched food, the HEO and Vent FF should ready and position the PPV fan. The HEO can remain to start and operate the PPV fan. The Vent FF should then join the Truck Officer and Force FF to assist with forcible entry. In this instance, the Vent FF should bring along the manual door spreader or Porta-Power door spreader, in addition to an extinguisher.

Anticipate the potential needs of the Engine Company if there is no obvious indication of a need to escalate the alarm type: ready the PPV fan, Box Fan, and locate/shut down utilities. If called upon to place the Box Fan, the Force FF should leave the extinguisher near the point of entry in case of flare ups.

Requests for additional resources should be based on as complete an investigation as is timely, safe and practical. Refer to the guidelines for the response type requested for further guidance.
MILWAUKEE FIRE DEPARTMENT
Operational Guidelines

Approved by: Chief Mark Rohlfing
2016

3.0 – AUTOF (Auto Fire)

Units Dispatched: E + (T or R)

GENERAL

Fire department responses to automobile fires have become increasingly oriented toward providing for firefighter safety as components used in the construction of automobiles have become more varied and hazardous when exposed to fire. Firefighters can place themselves at unnecessary risk when they fail to realize that with most auto fires, the car's value has been diminished to the point that it will be deemed irreparable by the insurance company and, thus, not worth the risk of an overly aggressive attack. Rig positioning, direction of fire attack, sequential tactics, and proper usage of PPE will provide firefighters the greatest margin of safety while extinguishing automobile fires.

Pay close attention to placarding on a vehicle indicating that it is transporting a hazardous substance. A placard could be as simple as the letters CNG in a diamond (indicating that the vehicle is powered by Compressed Natural Gas) or E85 (Ethanol fueled). More complex placards include an NFPA 704 Diamond or chemical identification number. Refer to the DOT Guidebook when dealing with fires involving hazardous materials. The Hazardous Materials Team may also be contacted via phone or requested to the scene for technical assistance.

The vast majority of the vehicles used by UW-Milwaukee are CNG powered. Even though vehicles powered by CNG are designed with pressure relief valves in place to prevent BLEVEs in the compressed natural gas cylinder during a fire, numerous instances of relief valve failures have been documented. In addition, many street racing vehicles and/or “muscle cars” contain Nitrous Oxide (NO) cylinders. CNG and NO cylinders are typically, but not always, found in the trunk, in the truck bed, or under the back seat of the vehicle. If the cylinder does BLEVE, a massive, instantaneous, and catastrophic explosion occurs, leaving the vehicle resembling those often pictured after a car bombing. Structural members and mechanical parts have been found several hundred feet from such explosions. Be sure to clear civilians from the area and launch the initial fire attack from a distance. This would be an ideal usage for the deck gun.
Verify immediately if individuals identifying themselves as having been in or near a vehicle fire are in need of EMS and request backup as needed.

At the conclusion of an auto fire, the Engine HEO should gather as much information as possible for the EIS report: License plate number with state and expiration tag, Vehicle Identification Number (VIN), Year, Make, and Model of vehicle, and Owner name, address and phone number.

At no time shall members who are actively engaged in firefighting, or support activities, in the immediate area around the burning vehicle be wearing their traffic safety vest. This diminishes the rating of your NFPA approved PPE. Members not in the hot zone, but in vehicle traffic areas shall have their traffic safety vest donned.

Request the Fire Investigation Unit if damage is estimated above $10,000.00 or involves a significant injury or fatality. Request 10-53 to assist with investigation and the securing or towing of the vehicle at the completion of our duties. Do not allow bystanders to remove items from the vehicle until the fire is completely extinguished and 10-53 are onscene to verify ownership.

Auto fires occurring on the Freeway system, particularly in the upgraded Marquette Interchange, offer different challenges and require different resources. Review and understand Training Video 2009-M (Marquette Standpipe System) as well as our Freeway Response policy, which details communications, staging, and water supply operations on our freeway system.

In rare cases, large petroleum tanker fires are reported as auto fires. If this is the case, request a Full HazMat assignment and consider an ARFF Crash Truck from the Milwaukee County Fire Department, stationed at Mitchell International Airport.

Of tactical interest, the Milwaukee County Fire Department’s Rescue 3 is able to enter low-clearance parking garages at the Mitchell International Airport to provide initial fire attack. In this case, we would support their attack and provide a water supply. In other parking structures, as in the downtown and other areas around the city, note the presence and location of standpipes. Utilizing the standpipe will speed the application of water to an auto fire on an upper level (consider the length of the hoselay without the standpipe). If no standpipe is available, consider using the pre-piped waterway of the aerial ladder as an external standpipe to deliver water to an upper level.

Auto fires in underground parking structures beneath commercial or residential occupancies present smoke challenges. The Engine Officer should use the TIC to help locate the burning vehicle in dense smoke conditions. Attempt to determine if the HVAC system will assist by removing smoke to the exterior or if it will draw the smoke deeper into the building. Floors above the underground parking structure will need to be checked for trapped smoke. Request additional resources for search or smoke removal as needed.
Protection of personnel usually begins with proper positioning of the apparatus. Upon arrival, the HEO should position the rig uphill and upwind of the burning automobile while shutting down any flow of traffic to the area in which firefighters will be operating to extinguish the fire. Be sure to not park underneath any wires that may extend over the burning vehicle. It is understood that it may not always be possible to accomplish all of these priorities based on burning vehicle positioning, parked vehicles, road design, or other factors. The first priority is to control the flow of traffic, leaving the Engine parked at least two to three sections away from the burning vehicle. Leave the Engine’s wheels turned away from the incident in case the Engine is struck by another vehicle. Use rig positioning and cone placement to augment HEO safety while at the pump panel. Once the tank water is committed, preview the locations of the nearest hydrant in case additional water is needed.

The Officer should perform a size-up and radio report, taking initial command. Request 10-53 early if traffic control is an issue. Ensure the rig V-Tac is set to the proper incident talk group. Observe fire conditions, window failures, and previously open doors to assist in the subsequent fire investigation. If overhead electric wires are involved and in danger of failing, request We Energies electric via dispatch and advise them that the wires are impeding firefighting operations. If a downed electrical line caused the auto fire or is in contact with the auto, consider the auto to be energized. Protect exposures and update We Energies-Electric via dispatch of the need for an upgraded response.

Do not rush to return the Truck Company to service, as all areas of the vehicle will need to be accessed prior to the end of the assignment. In some cases, AUTOF assignments occur as a result of an attempt to cover up a crime. Truck Companies provide a critical forcible entry capability to ensure that no victims or illegal substances were hidden in the vehicle prior to the fire. The Engine Officer may transfer command to the Truck Officer on the Truck Company’s arrival, although this is not absolutely necessary. In many cases, the Truck Company will provide tactical support and then be free to return to service, in which case the Engine Officer retains command.
Firefighters operating in the hot zone or in smoke shall employ their SCBA with facepiece.

Many MFD Engine Companies are equipped with a bumper mounted reduced line, typically stocked with two 50’ sections. Resist the urge to rely on this as your initial attack line. Instead, use the left-rear discharge, as this line will generally allow for the instantaneous addition of foam to the fire stream (utilizing the air aspirating foam tube), and permits you to lengthen the distance between the Engine and the burning vehicle. On large vehicles or vehicles remote from the hydrant system, as on expressways or in large parking lots, employing AFFF/ATC on the initial attack will make your attack more effective and efficient.

The Nozzle FF shall operate the SM-20 nozzle with the Backup FF dressing the hoseline and providing support. The SM-20 nozzle is recommended as it will support a foam operation when needed. A minimum of 3 – 50’ sections of hose shall be used for car fire attacks; this provides ample length to reach all areas around the vehicle without forcing firefighters into the dangerous areas immediately in front of or behind the burning vehicle. The Backup FF shall keep the hoseline out of any burning or non-burning petroleum run-off during the fire attack. Initial cooling shall be from a safe distance until the fire is reduced in size and intensity. The Nozzle FF, while cautiously moving in for a more direct attack, should flush the ground near the vehicle to push any petroleum product away and to cool the fuel tank. Stand to the side of the vehicle and behind the hood area, using the reach of the stream to stay out of the hazard areas created by exploding bumper or hood/trunk support struts. Given an engine compartment fire, direct the stream, or multipurpose dry chemical agent, initially into the small gap between the rear of the hood and the bottom of the windshield. This will not fully extinguish the fire, but will allow steaming and cooling to begin.

As the hoseline is brought into closer proximity to the burning vehicle to complete extinguishment, ensure that fire within the passenger compartment or rear of the vehicle is adequately knocked down from a distance. Trunk and hatchback struts can react just as violently as hood struts and should be similarly respected. Also, the interior of the doors, the dashboard, roof, and all roof support posts shall be cooled to prevent any stored gas cylinders used in the activation of airbags from catastrophically failing.

Magnesium components are being used more frequently in the design of newer vehicles to decrease the weight of the car for fuel efficiency without sacrificing strength. Typical areas of the auto where magnesium is used include engine blocks, steering columns, power trains, exhaust components, brackets, seat frames, brakes, and even structural framing components. Magnesium can react violently as water is applied, initially intensifying the heat and producing a bright, white light. The only effective extinguishing agents for Magnesium are a Class D dry powder extinguisher or an abundant supply of dry sand. In lieu of these specialized agents, copious amounts of water, applied from a safe distance, will eventually cool the Magnesium below its ignition temperature.

Explosions from heated vehicle batteries and any items being carried in the vehicle are ever-present hazards. These hazards further necessitate the usage of SCBA at all times during vehicle fire extinguishment, not only as a means of respiratory protection but also as a means of reducing traumatic facial or eye injury from flying debris.
After initial cooling has occurred, the Officer can pry up the rear-most corner of the hood (or forward most corner of the trunk lid) so that water can be directly applied to the nearest strut to prevent catastrophic failure and provide for more complete extinguishment. Additionally, the Nozzle FF should crouch down and direct the firestream into the wheel well area and up and behind the front bumper area (or rear bumper area), preventing catastrophic failure of the bumper as a result of the bumper struts heating up and exploding. Move around the vehicle to cover both sides equally. At this time, the HEO could ready a wheel chock for the Backup Firefighter to place on the downhill side of one of the wheels if the burning vehicle is parked on a steep grade.

At no time prior to, or during, engine compartment or bumper area cooling shall firefighters cross in front of or operate in front of the burning end of a vehicle. Once cooled, the Engine Officer or Truck Company personnel can begin working on either conventionally forcing the hood or trunk locks or cutting them open with a saw.

Once the fire has been adequately knocked down, the Backup FF shall use the 6’ pike pole to perform a primary search of the passenger compartment.

Vehicle fires can steam for a long time after extinguishment due to the amount of heat held in the many metal components. In some cases, plastic fuel tanks can melt and send a stream of burning fuel flowing away from the vehicle. Control the burning with foam, then contain what is practically absorbed with onboard Oil-Dry. In some cases, small flaming drops of fuel may be observed dripping from the underbody of the burning auto and direct application of water and foam appear to have little effect. Consider using a multi-purpose dry chemical extinguisher applied in and around the area of the drip. Some fuel tanks can be accessed by removing the rear seats. Ensure that complete extinguishment has occurred prior to leaving the scene.

If a fuel spill following an auto fire is beyond the onscene capabilities, but under 25 gallons, request HazMat 2 to the scene via dispatch. Fuel spills or diesel spills (as from a semi-tractor’s saddle tanks) which are in excess of 25 gallons necessitate a Limited or Full HazMat response.

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**TRUCK**

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE with SCBA, portable radio, flashlight, TIC, halligan tool</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: V-Tac, May assume Command, oversee support duties</td>
</tr>
<tr>
<td>HEO</td>
<td>Tools: Full PPE with SCBA, portable radio, wheel chock, Porta-Power spreaders</td>
</tr>
<tr>
<td></td>
<td>Duties: Forcible entry as needed</td>
</tr>
<tr>
<td>VENT</td>
<td>Tools: Full PPE with SCBA, portable radio, axe, metal saw (aluminum oxide blade)</td>
</tr>
<tr>
<td></td>
<td>Duties: Forcible entry as needed</td>
</tr>
<tr>
<td>FORCE</td>
<td>Tools: Full PPE &amp; SCBA, portable radio, flathead axe, pliers</td>
</tr>
<tr>
<td></td>
<td>Duties: De-energize vehicle</td>
</tr>
</tbody>
</table>

Operational Guidelines
AUTOF (Auto Fire)
Upon arrival, the Truck HEO should position the rig to augment traffic control for the protection of firefighters working at the **AUTOF** assignment. The Truck Officer should confer with the Engine Officer and may assume command if necessary. The Truck Officer shall monitor the fireground talk group on the rig radio and the Dispatch talk group on the **portable radio** while approaching the scene. Ensure the rig V-Tac is set to the proper incident talk group.

Firefighters operating in the hot zone or in smoke shall employ their **SCBA with facepiece**.

At no time prior to, or during, engine compartment or bumper area cooling shall firefighters cross in front of or operate in front of the burning end of a vehicle. Once cooled, the Truck Officer will oversee forcible entry operations in conjunction with the HEO and Vent FF. This may include utilizing the trunk and/or hood release latch, forcing the hood with the **Porta-Power Spreaders**, forcing the trunk lock (utilizing halligan bar), or cutting them open with a saw. If the owner is available, request and try the vehicle’s keys to gain access if able. Once the hood is open, ensure it will stay open by using the **rod** in the engine compartment or by bending the **hood support bar** near the hinge-point with the fork of the **halligan bar**.

The Vent FF can further support the Engine Company operation by opening vehicle doors and accessing void areas to search for hidden fire.

The Truck Officer and Force FF shall de-energize the vehicle by disconnecting the battery. Car batteries can be located in any number of locations in newer vehicles, including the trunk space, under the front or rear seats, or under other engine components. Caution should be used on hybrid vehicles, as tremendous amperage is carried in the electrical cables. There are no hard and fast identifiers for such cables in vehicles. At times, they are red, orange, or yellow. Do not cut brightly colored cables or cables that are sleeved in brightly colored plastic cable protectors. In some cases, **battery “OFF” switches** are provided as a means of disconnecting the vehicle, but can be problematic in that their location is not universal and their functionality is suspect at best after exposure to fire. The Truck Officer and Force FF should also force entry into the trunk space to ensure that it is clear.

The Truck Officer should assist the Engine Officer with ensuring complete extinguishment and removing the vehicles keys from the ignition (if possible) prior to returning to service.
AUTOX (Auto Extrication) assignments can result from a wide variety of vehicle accidents. These can range from single-vehicle rollovers to multi-vehicle accidents with significant damage resulting in patient entrapment. This run type can also include individuals pinned under vehicles. Further complicating this response is the likelihood that the involved vehicles' electrical, airbag, and/or fuel systems will be compromised. Such responses can easily escalate to Hazardous Materials or Heavy Urban Rescue Team responses if fuel/chemical spills or structural compromise of involved building(s) result from the accident. HURT may also be needed if extremely heavy vehicles, such as cement mixers or semi-trailers, have come to rest on top of another vehicle or in a precarious position.

Initial responding units should approach such incidents cautiously, paying close attention to the presence of spilled petroleum products (or other chemicals) and damaged buildings. Attention should also be paid to the possibility of electrical lines or light poles being compromised; any electric (or other) line should be considered energized until proven otherwise or confirmed de-energized by We Energies-Electric or City of Milwaukee Bureau of Electrical Services (BES) officials. BES handles incidents involving city street lighting or traffic signals. Vehicles upon which wires have fallen should not be touched or worked in or on by members until the lines have been appropriately de-energized by a WE Energies or BES official. If the AUTOX assignment is determined to involve the streetcar or is in close proximity to the streetcar or its track and overhead wires, operate within the STCAR (Streetcar) response guidelines.

It is also important to investigate for damaged gas meters where vehicles have struck buildings; WE Energies-Gas should be requested in this case. Incoming units should monitor both the dispatch and fireground talk groups while responding.

Recognize the presence of airbags (deployed or not). Driver side airbags have been mandated since 1994 and passenger side airbags since 1998. Deployed airbags usually indicate that at least 2 onboard sensors recognized a 30mph differential in speed at the time of impact. Vehicle onboard airbag systems generally de-activate between 30 seconds to 5 minutes after impact. Some airbag capacitors (Corvettes about 10 years or older, for example) can maintain a charge for over an hour; this is not common but is still possible. Extreme caution must be used when working around all airbags. De-energizing the overall vehicle electrical system, exposing airbag cylinders where able, and limiting exposure in airbag deployment areas are the best means of providing for member safety.

On approaching the vehicle(s) involved, realize that they may still be running and in gear. Especially dangerous are hybrid vehicles, which may appear to be off, but may actually still be in the on position, running on electrical power. Place all vehicles in park and apply the parking brake. If damage has made it impossible to place the vehicle in park/neutral and to
turn the ignition off, wheel chocks should be placed in front of the front wheels and behind the rear wheels of the vehicle. Efforts should then be made to shut the vehicle down and remove the ignition key; if this is not possible, consider battery disconnection and/or carburetor smothering. Some newer vehicles use smart key technology so there will be no visible ignition key. In this case, place the vehicle in park, press the ignition button (usually located on the dash), and disconnect the battery. Some proximity key systems involve a small key or key fob device that the driver may have in a pocket or purse; if possible, obtain this device and remove it to a distance greater than 25 feet from the vehicle to prevent accidental restarting.

Any area in which MFD personnel will operate should be blocked from the flow of traffic by heavy apparatus to protect the working space for firefighters. In addition to lane(s) directly involved, an adjacent lane of traffic should be blocked whenever possible. A buffer zone of at least 50 feet should be established between the blocking apparatus and working personnel, with the apparatus front wheels angled away from the working space.

Members operating in or around vehicles on which extrication is or will be performed shall be in full PPE with safety glasses and gloves being worn. Members in this hot zone area shall not wear their reflective safety vest as it reduces the effectiveness of the PPE in the event of a flash fire as well as being a snag hazard; members outside of this immediate area shall have their reflective safety vest on.

### ENGINE

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE, portable radio, flashlight, halligan tool</th>
<th>Duties: Initiate Command, direct apparatus placement, V-Tac, begin size up and triage</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEO</td>
<td>Tools: Full PPE, portable radio, multipurpose dry chemical extinguisher</td>
<td>Duties: Stretch hoseline, Engine and pump operations, scene lighting</td>
</tr>
<tr>
<td>NOZZLE</td>
<td>Tools: Full PPE with SCBA, portable radio, foam aeration tube</td>
<td>Duties: Staff hoseline and/or extinguisher</td>
</tr>
<tr>
<td>BACKUP</td>
<td>Tools: Full PPE, portable radio, EMS equipment as appropriate</td>
<td>Duties: Initiate EMS and C-spine control, cover trapped patients</td>
</tr>
</tbody>
</table>

The Engine Company Officer should assess the overall scene and call for additional resources as needed. See EMS-SOG's Medical 2.4, Section 2a-2i for MVA-specific ALS evaluation protocols. Do not hesitate to request additional BLS companies and ALS units if the number of EMS patients overwhelms the resources of the AUTOX assignment. Remember, each responding Engine and Truck Company has specific tasks related to the extrication function and will not always be able to dual-function to also provide EMS. Be sure to transmit the conditions found upon arrival and to specifically warn other incoming units of any hazards observed.

Operational Guidelines
AUTOX (Auto Extrication)
Dispatch notifies the Milwaukee Police Department at the same time we are dispatched that we are responding to an MVA (no matter the severity). If traffic is not yielding or is impeding the access of responding units to the scene, or civilians are otherwise creating a safety hazard to personnel, request that Dispatch update 10-53 with that information.

On arrival, the Engine Company HEO should ensure that the Engine is parked to provide scene protection. The HEO should also try to park uphill of any obvious or potential fuel spills. Be careful to not aim the diesel exhaust pipe directly at the involved vehicles. As on arrival at any potential fire scene, attention should be paid to the location of hydrants.

If extrication procedures will be necessary, the Engine HEO will lay a foam-capable reduced line (with a minimum of 3 x 50’ sections and using only an SM-20 nozzle) and charge the line to the nozzle. If temperatures are below freezing, this line can remain dry until needed. In all extrications, the Engine HEO will also gather and place several multi-purpose dry chemical extinguishers for immediate use in case of a flash fire. The Engine HEO will then secure a continuous water supply. As early as possible in this operation, the Engine HEO should deploy the light mast for evening accident scenes.

The Nozzle FF will obtain the foam aeration tube from its storage compartment on the Engine, attach it to the SM-20 nozzle and then operate it as needed. The Nozzle FF should remain just outside of the working area of the Jaws Truck with the nozzle trained on the working area. In the event of a flash fire, the nozzle should be immediately operated to suppress fire on or near the Firefighters and/or victims. In the event of a large petroleum spill, the Nozzle FF will blanket the spill with foam for firefighter safety. In sub-freezing conditions, the Nozzle FF will take up the same position with the dry line while holding the multi-purpose dry chemical extinguisher at the ready.

The Backup FF will bring yellow blankets to the vehicle so that trapped patients can be covered to protect them from flying glass, which will occur during, or as a result of, the extrication process. The Backup FF will initiate EMS and C-spine control as able. With multiple patients trapped in a damaged vehicle, it may be impossible to immediately accomplish all needed EMS tasks until parts of the vehicle have been removed during the extrication process and more personnel have arrived. In this case, the Backup FF should work to triage the patients and provide the care to the patient(s) most in need within the present limitations of the number of personnel present.

Multiple patients shall be triaged in accordance with current triage procedures. The Backup FF should communicate additional EMS concerns to the Engine Officer as they arise. The ranking Paramedic Unit member will assume the EMS Triage function upon their arrival. Once the triage and/or care function has been handed over to Paramedic Unit personnel, the Backup FF and other responding firefighters who have completed their assignments can further assist with care under their guidance.

If, on arrival, patients are trapped in a burning vehicle, the Nozzle FF will begin extinguishment while the Officer and Backup FF don SCBA and begin attempts at rapid extrication.
TRUCK (Support)

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE, portable radio, flashlight, halligan tool</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Assume Command, Coordinate stabilization procedures, V-Tac</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEO</th>
<th>Tools: Full PPE, portable radio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: De-energize vehicle(s), stabilization, scene lighting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VENT</th>
<th>Tools: Full PPE, portable radio, glass cutting saw, window punch</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Remove glass as needed, strip post interiors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FORCE</th>
<th>Tools: Full PPE, portable radio, knife or seatbelt cutter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Stabilization of vehicle(s) using Rescue 42s, step chocks, and/or cribbing</td>
</tr>
</tbody>
</table>

The first-arriving Truck Company will function in the Support Truck role, as all of the support functions (stabilization, de-energizing, deglazing, & stripping interior pillars and posts) must be completed in order to safely begin cutting or prying procedures. In the event of a significant JAWS Truck delay, and if all Support Truck assignments have been completed, the initial Truck Company should begin extrication procedures.

Upon arrival, the Truck Officer should assume command from the Engine Officer. The Truck Officer should continue to supervise the Truck Company firefighters as they work to stabilize and de-energize the vehicle. Prior to the Jaws Truck cutting or prying any parts of the vehicle, the Support Truck should, at a minimum: stabilize the vehicle, disconnect the battery, strip the moldings off the post interiors, and remove all of the glass from the vehicle.

The Truck HEO should position the Truck with these factors in mind: use the Truck to augment the protection of the work area and place the Truck within easy reach of the scene while leaving easy access for the Jaws Truck. Be careful to not aim the diesel exhaust pipe directly at the involved vehicle(s). Upon arrival, the Truck HEO should de-energize the vehicle by disconnecting the vehicle battery. Be advised that 40% of vehicle batteries are now located outside of the engine compartment, most commonly in the trunk or underneath the rear seats. If the battery is not accessible because of vehicle positioning or damage, inform the Truck Officer and begin assisting with vehicle stabilization and augmenting scene lighting.

The Vent FF will work to remove all glass from a vehicle on which extrication procedures will be applied, regardless of the location of the glass in relation to the location of the extrication procedures. The intensity of the pressure applied during spreading and cutting operations can transfer easily to remote parts of the vehicle resulting in unexpected glass failure. The Vent FF should coordinate with the Engine Company Backup FF to ensure that all trapped patients are covered prior to removing glass. To accomplish glass control on glass without excessive broken glass being sprayed around, lower the window into the door (as able), leaving just an inch exposed; breaking the glass in this position results in the vast majority of the shards being contained within the door. The Vent FF should investigate on newer vehicles to determine if the glass is part of the structural assembly. If there is any Operational Guidelines AUTOX (Auto Extrication)
doubt, the glass removal should halt until the Jaws Truck Officer has determined which approach the Jaws Truck will take to extricate the patient(s). This is critical in situations in which the vehicle has come to rest in a position other than on its wheels or if an extremely heavy object has come to rest on top of the vehicle.

Most vehicle side and rear windows are tempered glass, which fails explosively due to the instantaneous release of energy stored in the tempering process. This is not to say that there is an explosion, but rather that the failure happens extremely rapidly. Tempered glass fails into extremely small cubical bits of glass that may fly a great distance, further increasing the need for proper eye protection. Concentrated pressure applied to the lower corner of most tempered glass windows will result in glass failure. This can be accomplished using a spring-loaded center punch or by using the window punch tip located on the handle of the glass cutting saw. In the absence of these tools, the pick of an axe or halligan bar will work fine. Be sure to clearly announce each time you are going to break glass so that firefighters working in the area are aware. Once the glass fails, use a gloved hand to knock remaining glass from the opening. Be aware that some modern vehicles are now using laminated safety glass on side windows. Attack this as you would a windshield.

Most windshields are now constructed as laminated safety glass, meaning that a layer of plastic is glued between two thin sheets of glass to form a single windshield. This is significant due to its increased strength during and after an accident. If the windshield fails during an accident, it often results only in the formation of hairline fractures, or ‘spidering’, of the glass, which maintains its general shape and size and does not fail in large, dangerous shards. After the accident, the removal of this glass must be deliberate.

To remove windshield glass, the Vent FF should use the glass cutting saw. Use of this saw results in the generation of a large number of tiny glass shards and a much finer glass dust. One tip discovered over the years is to apply a generous bead of foam-type shaving cream to the entire path to be taken by the saw. Upon sawing, the tiny shards and glass dust become trapped in the shaving cream and do not fly around. In the absence of shaving cream, make sure that all trapped patients and interior operating firefighters are covered, and that the Vent FF is wearing a N95 medical mask during sawing.

In the absence of a glass cutting saw, the fork of the halligan bar can be used to cut the windshield. The Vent FF should obtain the halligan bar from the Truck Officer, force one tine of the fork into the starting point (generally a lower windshield corner), and drive the fork forward in a straight line while rocking the shaft of the tool back and forth. This works almost as effectively as a glass-cutting saw while creating less glass dust. In certain operations, as when a vehicle roof will be entirely removed, the Vent FF will only need to cut the windshield across the bottom, as later operations (cutting of both “A” posts) will allow the rest of the windshield to be lifted off with the roof.

Upon satisfactorily removing the glass from the vehicle, the Vent FF should ensure that the interior moldings have been removed from the “A”, “B”, “C”, and “D” (if present) posts to expose and identify any stored power cylinders or seatbelt pre-tensioning systems prior to extrication procedures beginning. This step is increasingly critical as the usage of such systems in vehicles has become commonplace, but the location of these systems in vehicles is not standard. Exposing these systems prior to cutting and prying with Jaws
equipment allows cutting and prying to be directed above or below such systems, resulting
in markedly increased responder safety.

The Force FF will be responsible for properly stabilizing the vehicle to prevent further
movement (which protects the patient from further trauma) and to provide anchor points for
extrication procedures. This may seem an overwhelming assignment given the endless
potential positions and arrangements of vehicles following severe accidents, but the Force
FF should understand that vehicles generally come to rest in 3 positions, although others
certainly occur. Refer to the following chart for basic stabilization points:

<table>
<thead>
<tr>
<th>On Wheels</th>
<th>On Side</th>
<th>On Roof</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Step Chocks</strong> aft of front wheels (flip chock upside down and insert like door wedge)</td>
<td>• <strong>Double Wedges</strong> or <strong>Wedges &amp; Step Chocks</strong> under “A” and “C” Posts on roof side of vehicle</td>
<td>• <strong>Double Wedges</strong> just aft of front wheels (about where hood meets the ground)</td>
</tr>
<tr>
<td>• <strong>Step Chocks</strong> fore of rear wheels (flip chock upside down and insert like door wedge)</td>
<td>• <strong>Wedges</strong> driven in between wheel rims and ground to spread out base of vehicle</td>
<td>• <strong>Step Chocks &amp; Wedges</strong> between roof &amp; ground, following angle of roof from the rear</td>
</tr>
<tr>
<td>• <strong>Remove air from tires, allow vehicle to settle onto the Chocks</strong></td>
<td>• <strong>Step Chocks</strong> or <strong>Double Wedges</strong> near front rocker panel and near trunk &amp; hood</td>
<td>• Additional <strong>cribbing</strong> and/or <strong>airbag</strong> usage to support trunk and/or hood (Jaws Truck Operation)</td>
</tr>
<tr>
<td></td>
<td>• Use <strong>Rescue 42</strong> stabilization struts as indicated</td>
<td>• Use <strong>Rescue 42</strong> stabilization struts as indicated</td>
</tr>
</tbody>
</table>

For cars in all positions, consider adding additional **cribbing** to support pressure points where **spreaders** or **rams** may need a solid anchor or push point

Upon completion of vehicle stabilization, the Support Truck Force FF should cut ALL
seatbelts, whether victims are wearing them or not. Subsequent operations will likely
remove portions of the vehicle to which the seatbelt brackets are attached.

It is important to note that once hydraulic or eDraulic tools have been utilized on a vehicle, the vehicle will likely be considered a total loss for insurance purposes. The function of all responders at **AUTOX** assignments is to provide for responder and victim safety. There is no money to be saved on a vehicle that will be ‘totaled’ out by attempting to preserve tires, windows, seatbelts, or battery connections. **AUTOX** Support Truck operations as detailed above will be undertaken any time hydraulic or **eDraulic tools** will be employed on a vehicle.

Once the vehicle is sufficiently stabilized, de-energized, deglazed, and otherwise prepped for cutting, the Jaws Truck should be given as much room as they need to operate. Support Truck crew members should withdraw with any additional equipment and prepare to assist with EMS at this point. In the absence of a Jaws Truck and Rescue or if the Jaws Truck and Rescue response is significantly delayed, Support Truck crew members should begin operations with the **Porta-Power spreader/ram equipment, come-along** and the **AJAX air chisel**.

**TRUCK (Jaws)**

Operational Guidelines
**AUTOX (Auto Extrication)**
Upon arrival at an AUTOX assignment, the Jaws Truck Officer should immediately survey the scene and evaluate the progress of preparatory operations while communicating with the Engine and Support Truck Officers. For vehicles that have come to rest on their roofs, the Jaws Truck Officer may need to use the Jaws Truck airbags or Rescue 42 stabilizing struts to further support the vehicle. This is critical to provide for an acceptable margin of safety as vehicles are not designed to carry their own weight on their roofs. The Jaws Truck Officer's primary concern is that the extrication operations do not harm Firefighters or cause further injury to the patients.

The Jaws Truck Officer shall communicate additional needs to the Incident Commander. Additional needs might include: another Jaws Truck if multiple entrapments have occurred in multiple vehicles, or a H.U.R.T response for more specialized cribbing and stabilization equipment on larger vehicles or for unstable building(s).

As it regards to cutting “A”, “B”, and “C” pillars that are NVT constructed, evidence suggests that cutting “4 fingers” down from the roof rails and “4 fingers” up from the rocker panels offers the greatest chance of success, as the high-tensile strength metals will likely be thinnest at this point. This, again, is most safely accomplished if the pillar and post moldings have been stripped and locations of stored-energy cylinders and/or pretensioners have been identified.

Also, if the Jaws Truck Officer determines that this will be a prolonged extrication, consideration should be given to requesting Flight for Life to the scene; this should be coordinated with the ranking Paramedic Unit Officer and Incident Commander on scene. The Jaws Truck Officer should ensure that the extrication hot zone is clear of other personnel.

The Jaws Truck HEO should position the Jaws Truck with these factors in mind: use the Truck to augment the protection of the work area and place the Truck within easy reach of the scene. Be careful to not aim the diesel exhaust pipe directly at the involved vehicle(s). The Jaws Truck HEO should then, in concert with the Vent FF and the Force FF, obtain the hydraulic spreader, hydraulic line coil, and one half of the power unit. At the same time, the Vent FF obtains the hydraulic cutter, hydraulic line coil, and the other half of the power unit. These items (and the hydraulic cutter) should be placed with preference given to the power unit and the hydraulic line length. Typically, placing the hydraulic power unit at the front or
rear of the vehicle affords the greatest reach and ease of working on all sides of the vehicle without the hydraulic lines becoming tangled.

The Jaws Truck HEO (spreader) and Vent FF (cutter) should employ their tools within the scope of the plan developed by the Jaws Truck Officer. The MFD’s newer HURST Simo-Power Units are capable of powering multiple tools at full strength. The cutter and spreader should both be opened and closed briefly to purge any air that may be in the hydraulic system. Close cooperation between the Jaws Truck Vent FF and the Jaws Truck HEO will allow for the two operations to complement each other and speed the operation. It is critical that the Jaws Truck HEO and the Jaws Truck Vent FF identify and use solid anchor points to insure that they are spreading actual vehicle structure in the intended direction instead of simply bending and shredding body material.

The Jaws Truck Force FF must be familiar with the HURST Simo-Power Unit’s functions. The Jaws Truck Force FF will be responsible for ensuring that the hydraulic lines to the cutter and spreader are properly connected, verifying that the power unit “A” and “B” levers are set to the DUMP position, and starting the motor. Once the power unit is running, move both the “A” and “B” levers to the PRESSURE position. The Jaws Truck Force FF should then support the cutter and spreader operations by dressing and staging the hydraulic line in anticipation of those operations.

Further, if the Jaws Truck HEO or Vent FF needs to switch tools (for example, change out the cutter for a ram) or need additional cribbing or other equipment, the Jaws Truck Force FF will retrieve the equipment and assist with the tool switch. Remember, the Streamline couplings allow the tool to be swapped out without dumping pressure at the power unit. However, if the hydraulic line is being swapped out for any reason, the lever to the corresponding hydraulic line must still be placed in the DUMP position prior to disconnecting the hydraulic line.

In general terms, Jaws Truck personnel must not focus too heavily on any given tool. A proficient Jaws Truck crew will work cooperatively with the tools, allowing each tool to perform its intended function. Extrication equipment is heavy. Never brace a hydraulic tool with your body (hip, thigh, etc.), as a tool losing a purchase-point is capable of shattering bones. Jaws Truck members should be rotated out of their assigned positions if fatigue is affecting an extrication operation. In this case, the members will assume the responsibilities of their new position. All Jaws Truck members should be proficient at all positions to accommodate rotating.

All AUTOX assignment personnel must remember that we are removing the vehicle from the patient(s) and not the reverse. Always remain vigilant of the effect the tools are having. Make sure that you are not pushing or pulling vehicle components or structure onto or towards a patient. In the event of HURST Simo-Power Unit failure, Jaws Truck members should ensure the auto is properly prepared for extrication operations and provide additional EMS and triage functions until the arrival of the assigned Rescue.

Jaws Truck equipment is heavy enough; let the tools do the work. If the tool is out of reach for the intended task, take the time to reposition it. Pushing, pulling or prying the cutter or spreader generally does not speed its operation or increase the tool’s efficiency. As with any firefighting and rescue operation, a proficient and capable Jaws Truck crew will drill
regularly on the wide variety of potential uses for their extrication equipment. This responsibility lies with the Jaws Truck Captain. Numerous junkyard and recycling companies in Milwaukee will regularly donate vehicles for such drills if asked.

NFPA 1006 (Technical Rescuer Professional Qualifications) – 4.2(4) states that all members partaking in technical rescue training or operations (automobile extrication is considered a technical rescue operation) shall possess “emergency medical care performance capabilities for entry-level personnel developed and validated by the Authority Having Jurisdiction.” The Milwaukee Fire Department’s entry-level EMS standard is EMT-Basic certification.

### RESCUE

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE, portable radio, flashlight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Coordinate efforts with Incident Commander</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEO</th>
<th>Tools: Full PPE, portable radio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: As assigned by Officer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VENT</th>
<th>Tools: Full PPE, portable radio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: As assigned by Officer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FORCE</th>
<th>Tools: Full PPE, portable radio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: As assigned by Officer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAN</th>
<th>Tools: Full PPE, portable radio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: As assigned by Officer</td>
</tr>
</tbody>
</table>

The Rescue HEO should position the Rescue unit with these factors in mind: use the Rescue to augment the protection of the work area and place the Rescue within easy reach of the scene. Be careful to not aim the diesel exhaust pipe directly at the involved vehicle(s).

Upon arrival at an AUTOX assignment, the Rescue Officer should immediately survey the scene and evaluate the progress of preparatory and extrication operations while communicating with the Incident Commander. For a vehicle that has come to rest on its roof or side, the Rescue Officer should have the crew ready the Rescue 42 stabilizing struts to further support the vehicle, if this has not already been accomplished by the Jaws Truck. This is critical to provide for an acceptable margin of safety as a vehicle is not designed to carry its own weight on its roof or side.

The Rescue Officer shall communicate suggestions and needs to the Incident Commander based on their size up. An additional need might include a full H.U.R.T response for more specialized cribbing and stabilization equipment on larger vehicles or for unstable building(s).
If the Rescue unit is the first Jaws capable unit to arrive, they should operate as listed under the section for [TRUCK (Jaws)]. If the Rescue arrives after the operation is underway, the Rescue Officer shall report to the Incident Commander for assignment. Some examples of the tasks that may be assigned by the Incident Commander include, but are not limited to: investigating the structural stability of involved building(s), supplementing ongoing extrication procedures, providing EMS triage and treatment, or providing and operating necessary specialized equipment.

<table>
<thead>
<tr>
<th>PARAMEDIC UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PARAMEDIC OFFICER</strong></td>
</tr>
<tr>
<td>Tools: Full PPE, portable radio, EMS equipment and cot</td>
</tr>
<tr>
<td>Duties: Provide EMS triage/treatment/transport</td>
</tr>
<tr>
<td><strong>PARAMEDIC</strong></td>
</tr>
<tr>
<td>Tools: Full PPE, portable radio, EMS equipment and cot</td>
</tr>
<tr>
<td>Duties: Provide EMS triage/treatment/transport</td>
</tr>
</tbody>
</table>

Upon arriving at a confirmed AUTOX operation, the Paramedic Unit should be parked to guarantee rapid egress so that after the patient is extricated, they can be readily transported. Paramedic personnel should load their stretcher with immobilization and ALS equipment and move to an area clear of the extrication hot zone, but near enough to readily access their equipment should the patient(s) require immediate life-saving ALS intervention.

Paramedic personnel, in full PPE with eye protection, should evaluate the condition of the patient(s) involved. If multiple patients are involved, the ranking Paramedic will assume the role of Paramedic Triage Officer, requesting any additional resources needed on scene or for the transport(s) through the Incident Commander.

<table>
<thead>
<tr>
<th>BATTALION CHIEF</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Battalion Chief will operate to ensure that members are operating safely at all stages of the AUTOX assignment and that each Company and Unit is completing their respective areas of responsibility. The Battalion Chief shall verify the number of reported patients in all vehicles and ensure that all patients are accounted for; consider the possibility of ejection and assign personnel to exterior search utilizing the TIC as necessary. Ensure that the extrication hot zone is occupied only by essential personnel.</td>
</tr>
<tr>
<td>The Battalion Chief will function as both Operations and Command in accordance with NIMS guidelines, handling all communications with Dispatch upon the assumption of Command. Dispatch should be notified of expected working time for the Fire Units on scene as well as the projected transport status and destination for all Med Units on scene.</td>
</tr>
<tr>
<td>If additional resource needs become apparent further into the incident, the Battalion Chief should transmit this and any specific staging information to dispatch. Additional resources may include but are not limited to: We Energies (gas or electric as needed), BES, HURT,</td>
</tr>
</tbody>
</table>

Operational Guidelines
AUTOX (Auto Extrication)
HazMat, MPD, MCS, Heavy Wrecker, additional Engine, Jaws Truck, Paramedic Unit(s), Flight for Life (SEE FLIGHT response guidelines), Forestry Department (damaged trees), Milwaukee County Transit System (damaged bus shelter), Water Department (damaged hydrant), US Postal Service (damaged mailbox), and Department of Neighborhood Services (building inspection services for major structural damage to a building).

**CAR 18**

The Incident Safety Officer shall evaluate tactical safety and ensure that all members are performing their respective tasks in accordance with established safety procedures. Key among these will be proper usage of PPE, evaluation of environmental or scene hazards, and evaluation of the progress or completion of proper petroleum product control. Other safety factors to consider include proper stabilization, de-energization, glass removal, the identification of a hybrid vehicle electrical system, and the presence of airbags, actuators, or seatbelt pre-tensioners in any areas that will be cut. Any unsafe act shall be stopped immediately and reported to the Incident Commander.
5.0 – CARBON (Carbon Monoxide)

Units Dispatched: (T or R) or E

GENERAL

CARBON [Carbon Monoxide (CO)] responses will generally be initiated for one of three reasons: callers are reporting that the CO detector is going off in their home or business, callers are reporting that an occupant or occupants are reporting symptoms associated with presumed CO poisoning, or a company’s CO monitor alarms while working at another call type. Carbon Monoxide creates a very real hazard to citizens and responders alike when present in sufficient concentrations. As such, CARBON responses should be handled as serious emergencies until proven otherwise.

It is critical that each company’s MSA Altair CO Monitor is bump tested each and every day to ensure maximum operational readiness. Advise dispatch any time a CO Monitor is placed out of service due to malfunction. Also, advise dispatch when the unit is placed back in service following repairs. Further, Company Officers are to check their CO Monitor status under the CAD Link located on the MFD Homepage on a daily basis and notify dispatch if there is a discrepancy.

If on arrival, multiple patients appear symptomatic, don SCBA facepieces before even approaching the building. If the structure houses a potentially targeted constituency (politically or religiously extreme organizations, for example) and no Carbon Monoxide is registering on the CO monitor, consider the possibility that the situation causing the multiple patients may be chemical or biological in nature. In this case, observe for potential improvised explosive devices, note any other suspicious scene elements and withdraw from the scene. Always be aware of the potential for secondary devices, meant to harm the first responder. Request a Hazardous Materials response and Milwaukee Police to isolate and investigate the potential crime scene. This is obviously going to be an extremely rare, but extremely critical situation.

In many cases, commercially available CO detectors can fail within 2 years or less, especially if installed in areas of high exposure to CO or grease or oil byproducts as in a kitchen. Each manufacturer specifies what their audible alarm system or visual indicators mean. Most have a key on the back of the unit to provide explanations and to provide the date of manufacture. Normal life expectancy for CO detectors is 5 years or as stated by the manufacturer. Typical audible or visual alarms are caused by: low battery, sensor failure, or Carbon Monoxide detected at dangerous levels.

It is critical that Carbon Monoxide detectors are installed according to manufacturer’s recommendations. Avoid installing them in kitchens as it significantly shortens sensor life. Rather, install CO detectors near all sleeping areas. Avoid installing CO detectors in basements as the alarm may not be audible for sleeping areas on upper floors.

CO poisoning may present in the early stages with the following signs and symptoms: dizziness, lightheadedness, headache, nausea, vomiting and/or shortness of breath.
Progressively higher levels produce impaired judgment, hypotension, altered LOC, seizures, and cardiac failure. The classic symptom of cherry red skin and mucous membranes is unreliable as it may be a transient or late effect. Due to their smaller size and generally higher metabolic rate, pets may be more obviously and severely affected by CO than their owners. Note that the effects of Carbon Monoxide poisoning in humans can vary significantly based upon age, sex, weight, and overall state of health. Importantly, Carbon Monoxide exposure by itself does not warrant medical transport. However, patients displaying signs or symptoms of CO exposure are to be treated and transported as per MFD EMS Standard Operating Guidelines.

Carbon Monoxide is colorless, odorless, and tasteless, but highly toxic. It is produced as a result of incomplete combustion and is a byproduct of the fossil-fuel burning process. It is found in and around fire buildings that are actively burning or that have been recently extinguished. Sources of CO in non-fire buildings include natural gas or oil furnaces, natural gas stoves and hot water heaters, natural gas clothes dryers, fireplaces, running automobiles in garages, kerosene or LP gas-type space heaters, or propane heaters. Defects or ventilation blockages in otherwise normally functioning appliances can result in CO being vented into occupied areas within the building.

CO is slightly lighter than air, so meter monitoring should include ceiling levels and upper floors. CO has a wide explosive range (flammability range) of 12.5% - 74% concentration in air, which equates to 125,000ppm – 740,000ppm.

Response protocols dictate that CARBON assignments will be the nearest Truck Company or Rescue unit out of a double company, or the nearest Engine Company out of a single company, or where the Truck Company from a double company is already on an assignment.

In some instances, CARBON assignments originate as still alarms for companies operating on EMS runs when their CO Monitor alarms, alerting the crew to the presence of at least 25 parts per million(ppm) of Carbon Monoxide. The visual display on the monitor will display the actual ppm of CO present. In this instance, the crew should focus their effort on evacuating themselves and any civilians to the exterior and requesting additional resources as needed to assist with the medical and CO emergencies.

Investigating Carbon Monoxide emergencies requires deliberate and sequential actions on the part of fire department personnel. Use the following procedures:

- Evacuate, assess, treat, and transport patients exhibiting or reporting signs and symptoms consistent with CO poisoning as per MFD EMS Standard Operating Guidelines.
- Do not immediately ventilate. Perform CO monitoring first in order to determine where the highest concentration of CO exists in the structure; this will provide key information in determining which appliance may be the source of the excessive CO.
- The MSA Altair CO Monitor carried on Engine and Ladder Companies will always be on and reading, whereas the MSA Orion 4-gas Detector carried in Battalion Chiefs’ vehicles needs to be turned on prior to use.

Operational Guidelines
CARBON (Carbon Monoxide)
Operational Guidelines

CARBON (Carbon Monoxide)

( outside in fresh air and away from apparatus exhaust) and allowed to

go through the full calibration phase (approximately 90 seconds).

- Monitor outside initially to detect if measurable CO is present outside of
  the structure; make note of the reading for incident reporting purposes
- Have SCBA on and available for use. Facepiece must be worn if CO
  monitor readings exceed 50ppm.
- Advance with the meter slowly to avoid moving faster than the meter’s
  ability to gain and transmit data.
- Evacuate all occupants immediately if CO levels exceed 50ppm.
- Interview occupants to pinpoint which appliances were recently being
  used or if any have had mechanical issues or recent maintenance or
  repair work performed on them.
  - Activate all fossil-fueled appliances, one at a time, monitoring for an
    increase in CO near the activated appliance (be aware that multiple
    sources could be to blame for the alarm):

**Indicates items that WE Energies personnel may further investigate and
that we should be aware of.

| Furnace | Turn on and/or turn thermostat up so furnace fires up
        | (realize this may circulate CO from other sources).
|---------|---------------------------------------------
|         | **Observe flame properties. They should be blue,
|         | consistent in height along the burners, with a crisply
|         | defined inner cone.**
|         | **Check for soot.**
|         | **Check for proper venting of exhaust gases. Be alert
|         | for negative pressure with exhaust gas spillage from
|         | draft diverter.**
|         | **Check for flame roll out from the combustion area.
| Water Heater | Turn temperature setting up and turn hot water on at
|               | multiple taps so burner activates
|               | **Observe flame properties and be alert for exhaust gas
|               | spillage at the draft diverter.**
|               | **Inspect burner chamber opening for signs of flame roll
|               | out, an indication of this may be burnt or rusted paint
|               | above the opening.**
|               | **Check for soot.**
|               | **Check for proper venting of exhaust gases. Be alert
|               | for negative pressure with exhaust gas spillage from
|               | draft diverter.**
| Kitchen Range | Ensure oven and stovetop are empty, activate burners
|                | and oven one at a time.
|                | **Gas ovens will produce up to 350 ppm CO upon
|                | ignition. This is normal. Once oven temperature has
|                | been reached, expect a normal CO reading between 20
|                | ppm-70ppm
|                | Top cooking burners should be observed for proper
|                | flame properties.**
|                | **Observe flame properties. They should be blue,
|                | consistent in height along the burners, with a crisply
|                | defined inner cone, not yellow or lazy.**
| Clothes Dryer | Ensure metal exhaust duct is in place per city code and
|                | turn dryer on
| Space Heater(s) | Check for presence of kerosene, LP gas, or propane
|                | type space heaters
|                | **Observe flame properties. They should be blue,
|                | consistent in height along the burners, with a crisply
<table>
<thead>
<tr>
<th>Attached Garage</th>
<th>Investigate for presently or recently running vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fireplace</td>
<td>If burning, check for closed or partially closed damper; consider possible flue blockage <strong>Be alert for negative pressure, where exhaust gases are pulled into the living area</strong></td>
</tr>
<tr>
<td>Exterior Venting</td>
<td>Investigate exterior venting for above listed appliances to see if snow or debris is blocking vent port(s) – look for soot staining on icicles hanging from vent port as this is a clear indicator of incomplete combustion</td>
</tr>
<tr>
<td>Other</td>
<td>Investigate for portable generators, heaters, or other fossil-fueled devices</td>
</tr>
</tbody>
</table>

- Normal operating appliances will generate CO, but much of it is vented to the exterior. Use the CO Monitor to locate areas of increasing CO concentration to isolate faulty appliance(s).
- Contact the Health Department via dispatch prior to leaving the scene for all readings 10ppm or greater (they will follow up with the occupant during normal business hours); request an immediate Health Department response if the situation causing the elevated CO levels cannot be identified and isolated, and the interior readings are not reduced to below 10ppm. In this case, an MFD unit must remain on the scene until a Health Department representative arrives.
- Contact WE Energies-Gas via dispatch if the source is determined or suspected to be a natural gas appliance, if the responding company shuts off a gas appliance or meter, or if the Incident Commander feels a WE Energies-Gas response is warranted.
  - If hazardous conditions are eliminated, and if WE Energies will have a delayed response, the Incident Commander, PRIOR TO LEAVING, can call WE Energies directly [1-800-292-7098] on his/her department cell phone and request that a WE Energies emergency dispatcher be conferenced in on the call. Transmit MFD’s actions so that the responding WE Energies personnel can better understand actions taken at the scene. Provide your contact information in case additional information is subsequently needed by WE Energies. It is always preferable to remain on scene for a face-to-face transfer of information. Before leaving the scene, transmit to MFD Dispatch the arrival of WE Energies personnel or that relevant information was transmitted directly via phone.

A Battalion Chief must be requested by special call upon finding any of the following conditions:

- MFD Engine or Truck Company CO Monitor reads 0ppm but multiple CO detectors in occupancy are sounding
- The source of the elevated CO (10ppm or greater) cannot be identified.
- CO readings exceeding 50ppm

Operational Guidelines
CARBON (Carbon Monoxide)
• Commercial, manufacturing, industrial, public assembly (theaters, nightclubs, etc.), or 8-unit (or greater) residential occupancies, where multiple symptomatic patients are present.
  o Consider requesting a Hazardous Materials response in these cases if CO levels exceed 50ppm over a large area
  o Also consider requesting a Milwaukee County Transit System bus to keep all of the occupants in a comfortable and coordinated area

Carbon Monoxide readings must be handled according to the range within which the readings on the CO Monitor indicate (these ranges and responses are printed on the laminated card that is attached to the CO Monitor):

<table>
<thead>
<tr>
<th>INTERIOR READING LESS THAN 10ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test for and eliminate all possible sources as indicated above</td>
</tr>
<tr>
<td>0 – 9ppm is acceptable ONLY if the source is the kitchen range, an outdoor source, fumes from attached garages, heavy smoking, fireplace spillage and/or operation of un-vented combustion appliances</td>
</tr>
<tr>
<td>Take the time to ensure that these are peak levels and not residual effects of earlier higher readings</td>
</tr>
<tr>
<td>Inform occupant that our CO monitor did not detect a dangerous level of CO during our investigation</td>
</tr>
<tr>
<td>Allow occupant to reoccupy the structure</td>
</tr>
<tr>
<td>Recommend that occupant(s) check/reset their CO detector per manufacturer recommendations</td>
</tr>
<tr>
<td>Advise occupant(s) to call 9-1-1 if CO detector activates again</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERIOR READING BETWEEN 10 – 50ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommend all occupants vacate structure</td>
</tr>
<tr>
<td>Ventilate structure AFTER identifying and controlling source of CO</td>
</tr>
<tr>
<td>Shut down any appliance suspected of producing elevated CO levels</td>
</tr>
<tr>
<td>Re-monitor the area of elevated readings</td>
</tr>
<tr>
<td>If peak level readings are reduced to below 10ppm, and the suspected source of CO has been shut down by MFD personnel, allow occupant(s) to reoccupy the structure</td>
</tr>
<tr>
<td>Inform occupant(s) that an elevated level of CO was detected during our investigation and what actions our personnel took (ventilation, appliance shut off, etc.)</td>
</tr>
<tr>
<td>Advise occupant(s) to have certified repair personnel complete appliance repairs prior to re-starting the offending appliance</td>
</tr>
<tr>
<td>Notify WE Energies if a natural gas appliance was shut down.</td>
</tr>
<tr>
<td>Notify Health Department</td>
</tr>
<tr>
<td>Recommend that occupant(s) check/reset their CO detector per manufacturer recommendations</td>
</tr>
<tr>
<td>Advise occupant(s) to call 9-1-1 if CO detector activates again</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERIOR READING GREATER THAN 50ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMMEDIATELY EVACUATE ALL OCCUPANTS TO A SAFE AREA</td>
</tr>
<tr>
<td>Don SCBA and facepiece</td>
</tr>
<tr>
<td>Follow all steps listed above in 10 – 50ppm section</td>
</tr>
<tr>
<td>Special call for a Battalion Chief</td>
</tr>
</tbody>
</table>

Include the following in the narrative of the incident report upon completion:
• Conditions upon arrival, including chief complaint and number of patients
- Ambient exterior CO levels prior to interior monitoring (generally 0ppm)
- Highest CO level detected on each floor, including the basement
- Physical location of highest CO level detected (basement furnace room, etc.)
- Suspected source
- Status of occupancy upon termination of the incident, including evacuation status

**TRUCK**

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE with SCBA, portable radio, flashlight, TIC, halligan tool</th>
<th>Duties: Initiate Command, begin size up and investigation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HEO</strong></td>
<td>Tools: Full PPE with SCBA, portable radio</td>
<td>Duties: Ventilation or EMS as assigned</td>
</tr>
<tr>
<td><strong>VENT</strong></td>
<td>Tools: Full PPE with SCBA, portable radio, axe, door chocks</td>
<td>Duties: Ventilation or EMS as assigned</td>
</tr>
<tr>
<td><strong>FORCE</strong></td>
<td>Tools: Full PPE &amp; SCBA, portable radio, flathead axe, door chocks, CO monitor</td>
<td>Duties: Assist Officer with investigation and mitigation</td>
</tr>
</tbody>
</table>

Please refer to the **GENERAL** tab above for CO response guidelines.

The Truck Officer carries the TIC in the event that the cause of the CARBON assignment is in fact a smoldering, or incompletely combusting, fire; the TIC will provide an additional means of locating the source.

Truck Company and Engine Company responses are very similar except that Truck Company personnel can deploy powered ventilation equipment to assist with CO removal. Truck Company personnel may opt to use the Positive Pressure Ventilation (PPV) Fan to reduce extremely high concentrations of CO from a large building (after locating and shutting down the source), realizing that the fan will introduce small amounts of CO from its own internal combustion engine into the structure. Once the concentration of CO has been significantly reduced through use of the PPV Fan, consider shutting it down and using either the Box Fan or natural horizontal ventilation to allow residual CO to dissipate. Use of the Negative Pressure Ventilation (NPV) Fan, more commonly referred to as the Box Fan, will remove CO effectively from smaller structures or compartmentalized areas while introducing no additional CO.

If an elevated CO level is detected while in the course of an EMS run, the Truck Company Officer should request an Engine Company to handle the EMS emergency so that the Truck Company can mitigate the CO emergency. The Truck Company should evacuate (if indicated) and initiate patient care until the Engine Company arrives.

**ENGINE**
| **OFFICER** | **Tools:** Full PPE with SCBA, portable radio, flashlight, TIC, halligan tool  
Duties: Initiate Command, begin size up and investigation |
| **HEO** | **Tools:** Full PPE with SCBA, portable radio  
Duties: Natural ventilation or EMS as assigned |
| **NOZZLE** | **Tools:** Full PPE with SCBA, portable radio, axe, door chocks  
Duties: EMS as assigned |
| **BACKUP** | **Tools:** Full PPE with SCBA, portable radio, flathead axe, door chocks, CO monitor  
Duties: Assist Officer with investigation and mitigation |

Please refer to the [GENERAL] tab above for CO response guidelines.

The Engine Officer carries the **TIC** in the event that the cause of the **CARBON** assignment is in fact a smoldering, or incompletely combusting, fire; the **TIC** will provide an additional means of locating the source.

The Engine Company Officer should request a Truck Company if powered ventilation will be needed to return the occupancy to a safe condition. Also, if an elevated CO level is detected while in the course of an EMS run, the Engine Company Officer should request a Truck Company to handle the CO emergency so that they can evacuate (if indicated) and continue patient care.
Units Dispatched: E or (T or R)

**GENERAL**

When operating at **ELECT** assignments, personnel should be primarily concerned with firefighter safety as it pertains to potential electrical and/or thermal burns, as well as the potential for fire spread occurring as a result of the original electrical problem. Proper PPE and appropriate electrical circuit isolation will provide a high margin of safety.

Make note of weather conditions, particularly the presence of lightning, prior to and during **ELECT** assignments. Lightning strikes can be responsible for brief power surges and can become more serious, resulting in structure fires.

Many **ELECT** assignments result when an occupant observes sparking, arcing, or smoking from or near an electrical outlet, electrical switch, light fixture, or circuit/fuse panel. The panel is generally an ideal location to begin your investigation. Interview the occupant(s) to determine their observations during or prior to the event which caused them to call the Fire Department. Ask if lights briefly flickered or suddenly got brighter, both indicators of a power surge. In occupancies with old screw-type fuses, or panels with a 30 amp or higher fuse/breaker installed on a 20 amp circuit, an overload may have occurred without tripping the fuse or breaker. This can result in smoldering wires, insulation, or outlets elsewhere in the circuitry and needs to be thoroughly investigated using the **TIC** and conventional methods.

Find out if any recent repairs had been made to the electrical circuit or equipment involved. Make note of any obvious overload of outlets, as indicated by the presence of outlet multipliers or multiple extension cords. Employ your **TIC** to locate high temperatures at the ballasts of fluorescent light fixtures, a common cause of electrical burning odor; this will speed the process of locating the cause of the alarm, particularly in large commercial or office-type occupancies.

**Compact fluorescent bulbs (CFL)** can produce a frightening situation for an occupant, prompting a call for our services. According to the EPA, it is not uncommon for a **CFL** to produce a limited amount of smoke and odor at the end of its useful life, or if it is used improperly or defective. A flashing arc internal to the fluorescent tube or ballast may occur and, in some cases, a significant distortion of the plastic material may happen. The EPA states that this is not a fire hazard, and that the safety measures built into the bulb are managing the heat and preventing subsequent hazard. If called for this type of incident, simply shut off the power to the light and recommend to the occupant that they appropriately dispose of the **CFL bulb** and have it replaced.

Prior to accessing or extinguishing the affected area, We Energies recommends we shut down the master breaker at the panel to secure electricity to the entire structure. Isolation of a specific circuit would only be indicated after a thorough investigation reveals a non-
emergent situation, and it is determined that the occupant(s) or business would be unduly affected by a general loss of electricity. At large commercial or industrial structures, work closely with on-site personnel so as to not impact their operations needlessly. In any situation in which an electrical circuit or main breaker must be shut down, request via dispatch that WE Energies-Electric respond. Also, if any evidence of electrical theft or electrical meter tampering is observed or suspected, request 10-53 response in addition to WE Energies-Electric.

Observe the suspected site for sparking, arcing, or smoking. The darkening or blistering of paint nearby could indicate fire in a stud, joist, or rafter channel. Use deliberate salvage and overhaul techniques to locate, confine, and extinguish a fire of this nature. This would include passing the back of your hand over potentially affected areas to note heat as well as employing the TIC to observe obvious temperature differentials. If fire has extended beyond the control of the single Engine Company, request a Full Assignment and operate according to FULL (Full Assignment) operating guidelines.

After shutting down electricity at the main, remove any outlet plates, bezels, or covers to investigate the extent of the problem. This will often reveal a shorted or scarred wire or component not otherwise visible. If the interior of the outlet, switch or fixture box shows no other scarring or evidence of fire and the adjacent wall and ceiling surfaces are cool to the touch, no additional exploration is generally required. If the paint has blistered and heat is present, wall or ceiling inspection holes are indicated. Apply extinguisher agent or water at this point to prevent fire growth. Begin near the problem and work outward until reaching clean, unburned surfaces. Protect the property by doing as little damage as possible.

Where able, investigate rooms directly above to identify the presence or absence of smoke or fire. Where ceiling fans or light fixtures are involved, be sure to access any attic space above the problem to ensure that there is no smoldering occurring in the insulation or joists. This is especially problematic where blown-in insulation is used.

At the completion of an ELECT assignment at which the main breaker has been shut down, advise the occupant(s) that they are not to re-energize the main breaker as doing so could cause a fire. Also, advise and document that they are to have the problem repaired by a qualified electrician prior to re-energizing the main breaker. If a main breaker has been shut down and weather or other conditions will make the building uninhabitable, check with occupants to ensure they are able to make other temporary living arrangements with family or friends.

If an ELECT assignment originates because of an issue at a WE Energy or other utility substation or switching station (above or below ground), never attempt to access any enclosed panels, vaults, manhole covers, or other enclosed areas. In these cases, establish a perimeter (request additional resources as needed) and prevent any access to surrounding wires, metal fence lines, guide wires, or railings.

If a large electrical fire is underway or occurs after MFD arrival at a WE Energies facility, clear occupants from any affected exposures and focus on perimeter and exposure control. Ensure that the apparatus is not parked on top of any manhole covers on arrival. DO NOT, under any circumstances, approach or apply water to these installations until they have been declared de-energized by We Energies personnel. Further, do not stare at arcing or
burning electrical equipment as the intensity of the light can cause permanent vision damage.

In the case of fire burning in an underground utility vault, the Officer should special call for WE Energies Electric and the **Dry Chemical Unit** to the scene via dispatch. The **Dry Chemical Unit** is pulled by the Chemical Supply Unit, both of which are presently assigned out of Station 11 with the Hi-X Foam Unit. The **Dry Chemical Unit** contains 2 – 150 pound multi-purpose dry chemical extinguishers, each discharged through a 50 foot 1” rubber hose with a 1½” shut-off nozzle. The discharge range is approximately 40 feet. **After** WE Energies personnel have verified that all electricity has been shut down to the affected vault, the **Dry Chemical Unit** can be deployed to knock down and extinguish fire. Members should operate from the surface, using the reach of the stream to extinguish the burning materials. Responding personnel should remember that many utility vaults, especially in the downtown area, are deceivingly large and contain multiple levels, creating maze-like ‘death trap’ conditions for firefighters.

If the cause of the **ELECT** assignment is determined to actually be an appliance issue, operate according to the **APPL (Appliance Fire)** response guidelines.

If an **ELECT** assignment is found to involve any WE Energies equipment, such as wires, poles, or transformers, refer to and operate according to the **WIRES (Wires Down)** or **POLEF (Pole Fire)** response guidelines as indicated.

An outstanding reference for all members to review is the WE Energies publication provided to all fire stations and attached to this SOG on the MFD Homepage as SOG 6.1: **WE Energies 1st responder guide**.

### ENGINE

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE with SCBA, portable radio, flashlight, TIC, halligan tool</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Initiate Command, direct apparatus placement, begin size up and investigation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEO</th>
<th>Tools: Full PPE, portable radio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Engine and pump operations as needed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOZZLE</th>
<th>Tools: Full PPE with SCBA, portable radio, axe, door chocks, 6’ pike pole</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Circuit or fuse panel control</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BACKUP</th>
<th>Tools: Full PPE &amp; SCBA, portable radio, multi-purpose dry chemical, CO₂, and/or pressurized water extinguisher, flathead axe, door chocks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Investigate with Officer, extinguish fire if present at Officer’s direction</td>
</tr>
</tbody>
</table>

The Engine HEO shall place the apparatus in a flexible location, parked well out of the way of any wires and not over any **manhole** or **vault covers** (particularly where We Energies or other utility installations are the source of the problem). The Engine HEO shall monitor the assigned incident talk group and act upon requests from the Engine Officer, which may
include relocating the apparatus, assisting the Nozzle FF with the stretch of a proper length and size hoseline for the situation, and/or operating the pump.

The Officer will investigate for the cause as indicated above and will communicate with dispatch to request additional resources as needed. The Officer will travel with the Backup FF.

The Nozzle FF will locate the circuit/fuse panel and communicate via handheld radio with the Officer for additional instructions. The Nozzle FF will then be available for overhaul tasks as directed by the Officer.

The Backup FF will travel with the Officer to assist with identifying the source and extent of the problem as indicated above and with extinguishing any fire as directed by the Officer after the electricity is secured.
Electricity, Natural Gas and the First Responder

A handbook for recognizing and handling electric and natural gas hazards in an emergency.
This booklet is a guide for first responders and other emergency personnel who confront fires and other emergencies that involve, or pose the threat of, electricity and/or natural gas. The booklet contains information on electric and natural gas devices and how to deal with electric and natural gas emergencies. It is not intended to establish or replace any fire or emergency personnel training guidelines or policies covering this subject. Because fire and police personnel are often the first to arrive at the scenes of fires and emergencies, they should be able to identify electric and natural gas equipment and know how to handle fires involving electric and natural gas equipment.

Be sure to inform We Energies in the event of an electric and/or natural gas emergency. We have specialized knowledge, expertise, tools and equipment to handle any electric and/or natural gas hazard found on the scene. We can help you stay safe around unforeseen electric and/or natural gas hazards that may arise as the emergency progresses.

We are ready 24 hours every day of the year to provide assistance during emergencies. We have dedicated emergency numbers for public safety agencies – do not distribute these numbers to the public. Either number listed below may be called during an emergency.

888-296-4937
or
800-292-7098

Program these numbers into your cell phone so you have them when you need them.
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- **Utility Safety Pre-Test Answers**  
  29
1. Natural gas is toxic and will kill you if you breathe enough of it. T F
2. Natural gas is heavier than air. T F
3. Carbon monoxide is a toxic gas. T F
4. Carbon monoxide levels of 50 ppm can cause death. T F
5. High-pressure gas leaks can easily migrate under a frost cap through sewers or soil layers. T F
6. Natural gas has a lower explosive limit (LEL) of approximately 4 percent and upper explosive limit (UEL) of 5 percent. T F
7. Static electricity is hot enough to ignite natural gas. T F
8. Modern vehicles cannot ignite natural gas. T F
9. Police and fire department vehicles will not ignite natural gas. T F
10. Compressed natural gas (CNG) vehicles are only in use in Europe and California. T F
11. All downed wires should be treated as energized until tested and grounded dead by utility personnel. T F
12. Wooden pike poles will not conduct electricity. T F
13. The best way to de-energize power to a home where overhaul will be conducted is to pull the electric meter. T F
14. If a car hits a pole and wires are down, the best action for the driver to take is to stay in the vehicle. T F
15. Aerial ladders cannot conduct electricity because of the steel-belted radial tires found on most modern trucks. T F
16. All electric wires are insulated. T F
17. Secondary voltage is not enough to stop your heart. T F
18. Only tested and approved rubber gloves can be counted on to protect you from electrocution. T F
19. If your equipment contacts electrical wires, you should stay on the equipment, warn others away and move the equipment away from the wires, if possible. T F
20. We Energies can be called 24 hours a day to provide emergency service to fire departments that need help. T F

Answers for this pre-test are found on page 29 of this brochure.
National Fire Protection Agency (NFPA 54, NFPA 70)

NFPA 54 is the National Fuel Gas Code. It is a consensus standard that covers fuel gas delivery systems and utilization devices for LP gas and natural gas.

NFPA 70 is the National Electric Code. It is a consensus standard that covers electric delivery systems and utilization devices.

Both codes are used by utilities and building and fire inspectors to determine if electric and natural gas installations meet the code. Both codes are guidelines unless they have been adopted by ordinance in your community.

If you deal with natural gas or electric delivery and utilization systems or inspect them periodically, you should use the most current versions of NFPA 54 and NFPA 70.

If you have questions about specific applications of the code and how they relate to natural gas or electric facilities, call We Energies.

Consumer Product Safety Commission (CPSC)

The CPSC is a governmental body that publishes safety information on a variety of consumer products related to electric and natural gas safety. Examples include flexible connector recalls and ratings of home carbon monoxide detectors. Fire department prevention bureaus and inspectors can gain important information by using the CPSC’s website at www.CPSC.gov.

Diggers Hotline

Damage to electric and natural gas facilities caused by third parties such as contractors and excavators is the leading cause of injury and property damage involving electric and natural gas utilities. For this reason, One-Call Systems are in place across the country to make it easy for excavators to have electric and natural gas facilities located prior to digging. Diggers Hotline is Wisconsin’s one-call provider.

Underground facilities owners such as We Energies are required to belong to Diggers Hotline and to respond to locate requests within three business days of notification.

Excavators are required to call Diggers Hotline three working days prior to disturbing the soil.

If you observe excavators working around electric and natural gas facilities without the required locate marks or flags, call We Energies. We will investigate and make sure the contractor is aware of state law requiring utility notification, verification that hazards do not exist and that public safety is provided for.

Also, fire prevention bureaus can contact Diggers Hotline to obtain free information to distribute to homeowners and excavators.

Call Diggers Hotline at 811 or 800-242-8511
911 and Public Service Answering Point (PSAP) dispatchers have an important role in electric and natural gas emergencies. They collect and forward information needed for emergency responders to handle utility emergencies. In some cases, we will call dispatchers for assistance. In other cases, fire and police departments will call for emergency assistance from us.

In both cases, clear, concise and accurate information must be relayed to the correct group or agency. Make sure the exact nature of the request is known when you call us for emergency response. We have a “staggered” or “tiered” response protocol for various situations. Knowing exactly what type of help is needed will get your agency the help it needs as quickly as possible. 911 dispatchers may need to ask field units for additional information in order to provide this type of specific information to our dispatchers.

911 dispatchers also need to know that there may be more than one utility that serves their response area. Calling the wrong utility can delay response or, in some cases, may even prevent us from knowing about the emergency.

Even when the same utility provides both natural gas and electric service, individual emergency numbers may need to be called for each service. 911 dispatchers need to make sure they know who provides which type of utility service for the jurisdiction for which they provide dispatching coverage. In addition, they need to know the appropriate emergency number for that utility.

Most utilities will periodically send out service area maps along with notification numbers and procedures. If you are not sure, call to verify the correct area and procedure for your jurisdiction.

If we work together and have specific operating procedures and protocols, utility emergencies will be handled safely and correctly.

**GENERAL DISPATCH PROCEDURES**

1. **Follow your department’s standard operating procedures for electric or natural gas emergencies.**

2. **Call our Public Safety Agency dedicated phone lines as soon as you know you need our assistance.** These phone lines place your call at the top of our answering queue. 888-296-4937 or 800-292-7098

3. **Provide specific details about the situation:**
   - Original caller’s description of the problem
   - Address, intersection or pole number closest to the emergency
   - Nature of emergency: building fire, wires down, car/pole accident, wire contact, natural gas odors, natural gas leaking or blowing, etc.
   - Assistance required

4. **Provide contact info for your on-site personnel and location of incident command post.**

   **If a natural gas odor or leak call – don’t phone the location.** A ringing phone can ignite natural gas.
### SUGGESTED CALL RESPONSES

<table>
<thead>
<tr>
<th>NATURAL GAS EMERGENCY</th>
<th>SITUATION</th>
<th>ADVICE TO CALLER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inside Natural Gas Odor</strong></td>
<td>Slight “rotten eggs” natural gas smell coming from inside building</td>
<td>1. Don’t use light switches or electrical devices.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Don’t smoke or use open flame devices.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Open doors and windows to ventilate the area.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Leave the area if odor becomes too strong.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Keep others away from the area.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Await assistance from the fire department or natural gas utility.</td>
</tr>
<tr>
<td><strong>Outside Natural Gas Odor</strong></td>
<td>Slight “rotten eggs” natural gas smell coming from outside building</td>
<td>1. Keep ignition sources, such as lit cigarettes, matches, open flames and vehicles, away from the area.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Close doors and windows unless odor is strong inside building.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Leave the area.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Await assistance from the fire department or natural gas utility.</td>
</tr>
<tr>
<td><strong>Inside Natural Gas Leak</strong></td>
<td>Strong “rotten eggs” natural gas smell or blowing/leaking natural gas coming from inside building</td>
<td>1. Exit the building immediately.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Leave doors open for ventilation as you go.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Don’t smoke or use open flame devices.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Don’t use light switches or electrical devices.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Shut off natural gas at meter if it can be done safely.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Leave the area.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Await assistance from the fire department or natural gas utility.</td>
</tr>
<tr>
<td><strong>Outside Natural Gas Leak</strong></td>
<td>Strong “rotten eggs” natural gas smell or blowing/leaking natural gas coming from outside building</td>
<td>1. Leave the area immediately.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Keep ignition sources, such as lit cigarettes, matches, open flames and vehicles, away from the area.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Await assistance from the fire department or natural gas utility.</td>
</tr>
<tr>
<td><strong>Natural Gas Fire</strong></td>
<td>Natural gas burning behind the range, dryer, meter unit, etc.</td>
<td>1. Shut off the source of the natural gas if it can be done safely.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A safe example would be if the meter valve or appliance valve is away from the fire.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Leave the area.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Await assistance from the fire department or natural gas utility.</td>
</tr>
</tbody>
</table>
Electric Distribution

We Energies uses nearly 30,000 miles of transmission and distribution lines to get electricity to our customers. Knowing how electricity gets to homes is important during emergency situations.

Transmission facilities are not owned by We Energies, but may pass through your local community. You can obtain safety information for transmission towers by contacting American Transmission Company.

1. Electricity leaves a power plant.
2. The voltage is increased at a “step-up” substation.
3. The energy travels along a transmission line to the area where the power is needed.
4. Once there, the voltage is decreased or “stepped-down” at another substation.
5. The “stepped-down” voltage travels along a distribution line.
6. The electricity reaches a home or business.
DOWNED WIRES

Treat all downed wires, including telephone and cable television wires, as energized and dangerous until proven otherwise. It is impossible to determine by its appearance if a wire is energized. While some wires will jump, whip around, curl up, make loud sounds or emit showers of sparks, others will lie silent – and deadly.

When you arrive at the scene of a downed wire or broken pole:

1. Establish a safety zone that only authorized persons may enter.
   The safety zone should extend a minimum of two full span lengths of wire in each direction beyond the downed wire. When establishing the safety zone, keep the following items in mind:
   - Stresses may be placed on poles adjacent to the downed wire causing them to break and fall.
   - Wires can slip through insulators and sag to the ground in adjacent spans of wire.
   - Always be on the alert for conductive materials that may be in contact with the fallen wire such as metal fences, guard rails and metal buildings. The safety zone will have to be increased to include them.
   - Continue to guard the scene until relieved by a We Energies employee or other authorized person.
   - Be aware that when a body is in contact with a wire it may be energized. Do not touch the injured individual until the wire has been cleared from the body.

2. Notify We Energies as soon as possible. Include information such as:
   - Nature of incident.
   - Is life in danger?
   - Exact location. The pole tag numbers of each pole involved and adjacent poles are helpful in gathering needed information. However, they should only be obtained if your safety and the safety of the general public is not compromised.
   - Any other hazards involved.

3. Never attempt to move or cut any downed conductors.
   Only electric utility employees, using approved procedures and highly specialized tools, should move or cut any wire.

Other safety points around downed wires:

1. Wood or fiberglass pike poles are not the same as the insulated hot sticks used by electric utility employees. They most likely contain sufficient moisture and/or are contaminated enough to be conductive.

2. Any high-voltage wire, when disturbed, can get out of control. It may dance about, curl up and strike you or bystanders.

3. Keep in mind that your firefighter’s boots are only designed to keep your feet dry. They will not insulate or isolate you from a voltage source.

4. High voltage wires are not insulated. The protective coating found on some wires is to protect the wire from damage, not to insulate it.

5. Be particularly wary during storms or hours of darkness. It is often difficult to see downed or sagging wires. Always use a light when moving about.
SUBSTATIONS

First responders should never enter an electric utility substation unless accompanied by an authorized We Energies representative. Our trained employees can walk you through the substation safely by identifying specific equipment and the voltages that are present. Only our trained employees have the ability and knowledge to de-energize a substation.

If an authorized We Energies representative is not on-site when you arrive, immediately notify us. We’ve included a listing of dedicated phone numbers for your use in the back of this booklet. Be sure to protect the surrounding property and stand by until our representative arrives.

The hazards you may encounter include:

1. High-voltage lines entering the substation, both overhead and underground.
2. Open high-voltage bus work (conductors, wire and aluminum pipe) crisscrossing the station at a relatively low height. Never drive beneath overhead structures without specific approval.
3. Oil-filled switch gear, transformers, regulators and capacitors. Oil is the major firefighting concern. The only practical way to extinguish the fire is to cool the oil below its ignition temperature (400° F). A spray or fog stream, rather than a straight stream, works best.
4. Toxic smoke and gases due to burning oil and insulating materials.
5. Collapsed steel framework and aluminum bus work caused by the intense heat of a fire.
6. Explosions from oil-filled equipment, both overhead and at ground level.
7. Exploding glass and porcelain insulators. The yard stone may spall and throw fragments with considerable force.
8. Falling wires, both inside and outside the substation.

CAUTION: Some equipment, such as circuit switches and breakers, have porcelain housings that are pressurized with SF-6 gas. If they are involved in the fire and sprayed with water, the sudden temperature change may cause a violent failure.

Privately Owned and Municipal Substations

Fire departments should contact the owners of these stations to develop a pre-emergency plan. In most cases, the primary power entering the substation is provided by the local utility, and they should be included as part of the plan.

Do not try to salvage any electrical apparatus, transformer or switch that is on fire. There is nothing in the substation worth a fire-fighter’s life.

Never operate electric utility high-voltage switches that are within a substation property, mounted on poles, or located within manholes or vaults. Many of these switches are not designed to drop electric load. Attempting to open the switch could cause an explosion or flashover and create an extremely hazardous situation.
CAR/POLE ACCIDENTS

Arriving at the Scene

When you arrive at the scene of a vehicle accident involving electrical equipment or wires, address all potential hazards before reacting to the accident itself. There may be downed wires or wires hanging low to the ground that are energized. These wires may energize other objects they are in contact with such as guard rails, fences, or telephone and cable television wires. Also, be aware that overhead conductors could fall any time as a result of the accident.

You must remain alert. As in any emergency, do not develop a false sense of security because the wire and/or electrical equipment involved appears harmless.

As outlined in the section on downed wires, establish a safety zone and notify We Energies. If there appears to be a possibility of fire, lay out hose lines. Use a spray or fog nozzle rather than a straight stream nozzle.

If there are not enough personnel on hand to accomplish these tasks, delegate bystanders to make phone calls and help maintain the safety zone.

Helping Individuals in a Vehicle

You should always be cautious while approaching a vehicle. Remember, the vehicle and anything attached to it (such as a camper or trailer) may be energized at hazardous voltages. Without endangering your life, get as close to the vehicle as possible, but no closer than 10 feet. This is to provide a margin of safety in case an occupant suddenly opens a vehicle door. With a calm, authoritative voice, gain the attention of the people inside the vehicle. Tell them they are safe as long as they remain in the vehicle and that help is on the way. Be careful not to frighten them any more than they already are.

Gain their confidence and trust, and stay with them until the emergency is over. The vehicle occupants have one overriding thought in mind: to get out of the vehicle. If you were to leave them, even for a short period of time, they might feel the emergency is over or they may once again become frightened and attempt to leave the vehicle. In dire emergencies and under ideal conditions, the driver can try to start the vehicle and carefully drive or back the vehicle out from under the wires. Be aware that the wire may weld itself to the vehicle body or become lodged behind a bumper or door handle.

If it is imperative to have the occupants exit a vehicle in contact with a conductor (for example, the vehicle is burning), they must not contact the ground and any part of the vehicle at the same time. In most cases, this is an extremely dangerous maneuver because secure footing is unavailable. Coach the occupants to jump as far as possible away from the vehicle to avoid any contact and/or falling back onto the vehicle. Once on the ground, they should use small shuffling steps to move a safe distance away from the vehicle.
We Energies has two separate underground electrical distribution systems. One is a conduit system, the other a direct burial system (URD). While both systems utilize wires and cables that run underground, they differ from each other dramatically. The hazards presented by each system also are unique.

**Conduit system**

Conduit systems are usually located in metropolitan areas. URD systems may be found in metropolitan areas, but are more prevalent in suburban and rural areas.

The conduit system consists of lead-covered, high-voltage cables; rubber-covered, low-voltage cables; and transformers and switch gear. These are located in manholes, vaults, cable manholes and throughout a system of concrete covered ducts.

Under normal conditions, the insulation and lead sheath covering these cables provide adequate electrical protection. However, an electrical failure of a cable could result in an explosion and/or fire. In addition, gases from failed cables could accumulate in manholes or vaults providing another potential explosion source. Natural or manufactured gases may also seep into manholes, vaults or tunnels through conduit runs and broken sewers.

**CAUTION:** Unless human life is at stake, there is no great urgency to extinguish the fire or enter a manhole. Maximum damage to its contents has already taken place.

When attempting to cope with a fire or explosion in a manhole a first responder should:

1. Call We Energies. Give the location, number of manholes involved and nature of emergency.
2. Establish a safety zone. Keep the public away and route traffic around the area.
3. If the cover is in place and smoke is coming from the holes in the cover, do not attempt to remove it until the conditions have been thoroughly discussed with an authorized We Energies representative. If flammable gases are present in the manhole, removing the cover may provide sufficient air to cause an explosion. If the transformer has failed and the oil is above the ignition temperature, removing the manhole cover may cause a backdraft. The resulting explosion could seriously harm you and others nearby.

A spark resulting from removing the cover may cause a gas explosion in the manhole. If there are gases present in the duct package that runs manhole-to-manhole, there may be additional explosions in other manholes.

Explosions in manholes can propel a manhole cover (which weighs approximately 270 pounds) a significant distance. Maintain a safe distance and be prepared to evacuate the area quickly if an explosion occurs.

4. If the manhole cover is off, do not enter the manhole or take any further action until the conditions have been discussed with an authorized We Energies representative. Manholes must always be treated as highly hazardous confined spaces. Except for rescue in coordination with a We Energies representative, a first responder should never enter a manhole.
Direct Burial (URD)

The direct burial system consists of wires and cables buried in the ground. High-voltage switchgear and transformers are contained in metal enclosures mounted on top of concrete pads on the ground. Pedestals (small upright metal boxes) stand above ground and are connection points for underground low-voltage cables (120 to 240 volts).

Never open ground-mount electrical equipment or attempt to extinguish a fire involving the equipment until it is de-energized by We Energies personnel. There are two reasons for this:

- You risk electrocution if you open energized ground-mount electrical equipment.
- Any piece of electrical equipment will continue to burn until it is de-energized, regardless of the method employed to extinguish the fire. If one is on fire, nothing can be done to save it. It is already beyond repair.

If the emergency involves a motor vehicle running into a piece of ground-mount equipment, it should be handled as if it were an electrical wire on a vehicle. If the car is no longer in contact with the equipment, continue to treat the metal equipment enclosure as energized at high voltage.

AERIAL EQUIPMENT

Whenever possible, contact We Energies to de-energize electrical lines in advance of working with aerial equipment.

If action is needed before you contact We Energies, use extreme caution when positioning fire department apparatus at the scene of a fire. Never park vehicles near or under overhead electrical conductors. The heat of the fire could cause a wire to melt or burn.

Position aerial ladders and articulating booms as far away as possible from overhead wires. While the requirements of the law allow the aerial device to be as close as 10 feet to a wire energized at 50,000 volts, that is too close to be safe. Operator error, or one of the outriggers settling slightly into the ground, may cause the boom or aerial ladder to swing into the wire or become dangerously close.

If any part of the aerial apparatus comes into contact with an electrical conductor, the entire vehicle must be considered energized at high voltage.

If the aerial device is an articulated arm, the firefighter in the basket should immediately rotate the arm away from the wire, cradle the arms and reposition the vehicle.

If the apparatus is an aerial ladder, the vehicle should be considered energized at high voltage and guarded as such. As long as the firefighter on the vehicle remains still and does not touch the wire or any other object such as the building, they will remain safe from electric shock. Remember, if you touch the wire and contact any other object you will provide a path to ground and will most certainly be injured and possibly killed. Immediately request that the line be de-energized. When the line has been de-energized, the vehicle can be considered operational. Ideally, the vehicle should be relocated.

As in most overhead wire contacts, those who are at the highest risk of electric shock are those who are in contact with the ground such as firefighters at the end of the hose lines or anyone who touches the energized truck while standing on the ground.
STRUCTURE FIRES

In residential and commercial buildings, it is seldom necessary to interrupt the electric service to the entire building. It is usually best to leave the power on as long as you safely can. The electric power may be useful for lighting during firefighting, evacuation and overhaul operations. It also may be useful in running pumps, fans and other power equipment needed to minimize property damage.

When safe firefighting tactics require the power to be shut off, use the following actions as appropriate:

1. First, de-energize the fire-affected area by removing the fuses or opening circuit breakers or safety switches as needed.
2. Open the main disconnects to de-energize the entire building.
3. If the building is damaged to the extent that the service is no longer required, or if the main disconnects cannot be utilized, the power supply to the building should be interrupted. This should only be done by an authorized We Energies representative.

Never pull an electric meter to de-energize the building. Meters are not switches. They have been known to explode, sending out a shower of razor-sharp glass splinters.

Reasons for not removing a meter include:

1. Pulling an electric meter may not de-energize the electric service to the building.
   - Services over 200 amperes are metered by current transformers. Pulling the electric meter will not shut off the electric supply to the building.
   - Some meter bases are equipped with automatic bypasses. When the meter is removed, the bypasses close and the building remains energized.
   - People have developed many unique methods to bypass the meter. While We Energies continually looks for these dangerous and illegal practices, we can’t guarantee they don’t exist.
2. If explosive gases are present in the building, the service wire piping can act as a chimney. A small amount of gas may be present in the meter socket and pipe. When the meter is removed, a small arc will occur and the gas may explode.
3. If the meter glass is exposed to the heat of a fire, it can build up internal stresses and explode on contact.
4. After an electric meter is removed, the energized contacts in the meter socket are left exposed. The exposed contacts present an electrical hazard to anyone who is near the meter base.

Caution: Use extreme caution when installing and removing roof ladders and stay a safe distance away from overhead conductors. Contact with an overhead electric line can cause serious injury or death.
POLE AND POLE-MOUNTED EQUIPMENT FIRES

Most pole fires are caused by lightning, equipment failure or insulator breakdown (broken or contaminated by salt spray or air pollution).

If a grass or small brush fire is burning under power lines or around poles, use standard firefighting practices to extinguish the fire. If the pole bases are deeply charred, contact We Energies. We will inspect the poles for possible replacement.

If there is a downed wire involved in the fire, use a spray stream to keep the fire in check and protect the surrounding area.

If the fire is near the top of the pole or is in pole-mounted equipment and it appears that the fire will not endanger life or property, let it burn. Most pole-mounted equipment contains oil. If the equipment is still energized, little can be done to extinguish the fire, as the oil will continue to re-ignite. Notify We Energies and protect the area as outlined in “Downed Wires.”

In rare cases where the fire must be attacked and the electric equipment has not been de-energized, use extreme care. The extinguishing agents of choice are dry chemical or water spray. If the pole or cross arm continues to burn, chances are one or more insulators are broken. There is little that can be done until the line is de-energized.

CAUTION: Never use a straight stream. Although the firefighters manning the hose line may be far enough away to be safe, the distances between wires or from a wire to a ground source are not sufficient to prevent a flash over (arc) caused by a straight stream. Thus, you may burn down the wire and nothing would be gained.

ANIMAL RESCUE

The fire department is usually the first to be called upon to rescue cats or other animals that have climbed utility poles. There have been times when firefighters have lost their lives while attempting to rescue animals. All of these calls should be turned over to We Energies. In most cases, these animals will return to the ground if left alone.

If you are attempting to rescue an animal from a tree, check carefully for nearby over-head lines. Power lines in trees are particularly difficult to see. Identify their location before going aloft. Never touch a power line or allow a tree branch to make contact.

CAUTION: It is difficult to tell utility lines apart. It’s safest to assume all overhead lines, including cable and phone, are energized.

SUMMARY

Remember the following principles when dealing with electrical emergencies:

1. Call We Energies or the local power company.
2. Treat all wires as dangerous and energized at high voltage.
3. Exercise extreme caution when approaching the scene of an electrical emergency.
4. Establish a safety zone at the scene of an electrical emergency. Prevent all unauthorized persons from approaching the scene.
5. Continue to guard the scene until relieved by an authorized utility representative.
6. Never tamper with energized wires or equipment. Your primary responsibility is to save lives, including your own.
Properties of Natural Gas

Natural gas by itself will not burn. Before it will ignite, it must be mixed with air in a proportion of approximately 4 percent to 15 percent gas in air. Unless the gas-to-air ratio is within this range, natural gas will not ignite.

Natural gas is non-toxic. However, it is a simple asphyxiating agent. If an enclosed area contains enough natural gas to displace the oxygen, people could suffocate from a lack of oxygen as they would if they were drowning in water.

When it is burned properly, the major by-products of combustion are harmless carbon dioxide and water vapor. However, if it is not burned completely, dangerous carbon monoxide gas can form.

Natural gas is the predominant fuel for heating in Wisconsin and much of the nation. In addition, cooking ranges, water heaters, clothes dryers and other household appliances use natural gas.

Natural gas is used by retail stores, office buildings, churches, schools, restaurants, public buildings, theaters and other types of buildings for heating, cooling and to run appliances.

Compressed natural gas is becoming more popular as a safe, economical alternative fuel for automobiles, trucks, buses and industrial equipment, such as forklifts.

Factories use natural gas for cooling, space heating and industrial processes such as the heat-treating of metals and drying procedures.
TRANSMISSION FACILITIES

We Energies receives its natural gas from large pipeline companies. This gas is compressed in large diameter pipelines at high pressure (300 to 1,000 p.s.i.) from natural gas fields in Texas, Louisiana and other locations. These pipelines are not owned by We Energies, but may pass through your local community. Obtain safety information for these pipelines directly from their owners.

LOCAL DISTRIBUTION

Natural gas enters the local pipe distribution system through facilities called gate stations. At gate stations the natural gas is metered, reduced in pressure, and an odorant is added to make the gas easier to detect.

PIPING SYSTEM

Natural gas is supplied to homes and other buildings by means of underground gas mains and service laterals.

The We Energies underground distribution system is composed of thousands of miles of gas mains and hundreds of thousands of gas service laterals.

In the 1920s and 30s, cast iron pipes were used for gas mains. Later, pipe materials such as steel and special plastics became available.

In the 1950s, the company began a long-term program to replace all cast iron pipe, first with coated steel pipe and later with newly developed plastic pipe. Both of these are used extensively today.
The system in the Milwaukee area was renewed by inserting plastic pipe inside the old cast iron. The system now is composed almost entirely of plastic and steel pipe.

Natural gas mains are usually located underground in roadways or under the grassy areas between curbs and property lines. Some mains are located on private property. We Energies has records showing the locations of all mains and service laterals in its distribution system.

A typical natural gas main is two inches in diameter and carries 15 to 60 p.s.i. of gas pressure. Main sizes range from 3/4-inch to 30 inches in diameter. Pressures go as high as 1,000 p.s.i.

TELEMETERING EQUIPMENT

Another type of equipment used with natural gas service is the telemeter box. Always located outdoors, these gray, metal boxes are mounted on posts. This equipment is located near natural gas mains.

Telemeters monitor and report natural gas line pressure information by means of electrical impulses sent over telephone lines. With this equipment, the underground system can be monitored 24 hours a day for changes in pressure. Significant changes in pressure can indicate problems in the system. Currently these are only used in southeast Wisconsin.

The telemeter box is usually located between the curb and sidewalk or on the lot line just behind the sidewalk and adjacent to a power pole.

If a telemeter device is damaged (for example, by a vehicle), there is an underground shut-off valve that firefighters are allowed to operate. This is the only exception to the rule against emergency personnel operating underground valves.

You can recognize this underground valve because the valve box cover is square, rather than round, and is always located at the base of the post. Because of this, it should never be mistaken for another valve.

LIQUID ODORANT STORAGE

The odorant that gives natural gas its distinctive smell is called mercaptan. It’s a flammable sulphur-based compound that is injected in the pipeline at gate stations. Liquid odorant may be stored in cylinders at these gate stations prior to injection. The storage of this compound does not cause an extreme hazard, but fire departments that have gate stations and mercaptan storage cylinders in their communities should be aware of the properties and characteristics of this chemical. Contact Customer Services at We Energies for more information on the chemical properties of mercaptan if there is storage in your area.
Natural Gas Distribution

OTHER FUEL TYPES

Liquid Propane Gas (LPG) and Liquefied Natural Gas (LNG)

In certain areas Liquid Propane Gas (LPG) or Liquefied Natural Gas (LNG) is used to augment the supply to the natural gas system. LPG or LNG used for this process is stored in large storage cylinders at these locations. The LNG or LPG is vaporized at these locations and injected into the existing natural gas distribution system. This vaporization of the LNG or LPG is generally done during extremely cold weather to maintain adequate gas supplies to the area and to reduce costs.

When the LPG or LNG is vaporized, the flammable gas that is present at the plant is heavier than air and more difficult to dissipate in a leak situation than natural gas.

For these reasons LPG and LNG storage facilities have special fire protection and prevention requirements specified in NFPA 58, NFPA 59 respectively. Department of Transportation codes also apply. Utilities that own these facilities will provide information on fire control equipment, its location and quantity of units, and familiarize you with potential hazards, communications and emergency control capabilities at the plant. Contact the gas utility that owns these facilities for more information.

Compressed Natural Gas (CNG) Vehicles and Stations

More and more vehicles are being modified to run on Compressed Natural Gas (CNG). It burns cleaner than other fossil fuels and is more economical. These vehicles are equipped with special cylinders that are capable of holding the high pressures required, from 2,000 to 3,600 p.s.i., to store CNG for vehicle operation. Vehicles that use CNG have a blue and silver diamond sticker on the body of the vehicle to warn emergency responders that CNG in cylinders is present. If there is an emergency involving CNG, treat it like any other natural gas emergency:

- Keep people away.
- Keep ignition sources away.
- If ignited, protect exposures with fog spray.
- Use fog spray to direct gas vapors away from ignition sources or from accumulating in confined areas.

Vehicles that use CNG must follow the guidelines published in NFPA 52 and filling stations must also follow Wisconsin Department of Commerce rules on location and required safeguards.
Shutting off Natural Gas at the Source

Taking control of a natural gas emergency may involve closing an above-ground natural gas valve. Natural gas mains and services are equipped with valves that can be used to control the flow of natural gas through the pipe.

Do not attempt to operate underground valves or above-ground valves at regulator sites or at meters.

The only service valves fire and emergency personnel should operate are those located above ground.

Only personnel from We Energies should operate underground valves. We Energies has engineering records that indicate the location of all valves and what each one controls. By verifying the location and purpose of a valve, the possibility of operating the wrong valve and creating a greater hazard is eliminated.

Fire and emergency personnel are authorized to operate the above-ground meter shut-off valve. This valve is located at the natural gas meter serving homes and smaller buildings. Some commercial and industrial buildings have special processes that can be damaged or malfunction if natural gas is shut off. Make sure you have pre-plans with these businesses so you know what to do in the event of an incident.

CLOSING NATURAL GAS VALVES

1. If you shut off a valve, leave it off and notify We Energies.
2. We Energies will ensure safety and turn the service back on. Shutting off the natural gas supply extinguishes all pilot lights, which are small, constantly burning flames used to ignite gas at a burner. If you open the valve, you may create hazard.
3. Most shut-off valves installed on service laterals, whether above ground or below ground, require only a 1/4 turn clockwise to shut off the natural gas supply.
**SERVICE LATERALS**

Service laterals are pipes that carry natural gas from the main to homes and buildings.

For homes and most buildings, service laterals in areas served by We Energies are of three types: copper, steel and plastic. Service laterals range from 1-1/8 inches in diameter for copper and polyvinylchloride (PVC), to 3/4 to 2 inches for steel, and 5/8 to 4 inches for polyethylene plastic. Larger service laterals, such as those serving factories, are usually made of steel and range in size from 2 to 12 inches in diameter.

**Outside Meters and Valves**

We Energies prefers to install meters outdoors, adjacent to homes or buildings. An outside meter allows greater accessibility and safety.

On an outside meter, the natural gas inlet pipe (riser) is above grade leading to the meter. The shut-off valve is located below the regulator (see Service Lateral – Outside Meter Set below). To close the valve, use an adjustable or pipe wrench and give the valve core a 1/4 turn clockwise (see Closing Natural Gas Valves on page 18).

The service regulator is located above the valve. The regulator reduces line pressure from 15 to 60 p.s.i. to approximately 1/4 p.s.i. to 2 p.s.i. Some large buildings and businesses may have a 2 p.s.i. or higher system after regulation. High pressure services also may be found in our service territory. The pressure in these steel services can be 100 to 720 p.s.i. before regulation takes place at the wall of the building or at lot line regulators.

**SERVICE LATERAL – OUTSIDE METER SET**

1. A regulator (pressure reducing device) is located in the vertical pipe coming up from the service lateral (riser) ahead of the meter.

2. A shut-off valve is located in the riser below the regulator.

3. An underground shut-off valve is generally not installed.
Inside Meters and Valves

Many meters are still located inside homes and buildings.

The meter shut-off valve for this type of installation is located inside the building at the point where the service pipe comes through the basement wall (see Service Lateral Inside Meter Set below).

This valve may not be accessible because of fire or water in the basement. In this situation, an underground shut-off valve or “curb stop” should be operated only by We Energies personnel. An underground curb stop is installed on all services where the meter is located inside buildings.

Also, an underground stop is part of the equipment serving all larger buildings, such as four family or larger apartment buildings, hospitals, churches, theaters, schools, commercial buildings and industrial buildings.

SERVICE LATERAL – INSIDE METER SET

1. A regulator (pressure reducing device) is located in the vertical pipe coming up from the service lateral (riser) ahead of the meter.
2. A shut-off valve is located in the riser below the regulator.
3. An underground shut-off valve is generally installed.
LARGE BUILDINGS/INDUSTRIAL AND COMMERCIAL

Natural gas equipment for larger buildings and factories often includes other devices such as secondary regulators, relief valves and overpressure automatic shut-off valves.

These devices are usually found in conjunction with the meter. The meter and its equipment may be located:

- Outside, either above or below ground.
- In a special building or room.
- Indoors, in a vault or pit.
- On rooftops.

Some buildings may have an inside meter and an outside regulator. In this application, the above-ground valve is located outside with the regulator.

Fire Department personnel can operate the above-ground natural gas service line valve, which is common to larger meter installations (see Typical Industrial Meter Installation below).

On larger natural gas shut-off valves, the valve head is usually square requiring a large, adjustable wrench to operate.

Large buildings may have more than one service lateral. In an emergency, each service lateral may need to be shut off.

TYPICAL INDUSTRIAL METER INSTALLATION

1. Some large commercial or industrial natural gas customers may have a separate building or room apart from the main building for the meter installation.

2. This drawing shows an industrial meter installation with a regulator ahead of the meter. The shut-off valve is located ahead of the regulator.

3. Service laterals supplying natural gas to commercial or industrial buildings are generally equipped with an underground shut-off valve installed in a box or vault.
GENERAL PRECAUTIONS

General precautions to consider when a natural gas leak is known or suspected

- Use natural gas detection instruments, if available, to determine if natural gas is present.
- If your instrument shows that any measurable quantities of natural gas are present, evacuate the area.
- If an instrument is not available and you smell natural gas, use the most cautious choice available to you and assume there is an ignitable mixture present. Evacuate the area.

CAUTION: Eliminating ignition sources, ventilating the hazard area from outside and shutting off the natural gas supply at outside meter unit valves are effective means of minimizing hazards associated with natural gas leaks and accumulations. Take these actions only when they can be done safely.

In addition:

- Keep people and vehicles away from the hazard area.
- Do not allow anyone to enter or remain in buildings where natural gas is present.
- Do not smoke, ring doorbells, operate electric light switches, use phones, ventilation fans or elevators. A single spark could be an ignition source.
- Do not plug electric fans into house electrical outlets. They could be an ignition source.
- Use Positive Pressure Ventilation (PPV) and remember to keep the PPV itself out of any area where natural gas is present. A remote exhaust hose should be used to prevent carbon monoxide accumulation.
- Do not open stoves, ovens, furnaces, or other appliances.
- Do not open natural gas valves that have been closed. Call We Energies to re-establish natural gas service after a natural gas valve has been closed.
SPECIFIC EMERGENCY ACTIONS

In all cases, remember your emergency priorities; protect people by immediate evacuation, protect property only if it can be done safely and call We Energies for assistance.

Natural Gas Escaping Inside

- Evacuate the building.
- Eliminate ignition sources and keep people from operating electrical devices.
- Shut off natural gas at the source. An outside meter service valve is the best choice if available. An appliance valve or inside meter service valve also can be considered if it is safe to do so.

**CAUTION:** Natural gas instruments can tell you if it is safe to be in an area where you suspect natural gas is leaking or where you smell natural gas. If it is not safe, evacuate the building, keep people away, check neighboring homes for natural gas migration and wait for the utility to shut off the natural gas.

Natural Gas Escaping and Burning Inside

- Evacuate the building and keep people out.
- Protect interior exposures and combustibles using hose streams and water spray.
- Shut off natural gas at the source.
- Extinguish any remaining fires.

**CAUTION:** If you extinguish the fire before the natural gas is shut off, an explosion may occur as the accumulating natural gas is ignited by nearby ignition sources. If you must extinguish the fire to perform a rescue, do so as part of a coordinated effort of extinguishment and natural gas shutdown. Watch for re-ignition.

Natural Gas Escaping Outside

- Approach the area from upwind (wind at your back).
- Keep vehicles and people out of the area where natural gas is leaking.
- Remove or eliminate all ignition sources.
- Check nearby buildings and structures for natural gas. Natural gas can migrate long distances under pavement or through telephone and electric ducts or sewer lines.
- Use fog spray to move escaping natural gas away from hazard areas such as roads or buildings where the natural gas could ignite.
- If possible, keep water out of excavations where natural gas is blowing.
- Do not enter any excavation or confined vault or pit where natural gas is blowing to stop the flow of natural gas. Natural gas may exclude oxygen in these areas. In addition, static electricity may accumulate on plastic pipe, creating an ignition hazard if you were to enter such an area.
- Protect people and adjacent buildings and call We Energies to make any needed repairs or remotely shut off the natural gas.

**CAUTION:** Use the wind to your advantage at outside natural gas incidents. In order to maintain a safe work zone around your equipment and to avoid other ignition sources, position vehicles upwind or outside the plume of the natural gas leak. This will prevent intake of natural gas into the vehicle combustion system which may ignite the natural gas. If you smell natural gas, you need to move to a safer location. Watch out for wind shifts throughout the incident.
NATURAL GAS HAZARDS

Emergency Response

Natural Gas Burning Outside

- Keep people away from the area.
- Protect exposures with water spray.
- Let the natural gas burn unless an above-ground valve can be used to shut off the source. If rescue is needed in the fire area, extinguish the fire using dry chemical extinguishers and fog spray to dissipate the leaking natural gas until We Energies can shut off the natural gas supply.
- Check nearby buildings and structures for natural gas. Even when natural gas is burning, some of the natural gas can migrate long distances under pavement, through telephone and electric ducts, or through sewer lines.
- Wait for We Energies to shut off the natural gas using emergency valves or other remote shut-off means. Remember that underground valves or valves inside fenced-in areas at regulator or gate stations should only be operated by We Energies.

CAUTION:
Water spray in a fog pattern is an effective tool to minimize hazards until the natural gas can be shut off.

SOURCES OF IGNITION

There are many ignition sources that must be considered when natural gas is leaking. If there is an ignitable mixture of natural gas present, (about 4 percent to 15 percent gas in air), elimination of ignition sources needs to be the first priority. Common ignition sources are pilot lights, spark ignitors, electrical switches and disconnects, and any other source over about 900° F. Other ignition sources not always considered are door bells, security systems, non-rated flashlights, pagers, radios and static electricity. Eliminate all ignition sources.

If you need electricity disconnected to the building because of natural gas accumulation, do not shut off circuit breakers or pull the electric meter. The act of pulling the meter may cause an arc or spark that could ignite the natural gas. Call the local electric utility to have the electric service disconnected at the pole.

Consider the possibility that the building could be served by an automatic source of backup power, such as a generator fueled by diesel or natural gas.
If there is no hazard of natural gas accumulating, an electrical disconnect could be used to shut off the alternate power source. Another option may be to shut off the natural gas or diesel fuel line to the generator. In the case of natural gas generators, shutting off the natural gas supply may cause the generator to try to restart, creating an ignition source hazard in the area of the generator. For this reason, we do not recommend that you operate any switch or ignition source if there is a danger of accumulating natural gas being ignited. It may be better to keep people away, including firefighters, until the natural gas hazard has been dissipated by shut-off or ventilation.

INCOMPLETE COMBUSTION AND CARBON MONOXIDE

Incomplete combustion of natural gas or other fossil fuels can produce carbon monoxide (CO). This odorless, colorless gas is toxic and flammable. The health effects of carbon monoxide are serious and may be fatal.

Incomplete combustion may occur in an over-gassed, under-gassed or unvented appliance. It also can be caused by a flame supplied with insufficient oxygen. A broken or plugged appliance or furnace vent, or a plugged chimney, may allow CO to be present in living quarters. Carbon monoxide poisoning also can be caused by automobile exhausts, charcoal or gas grills and paint thinners.

Signs of carbon monoxide poisoning are: headache, vomiting, dizziness, burning eyes, drowsiness, faintness, insomnia, irritability and coughing. Sometimes these symptoms are mistaken for the flu.

We Energies has information for fire departments and emergency personnel on how to respond to carbon monoxide customer calls. We will assist fire service officials if called. We will make the situation safe by shutting off the natural gas supply to the appliance or home. If carbon monoxide is suspected, evacuate people from the contaminated area and, if needed, call We Energies.

SUMMARY

If you suspect a natural gas leak, take the following steps:

1. Call We Energies immediately from a phone outside the building. We will send a radio-dispatched crew to the area to investigate the problem.
2. Clear the building of all occupants.
3. Keep all sources of flame and sparks away from the suspected natural gas leak area. Don’t smoke, use a light switch, flashlight, elevator, phone or matches. Eliminate all ignition sources.
4. If it can be done safely, ventilate the building by opening windows and doors to permit the natural gas to escape.
5. Attempt to locate and shut off the above-ground natural gas meter valve.
6. Stand by for assistance from We Energies at a safe distance.
Electrical Emergency Response Guidelines
These are guidelines only. Your resources and training should guide your actions.

TAKE CONTROL

- Establish a safety zone of 25 to 30 feet around the scene of an electrical emergency. Prevent all unauthorized persons from approaching the scene.
- Continue to guard the scene until relieved by an authorized utility representative.

BE AWARE OF ELECTRIC HAZARDS

- Use extreme caution when approaching the scene of an electrical emergency, especially at night.
- Treat all wires as dangerous and energized at high voltage.
- Do not attempt to move downed power lines.
- Do not spray water on downed lines, transformers or other electrical equipment.
- Do not cut into locked cabinets. Cutting tools could make contact with energized equipment inside the cabinet.

MAKE THE RIGHT CALL

- Call the local power company.
- Be specific as to the nature of the emergency, location and type of assistance you require.
- Provide contact info for your on-site personnel and location of incident command post.

Public Safety Agency dedicated phone lines
888-296-4937
or
800-292-7098
Natural Gas Emergency Response Guidelines

These are guidelines only. Your resources and training should guide your actions.

TAKE CONTROL

Outside Natural Gas Leaks
- Establish a safety zone, keeping the wind at your back.
- Shut off natural gas if you can do so safely.
- Eliminate ignition sources, including vehicle engines or power equipment.
- Check adjoining buildings for natural gas.
- Use water spray to direct the natural gas from hazard areas.

Inside Natural Gas Leaks
- Evacuate the area.
- Do not use electrical devices such as phones, doorbells or other ignition sources.
- Shut off natural gas if you can do so safely.
- Ventilate the area by opening windows or leaving doors open as you go.

BE AWARE OF NATURAL GAS HAZARDS

Use Your Nose
- If you do not have a natural gas detection instrument, check for natural gas odor using your nose as you enter the area.
- If you smell natural gas, assume natural gas is leaking and take the most cautious actions available to you.

Use a Natural Gas Detection Instrument
- If you have a natural gas detection instrument, turn the instrument on in clear air.
- Sample near the ceiling as you enter. If the detector shows more than a trace of natural gas, then assume natural gas is leaking.

Check for Natural Gas Outside
- At manholes, sewer openings and storm drains.
- Alongside building walls at the ground.
- At door and window cracks if you can’t get in the building or home.

Check for Natural Gas Inside
- In upper areas of rooms and buildings as you enter.
- In basement drains and sewer openings.
- Where the natural gas pipe enters the building.

MAKE THE RIGHT CALL
- Call the local natural gas company.
- Be specific as to the nature of the emergency when calling for assistance.

Public Safety Agency dedicated phone lines
888-296-4937
or
800-292-7098
Public Safety Agency
dedicated phone lines

888-296-4937
or
800-292-7098
24-HOUR ASSISTANCE FOR POLICE AND FIRE DEPARTMENT EMERGENCY USE ONLY. Please do not release these numbers to the public.

888-296-4937 or 800-292-7098

So we can quickly and effectively respond to an emergency, always provide the following information when you call:

- **Exact location of the emergency** (municipality, fire number and the street address)
- **Type of emergency** (natural gas or electric)
- **Nature of emergency** (fire, explosion, natural gas leak)
- **Number of emergency personnel at the emergency location**

Website: www.we-energies.com/firstresponders

Public Contact Information

24-hour lights out and electric emergency
800-662-4797

Natural gas emergency
800-261-5325

Customer service and billing questions
800-242-9137

Diggers Hotline (Wisconsin)
811 or 800-242-8511

Miss Dig (Michigan)
811 or 800-482-7171

Wisconsin Telecommunications Relay System
800-947-3529

Utility Safety Pre-Test Answers

1. **F** 5. **T** 9. **F** 13. **F** 17. **F**
4. **F** 8. **F** 12. **F** 16. **F** 20. **T**
Units Dispatched: (T or R)

**GENERAL**

*ELEV (Elevator Stuck)* assignments generally occur as a result of mechanical failure or malfunction in the wheelhouse, elevator car, or elevator doors of the affected elevator. Calls may come from other building occupants who have heard cries for help or from trapped occupants who have used the emergency phone or alarms present in many elevator cars, or their personal cellular phone.

Several factors should guide elevator rescue operations. First, firefighter and victim safety must be the primary concern during all parts of the rescue. This is achieved through elevator de-energizing, proper elevator access techniques, and good communications between Truck Company personnel and with trapped victims.

While downtown Truck Companies have a higher concentration and wider variety of elevators to contend with, all Truck Companies should maintain proficiency with elevator rescue techniques. Elevators, in some form, exist in every response area in the city. It is important that Truck Companies pre-plan responses to elevator emergencies.

Pre-planning can be as simple as observing the locations of elevators in buildings within your response area. Important additional information to gather includes: determining the types of elevators (cable - also called traction, or hydraulic) and identifying KnoxBox locations, determining if they contain keys or access cards that provide access to elevator equipment rooms. Take the time to locate the Fire Service Key Box, usually located in the elevator lobby nearest the main point of entry. Open the box and ensure that it contains fire service elevator keys for each elevator, an elevator equipment room key, and an elevator access card (if applicable).

Additionally, with the assistance of building management personnel, gain access to the elevator equipment room and identify the location of the power disconnect. In cable (or traction-type) elevators, the equipment room, often called the penthouse or wheelhouse, will generally be found at the highest level of the building, directly above the hoistway. Traction-type elevators are used for mid and high-rise applications (generally above 4 stories) and have much higher travel speeds than hydraulic elevators. In **hydraulic-type elevators**, the equipment room will generally be found adjacent to the hoistway at the lowest level of the building. An access door is usually present in this area if access to the bottom of the hoistway is necessary. Hydraulic elevators are generally used in low-rise applications.

Familiarity with the elevators in an assigned response area leads to increased proficiency during *ELEV* assignments. Numerous instances of elevator cars moving, dropping, or rising unexpectedly, resulting in fatalities, have been documented nationwide. Following
the steps listed below will enhance firefighter safety as the Truck Company works to de-
energize and stabilize the affected elevator car, allowing access to trapped occupants.

Upon arrival, gather information from occupants or building management personnel to
pinpoint the location of the stalled elevator car as well as to speed access to the equipment
room. Communicate with trapped occupants as able to calm them and to determine if
anybody may require EMS.

For incidents that involve fires in the wheelhouse, penthouse, or equipment rooms, each
elevator car in that hoistway must be accessed and cleared of victims and checked for fire.
Additionally, the lowest level of involved hoistways should be checked for fire, as these
locations can accumulate large amounts of hydraulic fluids and debris over the years.

In rare instances, elevator repair personnel or thrill seekers find themselves trapped inside
the elevator hoistway between the car and the hoistway wall. MPD should be requested
via dispatch in both cases, either because of a workplace injury or for investigation. This
circumstance should be considered a high-angle rope rescue and requires a special call for a
HURT response. The victim should be stabilized in place until proper harnessing and
lifting systems can be applied by HURT personnel.

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**TRUCK OFFICER**

**Tools:** Full PPE, portable radio, flashlight, halligan tool, 6’ pike pole, elevator keys, tagline

**Duties:** Assume Command and gather information

**HEO**

**Tools:** Full PPE, portable radio, axe, toolbox, tagline

**Duties:** Obtain keys from Knox box, equipment, elevator room access and control

**VENT**

**Tools:** Full PPE, portable radio, axe, door chocks, tagline, EMS box, O₂

**Duties:** Equipment, as assigned by Officer

**FORCE**

**Tools:** Full PPE, portable radio, tagline, flathead axe, door chocks, tagline, combination ladder

**Duties:** Equipment, travel with Officer

---

Upon arrival, the HEO should position the apparatus to allow for easy access to the
equipment on board. Working within the Company Officer’s operational plan, the HEO
should gather necessary equipment and access keys (as indicated above). If maintenance
personnel are on site, ask that they travel with the HEO to open the elevator control room
door. Deliver the toolbox to the lobby location of the stuck elevator and then proceed to
either the elevator penthouse (for cable, or traction-type elevators) or the lower level
equipment room (for hydraulic-type elevators). Once access to the control room has been
gained, the HEO should de-energize the appropriate elevator drive motor to prevent
sudden movement of the car during rescue operations. If multiple drive motors exist over
multiple elevator cars, the HEO should communicate with the Officer on the incident talk
group to narrow it down to the affected elevator car. Communicate to the Officer when the
power is secured and ensure the power remains off until confirmation from the Officer that the rescue/evacuation of occupants from the elevator is complete and all personnel are safely away from the elevator car.

The Officer should first attempt to recall the elevator to the ground floor using the ‘FF recall’ keyed switch outside the ground floor elevator. If this does not work, gather the necessary information and proceed to the elevator lobby on the floor nearest to the suspected victim location, bringing the elevator keys and pike pole. Once at this location, it may be necessary to check multiple hoistway doors to narrow down the exact location of the stuck car. This is most easily accomplished by using the elevator keys.

Once the car is located, communicate with the occupant and assess the car’s position relative to the landing level. Many times elevator cars stop in between floors and it may be necessary to remove the occupant(s) using the combination ladder after confirmation from the HEO that power is indeed secured. MFD personnel are not to try to move the position of the car and should not enter stalled elevator cars unless removal of a handicapped or incapacitated victim with a medical emergency makes it absolutely necessary.

The Vent FF gathers necessary equipment and EMS supplies and brings them to the lobby location of the stuck elevator. The Vent FF will work within the Officer’s operational plan to access the stuck elevator car and remove trapped occupants or be detailed to travel with the HEO to the elevator control room to secure and maintain the elevator power source.

The Force FF gathers necessary equipment and the combination ladder and brings them to the lobby location of the stuck elevator. The Force FF will work within the Officer’s operational plan to locate, access, and remove trapped occupants after the power has been confirmed secured by the Officer. If the elevator keys fail to work and no other option exists, the Officer and Force FF can utilize the Irons to pry open the elevator doors. The car doors can often be opened by using the 6’ pike pole to turn the wheel toward the top of the door. The tool box may be utilized if disassembly of door components is necessary.

When a car is found stalled between landings, communicate with the occupant and building maintenance to determine whether immediate removal is required, or whether an elevator service agent can be on scene in a reasonable time frame to move the car into a better position for removal.

It is preferable to remove the occupant from the landing above, if possible. If the combination ladder is to be used in this situation, the ladder is to be sent into the car and the occupants are to climb up and out. If the removal absolutely has to be made from the landing below a stalled elevator, care must first be taken to cover the exposed shaft with a ladder or stokes basket to prevent citizens and firefighters from falling in. The combination ladder can then be leaned up from the lobby floor to the floor of the car and the occupants are to carefully climb down while we butt the ladder. Immediately upon removal, occupants are to be directed away from area. Once all occupants are removed, the elevator doors should be closed and yellow hazard tape placed across the door.

In any case in which an occupant has been trapped in an elevator, the elevator power is to remain off and secured, using a lock and tag if available. The building owner/manager is to be advised to not re-energize the affected elevator until it has been inspected and serviced by a qualified elevator repair person.
Units Dispatched: E + T + T(Jaws) + R + M + B + CAR18

GENERAL

While ER (Emergency Responses) do not occur with great frequency, they present very specific challenges and require that responding companies perform their tasks with due diligence to provide for responder and victim safety.

Emergency Responses are primarily generated to handle machine entrapments. These can include partial or total entrapments in soda or vending machines, gumball machines, toy machines, meat grinders, printing presses, dough rollers or kneading machines, garbage disposal units, assembly lines or conveyor belts. Machinery entrapments are among the most challenging types of rescue.

Much like AUTOX operations, any actual lifting, cutting, dismantling, spreading, or other forcible entry on a machine in the course of the patient extrication should be directed by the Officer of the extricating company, typically the Jaws Truck or Rescue Officer. This will eliminate confusion and enhance safety.

All members operating in the hot zone, that area directly around the trapped victim and the machine in which they are trapped, shall wear full PPE including hand and eye protection. In high noise level operations, as when operating saws, generators, or jaws power units inside of a building, ear protection shall be worn. Remember, the victim will also need to be provided ear and eye protection during operations.

When working in an industrial setting, work closely with on site staff to determine the function and reversibility of the affected machine as well as the means of isolating power to the machine. Information gathered from on site staff will be critical when dealing with complex or large machines with which we are largely unfamiliar. Staff members can usually provide information about additional means of access to machine areas.

Realize that each machinery or industrial extrication will be unique. Utilize plant personnel to ensure that further injury will not be caused by MFD operations. Moving one part of the machine may cause another part to move.

Always consider the simplest, easiest method of removing the victim’s entrapped body part. As an example, consider using liquid soap or mild detergent to assist with easing a child’s finger out of a gumball machine. As in the case of a hand wrapped around the auger in a meat grinder, manually reversing the auger may eliminate the entanglement. Many situations will require more advanced approaches.
Engine Company personnel will be used primarily to provide precautionary suppression capabilities as needed and to provide initial EMS for the trapped victim.

Upon arrival, the Engine Company Officer will ensure the rig V-Tac is set to the proper incident talk group and size-up the situation, providing an initial radio report via portable radio on the incident talk group. The Engine Company Officer will then begin to gather information and direct the initial EMS care for the trapped victim. A primary consideration in these situations is stabilizing the patient, as they may be hanging or pulled into an awkward position. Call for a combination ladder or use available chairs or stepladders to ease positional stress on the victim. If it appears that any cutting or machine disassembly will be necessary, the Engine Officer will work with on site personnel to de-energize the machine. The Engine Officer will first verify by interviewing on site personnel that de-energizing the machine will not cause unexpected machine part movement or further injure the trapped victim.

Important safety considerations in these operations include managing any flammables, combustibles, or accelerants in the affected machine or in the immediate area where any cutting may occur, as well as determining the status of power to the affected machine. If large volumes of petroleum product or hydraulic fluid are present in the machine and/or leaking due to damage or malfunction, a foam-capable reduced line should be stretched and charged.

At no time shall members place themselves or their body parts into a machine in which a victim is trapped until after it has been de-energized, secured, and cribbed. This will prevent injury to MFD personnel.

The Engine Company HEO shall position the rig near the main point of entry, leaving room for subsequent arriving companies as able. The Engine HEO will make entry with the Engine Company, carrying the multi-purpose dry chemical and pressurized water extinguishers to the victim location. After assessing the scene, the HEO may be directed to

операционные инструкции
ER (Emergency Response)
return to the Engine apparatus to operate the pump should a hoseline need to be deployed. In this case, the Engine Company HEO shall assist the Nozzle FF with the hose stretch.

The Nozzle FF will travel with the Engine Officer, Engine HEO, and Backup FF. The Nozzle FF shall provide initial EMS care as directed. If access to the patient is limited, the Nozzle FF can function in other needed positions, such as laying a precautionary foam-capable hoseline with the Engine HEO. When free, the Nozzle FF can operate the pressurized water extinguisher as directed to cool areas being cut during the course of the victim extrication.

The Backup FF will travel with the Engine Officer, Engine HEO and Nozzle FF, providing EMS care throughout the interaction. The Backup FF shall provide the patient with safety glasses, earplugs, and arrange for head protection for the patient throughout the extrication. The initial assessment and treatment shall be in accordance with all Milwaukee Fire Department and Milwaukee County EMS guidelines presently in effect, including psychological first aid to calm the patient. The Backup FF shall provide care and assistance as directed by their Officer and Paramedic Unit personnel. If the entrapped victim has suffered an amputation, efforts should be made to locate, collect, and transport the severed part.

**TRUCK (Support)**

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE, portable radio, flashlight, tool box, halligan tool</th>
<th>Duties: Stabilize machinery, direct initial extrication attempt, V-Tac</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEO</td>
<td>Tools: Full PPE, portable radio, Porta-power with ram and large and small spreader</td>
<td>Duties: Establish equipment staging area</td>
</tr>
<tr>
<td>VENT</td>
<td>Tools: Full PPE with SCBA, Ajax air chisel kit, extra air bottle</td>
<td>Duties: Equipment, duties as directed by Officer</td>
</tr>
<tr>
<td>FORCE</td>
<td>Tools: Full PPE, portable radio, tagline, flathead axe, step cribbing and box cribbing</td>
<td>Duties: Equipment, stabilization</td>
</tr>
</tbody>
</table>

Upon arrival, the Truck HEO should position the apparatus to minimize travel time to and from the incident while allowing room for subsequent arriving apparatus, particularly the Jaws Truck and the Paramedic Unit. Barring any specific equipment requests from the Truck Officer (based on communications with the Engine Officer), the Truck HEO will carry the Porta-Power with accessories to the incident and operate them as directed by the Truck Officer. If the extrication does not require the Porta-Power equipment, the HEO will then manage the wide variety of equipment that the Truck Company will transport to the affected machine, setting up an equipment staging area.

Upon approaching the scene, the Truck Officer should ensure the rig V-Tac is set to the proper incident talk group and communicate with the Engine Officer on the fireground talk group to determine the types of equipment that may be needed to complete the machine extrication. Err on the side of minimizing trips back to the apparatus by carrying a selection...
of equipment that will assist in a wide variety of machinery extrication scenarios. The Truck Officer will travel with the Truck Company to the sight and will carry the tool box. The Truck Officer will communicate with the Engine Officer and reassess the incident and then direct initial extrication attempts.

Upon arrival at the involved machine, the Truck Company should establish an equipment staging area. This area will be outside of the hot zone and will be managed by the Truck HEO, who will be responsible for obtaining or requesting additional equipment through the Truck Officer. Additional equipment may include: additional SCBA bottles, saw gas, additional metal cutting blades, the metal saw, generator and floodlights, manual bottle jack, and the come-along. A further equipment consideration includes: changing out the wood saw to a metal cutting blade so that one saw will always be available even while blades are being changed as well as providing ventilation if using power saws in an enclosed area.

The Truck Vent FF will travel with the Truck Company, providing the cutting capabilities of the Ajax air chisel kit. The Truck Vent FF should don their SCBA to provide for an additional air bottle while freeing up both hands to carry the Ajax air chisel kit and spare SCBA bottle. Any cutting will be undertaken at the direction of the Truck Officer.

The Truck Force FF will travel with the Truck Company and will provide step cribbing and box cribbing to the incident. Additional trips to the apparatus may be needed to bring additional box cribbing or wedges to the incident. At any time that cribbing is being placed under a load or into a machine to stabilize moving parts, the cribbing shall be pushed into place with another piece of cribbing to prevent firefighter injury. At no time shall firefighters place any body parts into any unstable, uncribbed machine area that has already resulted in, or could result in, entrapment.

### TRUCK (Jaws)

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE, portable radio, flashlight</th>
<th>Duties: Extrication Operation Commander</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEO</td>
<td>Tools: Full PPE, portable radio</td>
<td>Duties: Airbag and spreader operations as needed</td>
</tr>
<tr>
<td>VENT</td>
<td>Tools: Full PPE, portable radio</td>
<td>Duties: Air bag and cutter operations as needed</td>
</tr>
<tr>
<td>FORCE</td>
<td>Tools: Full PPE, portable radio, hydraulic rams</td>
<td>Duties: Power unit operation, hydraulic line management</td>
</tr>
</tbody>
</table>

Upon the Jaws Truck’s arrival, the Jaws Truck HEO should position the rig to minimize equipment transport time. Depending on the equipment requested by the initial arriving units, the Jaws Truck HEO will be responsible for transporting the Hurst spreaders and the Hurst Simo-Power Unit to the incident, and assisting with airbag operations as needed.
The Jaws Truck Officer should communicate with the Support Truck Officer on the fireground talk group to determine the scope and type of additional equipment needed to extricate the victim. Additional equipment may include additional typical Truck Company equipment or Jaws Truck equipment such as: Hurst cutters, spreaders & rams, airbags, Sawzall, or the wizzer saw.

Once at the incident, the Jaws Truck Officer, after communicating with prior arriving officers and reassessing the entrapment, shall function as the extrication operations officer. At this point, only personnel essential to the extrication and the provision of EMS (if patient is accessible) shall be in the hot zone. The Jaws Truck Officer shall develop and communicate the plan to all personnel and direct extrication operations, in coordination with the Incident Commander. The Jaws Truck Officer should develop alternate operational plans in case the initial plan doesn’t work as well as expected. Inspecting duplicate machinery and communicating with on site personnel can provide information critical to the operational plan.

The Jaws Truck Vent FF will travel with the Jaws Truck Company and is responsible for transporting the Hurst cutters and the Hurst Simo-Power Unit to the incident, and assisting with airbag operations as needed. All operations shall be in accordance with the Jaws Truck Officers plan.

The Jaws Truck Force FF will travel with the Jaws Truck Company and will transport the Hurst rams and any other equipment specified by the Jaws Truck Officer. Once at the incident, the Jaws Truck Force FF will be responsible for managing the Simo-Power Unit and hydraulic lines. The Simo-Power Unit may be operated in the hot zone due to the limited reach of the hydraulic lines and the needed mobility of the cutters, spreaders, and rams.

### RESCUE

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE, portable radio, flashlight</th>
<th>Duties: Coordinate efforts with Incident Commander</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEO</td>
<td>Tools: Full PPE, portable radio</td>
<td>Duties: As assigned by Officer</td>
</tr>
<tr>
<td>VENT</td>
<td>Tools: Full PPE, portable radio</td>
<td>Duties: As assigned by Officer</td>
</tr>
<tr>
<td>FORCE</td>
<td>Tools: Full PPE, portable radio</td>
<td>Duties: As assigned by Officer</td>
</tr>
<tr>
<td>CAN</td>
<td>Tools: Full PPE, portable radio</td>
<td>Duties: As assigned by Officer</td>
</tr>
</tbody>
</table>

Operational Guidelines
ER (Emergency Response)
The Rescue HEO should position the rig in proximity to the scene, while leaving room for the Paramedic Unit if not on the scene yet.

The Rescue Officer should immediately survey the scene and evaluate the progress of preparatory and extrication operations while communicating suggestions and needs to the Incident Commander based on their size up.

If the Rescue unit is the first Jaws capable unit to arrive, they should operate as listed under the section for TRUCK (Jaws). If the Rescue arrives after the operation is underway, the Rescue Officer shall report to the Incident Commander for assignment. Some examples of the tasks that may be assigned by the Incident Commander include, but are not limited to: supplementing ongoing extrication procedures, providing EMS triage and treatment, or providing and operating necessary specialized equipment.

### PARAMEDIC UNIT

<table>
<thead>
<tr>
<th>PARAMEDIC OFFICER</th>
<th>Tools: Full PPE, portable radio, EMS equipment and cot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Provide EMS triage/treatment/transport</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PARAMEDIC</th>
<th>Tools: Full PPE, portable radio, EMS equipment and cot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Provide EMS triage/treatment/transport</td>
</tr>
</tbody>
</table>

Upon arrival, Paramedic Unit personnel should gather their ALS equipment and proceed to the entrapment site. Upon arrival, Paramedic Unit personnel shall evaluate and provide ALS care to the entrapped victim as able and in accordance with Milwaukee County Paramedic protocols. For injuries involving crushing entrapments, particular attention should be paid to victims suffering injuries or presenting with symptoms of crush injury syndrome.

In extreme cases, consider transporting part of the affected portion of the machinery with the patient to the hospital if full victim removal proves excessively time consuming or the patient’s condition warrants a rapid transport.

**Flight for Life** should be requested for victims requiring prolonged extrication or potentially requiring amputation to preserve life. Route such requests through the Battalion Chief.

### BATTALION CHIEF

Upon arrival, the Battalion Chief shall function as the Incident Commander, ensuring that a functional operational plan is in effect and that all needed resources are on scene or have been requested. Further, the Battalion Chief shall ensure that all Companies and Units are prepared and equipped to perform their assigned functions in a safe manner. Additional resources to consider may include:

- **Flight for Life** (establish a landing zone for the helicopter and the special call Engine and Truck Company – SEE *FLIGHT [Flight For Life] guidelines*)
- **HazMat 1 & 2** (if hazardous materials are involved or if atmospheric monitoring of the work area is needed)
- **Compressed Air** (if extended duration of pneumatic tool use is expected)
- **Construction & Maintenance Division** (if additional equipment will be needed such as cutting torches, extra saws, extra metal-cutting saw blades, etc.)
- **10-53 and District Attorney’s office** (industrial and workplace related incident)

**CAR 18**

The Incident Safety Officer shall evaluate tactical safety and continually monitor the scene hazards, ensuring safe procedures are being performed and that all necessary safety equipment is being utilized. Any unsafe act should be stopped immediately and reported to the Incident Commander. Further, Car 18 shall determine if establishing member rehab or decontamination is prudent.
9.0 – FLIGHT* (Flight For Life*)

*Not technically a separate call-type, but will be attached to other call types when FFL is requested

Units Dispatched: E(LZ) + T(LZ) + (M + B + CAR18 if not already assigned)

GENERAL

The Flight for Life helicopter may be requested for a variety of serious medical and traumatic injury emergencies. The indications and contraindications for requesting Flight For Life are clarified in the current Wisconsin Hospital Emergency Medical Services (HEMS) Guideline (see Attachment EMS-SOG Flight For Life/HEMS). HEMS may provide a time saving benefit to patients with time-sensitive emergencies in reaching hospitals that can provide the appropriate interventions IF the patient can be delivered during the interventional window AND ground EMS is not able to reach the destination within that window.

Flight for Life response time is approximately 10 minutes from request to arrival at scene within Milwaukee County. Communications with FFL will take place on OOAIRMD1 (P14/TG12).

The purpose of this operational guideline is not to replace or alter MFD EMS-SOG Flight For Life/HEMS or Milwaukee County Paramedic guidelines or protocols but to clarify fire response operations in and around the landing zone (LZ) for the protection of both the responders and the helicopter crew.

The standard LZ response will be one Engine Company and one Truck Company. In many cases the other units required, one Paramedic Unit, one Battalion Chief, and the Incident Safety Officer, will likely already be assigned on the incident. Consider an AUTOX assignment with a prolonged extrication where the request for FFL has already been made. The Paramedic Unit, Battalion Chief, and ISO will already have been assigned to the run. If they have not been assigned, they will be assigned by dispatch when the request for the Flight for Life helicopter is made.

The designation and preparation of the LZ is critical to the successful and safe landing of the helicopter. Ensure upon arrival as an LZ Engine and LZ Truck Company that the assigned incident talk group is monitored and that the Incident Commander of the original incident has already designated a landing zone. This information is typically transmitted by the IC to dispatch, who will typically relay this information to LZ units.

Realize that in an urban setting the Incident Commander of the original incident may designate an LZ that is several blocks removed from the original incident. As such, it is critical that LZ units ensure that the designated area is acceptable. Several factors must be met:
- Smooth area, ≤5° slope
- Clear of wires, trees, debris, utility poles, and other obstacles
  - Debris and trash present a high hazard of being sucked into the helicopter intakes

- Low wind, daytime LZ
  - 100’ x 100’
  - All unauthorized persons at least 150’ away from helicopter
  - No persons or vehicles within 50’ of helicopter

- High wind or nighttime LZ
  - 150’ x 150’
  - Illuminate LZ with vehicle headlights ONLY, ensuring all light is kept out of pilot’s eyes
  - All unauthorized persons at least 150’ away from helicopter
  - No persons or vehicles within 50’ of helicopter except as requested or directed by FFL Crew

Flight for Life personnel will coordinate all loading and unloading of patients and equipment. MFD members will approach the helicopter from the front and downhill side only after signaled to do so by a Flight for Life crewmember. Do not assist with opening or closing helicopter doors. All equipment is to be carried below the waist.

All responding units should turn off their emergency lights once they are in position and use only their headlights to illuminate the ground area to be used as the landing zone. Preplan a secondary landing zone in the event the Flight for Life pilot observes something about the designated LZ to be too hazardous to complete the landing.

All MFD personnel shall have full PPE donned and be wearing safety glasses. It is important that fire helmets are properly secured with helmet straps. High winds resulting from the helicopter rotorwash necessitate properly donned and fastened PPE.

The Landing Zone Engine and Truck Company will function to provide a RIT capability for the Flight for Life crew in the event that the helicopter crashes while approaching or landing at the LZ. In the event of a crash, the general principles of AUTOX responses are key, to include suppression capability, petroleum product control, stabilizing, de-energizing, and glass control.

### LZ ENGINE

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE with SCBA, eye protection, portable radio, flashlight, halligan tool</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Direct LZ apparatus placement, Provide suppression capabilities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEO</th>
<th>Tools: Full PPE, eye protection, portable radio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Engine and pump operations</td>
</tr>
</tbody>
</table>
### NOZZLE
- **Tools:** Full PPE with SCBA, eye protection, portable radio, axe, aeration tube
- **Duties:** Standby with HEO ready to lay foam capable hoseline

### BACKUP
- **Tools:** Full PPE with SCBA, eye protection, portable radio, axe
- **Duties:** Hose control as needed, extinguisher operation as needed

Upon arrival at a FLIGHT assignment, the Engine Officer should initiate the formation of the landing zone as directed by the original scene’s Incident Commander on the assigned incident scene talk group. The Engine Company’s primary function is to provide suppression and firefighter safety capabilities by deploying a foam capable hoseline as needed. Review with crew members that in the event of a fire or accident involving the helicopter, a foam-capable hoseline will be used. Do not lay this line in preparation, but standby with the equipment at the ready. The assumption is often made that the Flight for Life helicopter will only encounter problems at the LZ.

Do not pre-lay a line only to have to disconnect it or hastily reload it to move a block or two away to a crash site that is removed from the designated LZ. If a helicopter crash occurs, immediately advise the IC; all available personnel from non-LZ companies should be directed to shuttle 5-gallon AFFF/ATC containers from their respective apparatus to the operating position of the LZ Engine HEO as able. Understand that if a crash occurs, the Battalion Chief will be requesting another separate AUTOX assignment and an additional Engine Company (supply) to the LZ (in addition to the LZ Engine and Truck Companies). Keep in mind that if the helicopter crashes, the crash site IS the LZ for operational purposes. Proper communication of the crash site location to the IC will prevent special call units from being misdirected.

The LZ Engine HEO should position the rig for access and mobility in and around the designated LZ. Resist the urge to use the LZ Engine apparatus as a traffic control device if the LZ is on a roadway or in an intersection. Utilize other fire apparatus or MPD or MCS units for this purpose. The assumption is incorrectly made that the Flight for Life helicopter will only encounter problems at the LZ. Locking the LZ Engine apparatus down as a traffic barrier reduces its response to the helicopter if it crashes remote from the designated LZ.

Once positioned, the LZ Engine HEO should then prepare to flow foam at 3% for a potential hydrocarbon fire and identify the nearest fire hydrants. If the helicopter crashes, position the rig uphill and upwind as able and flow foam. Begin gathering 5-gallon AFFF/ATC containers from the LZ Engine and other responding apparatus to support sustained foam operations. Further, secure a continuous water supply from a hydrant or from a later arriving Engine Company.

The LZ Engine Nozzle FF and Backup FF will coordinate efforts to lay and operate the foam capable hoseline as directed by the LZ Engine Officer. In the event that the helicopter crashes and begins burning and/or leaking fuel, the Nozzle FF and Backup FF will sweep the ground with the foam on their approach to the burning aircraft. Caution should be exercised to recognize potential hazards, including still spinning rotor blades, broken rotor blades being flung from a damaged helicopter, fuel spilled or burning, and electrical hazards inherent in any crashed vehicle.
In the event that the helicopter crashes and no fire has occurred, the LZ Engine Nozzle & Backup Firefighters will lay the foam-capable reduced line and stand fast. Once the line is positioned, the Backup FF will gather any available dry-chemical extinguishers and place them in staging near the crash site. The LZ Backup FF can then assist the LZ Engine HEO with gathering the 5-gallon buckets of foam concentrate.

Other less obvious hazards may include damaged utility poles, downed power lines or trees in danger of falling, each which may have been the cause or an effect of the helicopter crash. It is important to coat all spilled fuel with a thick, consistent coating of AFFF/ATC foam. This may require re-coating during lengthy operations. Efforts should be directed at providing protection for the LZ Truck Company personnel and for trapped or injured FFL crewmembers that are unable to exit the helicopter.

<table>
<thead>
<tr>
<th>LZ TRUCK</th>
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<tbody>
<tr>
<td><strong>OFFICER</strong></td>
</tr>
<tr>
<td>Tools: Full PPE with SCBA, eye protection, portable radio, flashlight, halligan tool</td>
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<tr>
<td>Duties: Direct apparatus placement for LZ, coordinate rescue if needed</td>
</tr>
<tr>
<td><strong>HEO</strong></td>
</tr>
<tr>
<td>Tools: Full PPE with SCBA, eye protection, portable radio, Porta-power spreader</td>
</tr>
<tr>
<td>Duties: Aerial operation as needed, rescue procedures as needed</td>
</tr>
<tr>
<td><strong>VENT</strong></td>
</tr>
<tr>
<td>Tools: Full PPE with SCBA, eye protection, hearing protection, portable radio, axe</td>
</tr>
<tr>
<td>Duties: Tail Rotor Guard duties, rescue procedures as needed</td>
</tr>
<tr>
<td><strong>FORCE</strong></td>
</tr>
<tr>
<td>Tools: Full PPE &amp; SCBA, eye protection, portable radio, flathead axe, air chisel</td>
</tr>
<tr>
<td>Duties: Rescue procedures as needed</td>
</tr>
</tbody>
</table>

Upon arrival at a FLIGHT assignment, the LZ Truck Officer should verify the location of the LZ with the original scene’s Incident Commander on the assigned incident scene talk group. The LZ Truck Company will place their apparatus as directed to compliment the formation of the landing zone. The LZ Truck Company will then prepare to provide, under the protection of the LZ Engine Company’s hoseline, a rescue capability for Flight for Life personnel in the event of a helicopter crash.

If a crash occurs, the LZ Truck Officer should expect significant injuries and/or entrapment and plan accordingly. Remind crew members that in the event of a fire or accident involving the helicopter, the LZ Truck Company members will be tasked with rescue. This will likely involve glass removal (expect safety glass) and possibly extrication. Understand that if a crash occurs, the Battalion Chief will be requesting another separate AUTOX assignment and an additional Engine Company to the LZ (including the LZ Engine and Truck Companies).

The LZ Truck HEO should position the rig to compliment the designated LZ, keeping mobility in mind. Resist the urge to use the LZ Truck apparatus as a traffic control device if the LZ is on a roadway or in an intersection. Utilize other fire apparatus or MPD or MCS units for this purpose. The assumption is often made that the Flight for Life helicopter will
only encounter problems at the LZ. Locking the LZ Truck apparatus down as a traffic barrier reduces its response to the helicopter if it crashes remote from the designated LZ.

The LZ Truck Vent Firefighter will be designated as the tail rotor guard once Flight For Life safely lands in the LZ. The tail rotor guard's responsibilities include keeping everyone at least 50’ away from the aircraft; only allowing those with the permission from the pilot or crew to approach. The tail rotor guard also must ensure anyone that approaches the aircraft is accompanied by a crew member, and must ensure that exit from the aircraft is always in the same direction that the aircraft was approached. Only the FFL pilot or crew can assign personnel to help carry the stretcher to the aircraft.

The LZ Truck Force Firefighter should stand ready to respond. Do not pre-deploy equipment as it may actually slow the response if the helicopter crashes remote from the designated Landing Zone. Deploy and operate equipment as directed by the LZ Truck Officer. Do not operate internal combustion engine-powered equipment at the crash site if fuel is leaking or spilled until the LZ Engine Company has sufficiently applied foam and is in position to protect the LZ Truck Company in the event of a flash fire.

All LZ Truck Company personnel should work to actively recognize potential hazards, including still spinning rotor blades, broken rotor blades being flung from a damaged helicopter, fuel spilled or burning, and electrical hazards inherent in any crashed vehicle. When a helicopter crashes and the engines do not shut down, it creates a tremendous safety issue. The still spinning rotor blades act like a food processor and will slice anything that they contact. Other less obvious hazards may include damaged utility poles, downed power lines or trees in danger of falling, each which may have been the cause or an effect of the helicopter crash.

**PARAMEDIC UNIT**

<table>
<thead>
<tr>
<th>PARAMEDIC OFFICER</th>
<th>Tools: Full PPE, portable radio, EMS equipment and cot</th>
<th>Duties: Provide EMS triage/treatment/transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARAMEDIC</td>
<td>Tools: Full PPE, portable radio, EMS equipment and cot</td>
<td>Duties: Provide EMS triage/treatment/transport</td>
</tr>
</tbody>
</table>

Upon arrival, Paramedic Unit personnel will provide ALS care to the patient or patients in accordance with established EMS guidelines and protocols. Paramedic Unit personnel should wear PPE appropriate to the original run type. Any requests for additional resources should be routed through the Incident Commander.

The Paramedic Unit should be placed to provide for ready access to the patient but more importantly, ready egress in case the patient must be moved in the Paramedic Unit to the Landing Zone.

If entry into the Landing Zone will be necessary after Flight for Life is on the ground, Paramedic Unit personnel should wear full PPE with safety glasses and properly fastened helmets. Flight For Life personnel will coordinate all loading and unloading of patients and equipment. MFD members will approach the helicopter from the front and downhill side.
Operational Guidelines

FLIGHT (Flight For Life)

only after signaled to do so by a Flight for Life crewmember. Do not assist with opening or closing helicopter doors. All equipment should be carried below the waist and all loose objects (sheets on stretchers, etc.) should be securely fastened before approaching the aircraft.

Paramedic Unit personnel may be called upon to establish and employ mass casualty and/or SALT triage procedures in accordance with current EMS guidelines.

BATTALION CHIEF

Upon arrival, the Battalion Chief shall function as the Incident Commander, ensuring that a functional operational plan is in effect and that all needed resources are on scene or have been requested. Further, the Battalion Chief shall ensure that all Companies and Units are prepared and equipped to perform their assigned functions in a safe manner.

In addition, the Battalion Chief should establish the Landing Zone if one has not been clearly established. If the Landing Zone will be remote from the original incident, the Battalion Chief should communicate with the LZ Engine and Truck Companies to ensure that the LZ is indeed practical and safe. It is better to adjust the LZ than to force an unsafe landing. Arrange transportation of the flight crew to the accident scene if needed.

Communications for the LZ will continue to be on the originally assigned incident talk group. If the original incident is too complex, dynamic, or expanding, an additional Battalion Chief may be requested to manage the LZ. In the meantime, the Battalion Chief may assign the LZ Command function to the LZ Truck Company Officer in order to maintain a reasonable span of control.

In the event that the helicopter crashes, the Battalion Chief should immediately ascertain the capability of releasing units from the original incident to respond to the crash site to support the LZ companies. If releasing companies is not possible, the Battalion Chief should request that a separate AUTOX assignment plus one additional Engine (supply) be dispatched to the crash site (to include the LZ Engine and Truck Companies).

The Battalion Chief should communicate on MCEMSCOM (P14/TG2) to Paramedic Base to determine the number of personnel onboard the helicopter at the time of the crash. Additional Paramedic Units should be requested immediately. The EMS, water and foam supply capabilities and additional personnel will be beneficial to what will likely be a multi-casualty technical rescue incident.

Additional resources should be requested as needed:

- Milwaukee County FD Crash Rescue Response
- Hazardous Materials Response and/or DNR
- HURT Response
- Additional MPD or MCS to assist with perimeter control
- WE Energies or Bureau of Electrical Services
- Additional Flight For Life Helicopter(s)
- District Attorney’s Office

Operational Guidelines
FLIGHT (Flight For Life)
The Incident Safety Officer shall evaluate tactical safety and continually monitor the actions of all members to ensure that safe procedures are being performed and that all necessary safety equipment is being used. Key among these will be proper usage of PPE, evaluation of environmental or scene hazards, and evaluation of the progress or completion of proper petroleum product control, stabilizing, de-energizing, glass removal, and identification of the presence of airbags, actuators, or seatbelt pre-tensioners in any areas that will be cut. Further, Car 18 shall assist in determining if establishing member rehab or decontamination is prudent.
PURPOSE:
Provide guidelines for requesting Wisconsin Helicopter Emergency Medical Services (FFL)

- Patient extricated prior to helicopter arrival?
  - Yes: Ground transport to appropriate facility at appropriate provider level
  - No: Consider requesting air ambulance through fire department dispatch

- Ground transport time more than 30 minutes?
  - Yes: Consider illuminating landing zone, taking care to keep lights out of pilot's eyes
  - No: Designate landing zone of 150 x 150 feet

- Patient requires critical care/skill unavailable at scene?
  - Yes: Ground transport to appropriate facility at appropriate provider level
  - No: Refer to WI HEMS Utilization Guidelines to frame discussion about HEMS utilization (attached)

- Ground transport to appropriate facility at appropriate provider level
- Designate and set up landing zone in a smooth area, as level as possible with < 5 degree slope, clear of wires, trees, debris and other obstacles
- Designate landing zone of 100 x 100 feet
- Keep crowds at least 150 ft away from helicopter at all times
- Anticipate request for a tail rotor guard assignment
- No personnel running or smoking and no vehicles within 50 feet of aircraft

- When signaling where to land, stand with your back to the wind and depart when helicopter is on final approach
- NOTE: Rotor wash can produce high winds - PROTECT YOUR EYES!

- Air medical personnel will coordinate all loading and unloading of patients and equipment
- Approach aircraft from the front and downhill side only after signaled to do so by air medical crewmember; do not assist with opening or closing doors; carry all equipment below the waist
- Transfer patient care to air medical crew
- Clear area and return to quarters

NOTES:
- FFL Response time is approximately 20 minutes from request to arrival at scene within Milwaukee County.
- For air medical response to an MVC, no fire hose line is required.
Wisconsin Helicopter Emergency Medical Services (HEMS) Guidelines:

A. HEMS utilization is a medical decision requiring appropriate oversight and should be integrated within regional systems of care.

B. HEMS may provide a time savings benefit to patients with time sensitive emergencies\(^1\) in reaching hospitals that can provide interventions IF the patient can be delivered during an interventional window\(^2\) AND Ground Emergency Medical Services (GEMS) are not able to appropriately deliver the patient to definitive care within that interventional window.

   1. Examples include: Injured patients meeting the State of Wisconsin Field Trauma Triage Guidelines Category 2 or 3 who are more than 30 minutes of ground travel to the closest American College of Surgeons (ACS) verified Level I or Level II trauma center.
      a. HEMS utilization for mechanism of injury or special population alone (Category 4 or 5) lacks clear evidence of benefit. Since these patients may not need the resources of the highest trauma level facility in a region, use of HEMS should be carefully considered. Standing protocols or online medical consultation may offer individual guidance.

   2. Patients with acute STEMI needing transportation to a regional percutaneous coronary intervention (PCI) capable hospital where ground transportation exceeds an interventional window.

C. HEMS may provide clinical resources to patients needing critical care services if unable to obtain critical care services by ground emergency medical services (GEMS) (e.g., inter-facility transfer).

D. HEMS may provide a mode of transport for geographically isolated, remote patients independent of emergency medical urgency (e.g., from an island) although this mode should be carefully considered.

E. HEMS may provide a resource to local GEMS systems during disasters and times of low community resources.

F. HEMS have unique risks of transport, including economic.

G. Hospital destination and mode of transport are two separate and distinct clinical issues.

H. Mode of transport decisions pose unique challenges in developing evidence-based transport guidelines.

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\(^1\)A time-sensitive emergency can be defined as an acute, life-threatening medical or traumatic event that requires a time-critical intervention to reduce mortality and/or morbidity. Examples include major systems trauma, ST elevation myocardial infarction (STEMI) and stroke.

\(^2\)An interventional window can be defined as the period of time during which mortality or morbidity is likely to be reduced by the administration of pharmaceutical agents, medical procedures or interventions. An interventional window should be based on available national consensus guidelines such as the American Heart Association’s first medical contact or door to balloon time. The “Golden Hour” of trauma refers to the core principle of rapid intervention in trauma cases, rather than the narrow meaning of a critical one-hour time period. There is no evidence to suggest that survival rates drop off after 60 minutes.
The Milwaukee Fire Department is often requested to flush fluids after vehicle accidents, body fluids after violent crime scenes have been cleared by law enforcement, or to remove any number of substances that may have leaked out of a garbage truck. If MPD is on the scene and reports to dispatch that the scene is controlled, a “silent run” may be transmitted.

The goal is to ensure member safety by first identifying the fluid and determining that it is not in fact a hazardous material. When in doubt, contact Engine 33 on the company assigned cell phone for guidance. Identifying the fluids in question and donning appropriate PPE including traffic safety vest (if in the roadway), gloves and safety glasses best accomplishes member safety. If identified as petroleum products or other flammable liquids, DO NOT wear the traffic safety vest as it lowers the flame resistant capabilities of firefighting turnout gear. In this case, be sure the flow of traffic is stopped or sufficiently redirected around the work area.

Clearing Vehicle Fluids after an MVA

The goal is to safely contain and remove the product itself and ensure the atmosphere/environment has been rendered safe for vehicular travel. There are 2 common methods to accomplish this: application of Oil-Dri or other appropriate absorbent and/or application of an emulsifier. Additionally, if the vehicle or vehicles from which the fluids are leaking is still present, Plug-n-Dike may be used to prevent the leak from continuing.

Before applying absorbent or emulsifiers, utilize barn brooms to push all solid accident debris out of the roadway.

Oil-Dri Application

All engine companies carry a 5 gallon container filled with clay absorbent (Oil-Dri). The initial placement of Oil-Dri is aimed at preventing fluids from entering sewers or waterways. The Oil-Dri should be placed over the entire fluid area with a thin coat. Allow it to sit for several minutes and then utilize a barn broom to agitate the Oil-Dri and to allow maximum absorption of the product. A shovel can then be utilized to place the Oil-Dri mixed with product into a large plastic garbage bag. Ensure the intact bag is properly sealed with duct tape to limit the escape of flammable vapors.

The Wisconsin DNR prohibits placing absorbed petroleum products in the regular garbage. If the private vehicle from which a non-petroleum fluid originally leaked is still on scene, the bag can be placed within the vehicle for the owner to dispose. If the vehicle is not on scene or if the fluid is petroleum-based, such as gasoline or oil, the Engine Company should transport the sealed bag(s) in an exterior compartment to their battalion equipment and supply depot. After using the supplied duct tape and sharpie marker to label the bag(s) as
to the specific petroleum product contained within, place the bag(s) inside the **covered metal garbage can** marked “absorbed petroleum products”.

Company officers assigned to the depot locations shall notify Shop supply personnel through the repairs supervisor via email at rgadza@milwaukee.gov each Wednesday to arrange for the pickup and proper disposal of the bag(s) at an approved recycling center.

According to Wisconsin statute 292.11 (Wisconsin Spill Law), any person who possesses or controls a hazardous substance or who causes the discharge of a hazardous substance has a legal obligation to report it to the Wisconsin Department of Natural Resources (DNR). Any hydrocarbon (oil-based product) spill greater than one (1) gallon and/or petroleum product (gasoline, diesel) spill greater than five (5) gallons must be reported to the DNR spill hotline (1-800-943-0003). The primary responsibility to report a spill is upon the spiller (if known). MFD personnel should advise the spiller of these reporting requirements and document the advisement in the incident report. If the spiller is unknown, the incident commander is to report the spill to the DNR spill hotline.

Using **Oil-Dri** is generally preferred during sub-freezing temperatures and with small spills. If the amount of **Oil-Dri** carried by the Engine Company is insufficient for the spill, a special call for another MFD Engine or Truck Company should be made. If calling for more **Oil-Dri**, advise Dispatch of the need for additional absorbent so the responding unit is advised and can bring extra. **HazMat 2** has the capability to absorb, collect, and dispose of common petroleum products and can be requested for petroleum spills less than 25 gallons (if recoverable) or if product remains in a fuel tank that is still leaking. Officers must clearly transmit quantity and description of the product to dispatch so that **HazMat 2** can bring the appropriate absorbent and recovery materials. For spills in excess of 25 gallons, request a **Limited or Full HazMat Assignment** and operate under the **PETROL** guidelines.

**Emulsifier Application**
In selecting **emulsifier** application, several considerations must be made: temperature, gradient of the road, and location of sewer(s) or appropriate run-off area. An **external eductor** should be utilized to ensure the proper percentage of product is applied. Utilize **barn brooms** to agitate the **emulsifier** with the spilled product. Let it sit for several minutes and flush it from the roadway with copious amounts of water. Be sure to adequately flush all hose, nozzles, brooms, boots, and the eductor after use.

Ensure that there is a place to push the emulsified fluids with the hose stream. If an appropriate sewer or run-off area is not available, consider using **Oil-Dri**.

The Milwaukee Fire Department is required to mitigate these hazards on all public property, such as roadways, city-owned parking lots, and the like. If a spill occurs on private property, it is the owner’s responsibility to clean up the spill; however, MFD should ensure the stabilization of the situation to avoid further contamination and to prevent future injury. Engine Company Officers must be cognizant of the risk involved in leaving the problem for the owners, considering the timeliness of their response, potential for further accidents, potential for fluids to enter sewers or waterways, and public perception. Inform the operator or on site personnel that the spill must be reported to the **Wisconsin DNR spill hotline (1-800-943-0003)** under Wisconsin statute 292.11 (Wisconsin Spill Law).
Flushing Body Fluids

Requests for flushing assistance for body fluids generally occur after a traumatic injury in which body fluids are left on a sidewalk or roadway. Oftentimes these are crime scenes and the Milwaukee Fire Department is requested after the crime scene investigation is completed. Remember, blood is a biohazard and can be loaded with pathogens. Ensure that all appropriate PPE including gloves, safety glasses (and in some circumstances gowns) is used. The goal is to remove the fluid and render it harmless. Scooping up clots with a shovel and placing them in the sewer may be more effective than spraying a hose stream and pushing them into the grass. Dried blood may require using an emulsifier and a barn broom to clean up.

While not a guideline for cleaning up body fluid spills, EMS-SOG Guideline E-1.2 contains useful information regarding body fluid exposure control.

Engine Company Officers must be cognizant of the risk involved in leaving the problem for property owners, considering the timeliness of their response, potential for further contamination, and public perception. Remember, if this is a crime scene, the media may be on the scene filming.

Other

It is impractical to list all of the possibilities but the potential for the following exists:

- Accidents involving tractor trailer rigs carrying beer, animals, glue, paint, milk, or any other number of liquids in commercial transit
- Hazardous Materials: a thorough size-up is required to provide for MFD members’ and the public’s safety – contact Station 33 for consult or make a special call for the HazMat Team to respond when any doubt exists

ENGINE

<table>
<thead>
<tr>
<th>OFFICER</th>
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<tbody>
<tr>
<td>Tools:</td>
<td>Full PPE, portable radio, flashlight</td>
</tr>
<tr>
<td>Duties:</td>
<td>Incident Command, direct cleanup operation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEO</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools:</td>
<td>Full PPE, portable radio, eductor, emulsifier</td>
</tr>
<tr>
<td>Duties:</td>
<td>Position apparatus, Engine and pump operations</td>
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</tbody>
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<table>
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<tr>
<th>NOZZLE</th>
<th></th>
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<tbody>
<tr>
<td>Tools:</td>
<td>Full PPE, portable radio, Oil-Dri, shovel</td>
</tr>
<tr>
<td>Duties:</td>
<td>Absorbent or nozzle operation as needed</td>
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<tr>
<th>BACKUP</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Tools:</td>
<td>Full PPE, portable radio, barn brooms, pressurized water extinguisher</td>
</tr>
<tr>
<td>Duties:</td>
<td>Oil-Dri agitation or hoseline control as needed</td>
</tr>
</tbody>
</table>

Operational Guidelines
FLUSH (Flush Fluids)
Upon arrival, the Engine Company Officer shall investigate to determine the exact nature and magnitude of the fluid spill. The Engine Officer shall direct and supervise Engine Company members to ensure proper packaging and safe operations to efficiently mitigate the spill. The Engine Company Officer should call for additional resources as needed (HazMat, MPD or MCS, additional Engine or Truck).

If the FLUSH assignment is for a former crime scene, the Engine Company Officer must confer with the ranking law enforcement officer to ensure that the scene is secured and done being investigated.

The Engine Company HEO shall place the rig uphill and upwind of spills if able. The Engine HEO shall use the rig as a barrier to protect the working area and place traffic cones to alert vehicles to the change in the traffic pattern. As needed, the Engine HEO will operate the pump to generate a hose stream and/or to educt emulsifier or foam.

The Nozzle FF and the Backup FF will work in concert to absorb or flush the product as directed. Care should be taken to wear proper PPE, including gloves and safety glasses and to avoid over-spraying or splashing product toward or near other operating members while flushing. The Backup FF may use the pressurized-water extinguisher as directed by the Company Officer for small, non-petroleum spills that do not require a hose.

If, during cleanup operations, a member’s bunker gear or clothing becomes contaminated, the gear and/or clothing shall be bagged and placed out-of-service until adequately cleaned at one of the industrial laundry machines made available to members.
Forcible entry is a primary responsibility of the Truck or Rescue Company at fires and other emergencies. Oftentimes a Truck or Rescue Company is requested to gain entry into a structure for a variety of reasons. These include but are not limited to: Emergency Medical Service (EMS) incidents, lockouts, incapacitated person(s), or to assist a law enforcement agency. It is important for the Truck or Rescue Company to approach FORCE assignments with the same attention to detail and urgency as any other emergency response type.

Knowledge of the types of doors and locking mechanisms in a company’s response area is paramount. This is true during fires as well as other “less emergent” incidents, as excessive or preventable damage to a property is a product of an unprofessional operation and can harm the public’s perception about their fire department’s capabilities and concern for their property. The Milwaukee Police Department must be requested any time forcible entry has been used to gain entry into a structure and the property owner or occupant is not present to secure the structure.

Gaining knowledge and experience with the variety of door types and locking assemblies starts with a basic knowledge of doors and locks found throughout the City of Milwaukee. As the need to become more secure increases, so too does the means of accomplishing it. This means that new and more complex locking mechanisms are always emerging, requiring that the Milwaukee Fire Department stay abreast of these changes. Practicing with and mastering the use of forcible entry equipment is key to a successful FORCE operation. Members can reference CentreLearn courses for conventional forcible entry tactics and tips, and also, contact the Training Academy for additional forcible entry practice with props. The CentreLearn courses include: Outward Swing Wood Door, Inward Swing Wood Door Baseball Swing, Inward Swing Wood Door 2 person, Outward Swing Metal Door, Inward Swing Metal Door, and Inward Swing Metal Door Alternate.

When approaching a forcible entry incident, the Truck or Rescue Company members must approach the scene with their personal safety as the primary concern. Commonly, a Truck or Rescue Company is requested to assist law enforcement personnel with gaining entry to a structure. Due to the potential hazards and unknowns behind any door, it is imperative that the MPD does not place MFD members in danger. The Truck or Rescue Officer must maintain constant communication with the senior-ranking MPD officer on scene to ensure that all members are safe during any forcible entry operation. Any indication of an armed assailant(s) shall be considered a contra-indication for MFD involvement until the assailant has been subdued and the weapons secured.
Consider the dangers associated with every type of incident the MFD may respond to during a FORCE assignment: unleashed dogs, domestic violence disturbances, structural and contents hazards, or potentially violent people.

Care should also be taken with who could be injured or what may be destroyed when a door is forced open. Incapacitated occupants or young children may be in the immediate area of the door-swing when forced.

"When you are confronted with a situation requiring forcible entry, take a moment to size up that situation, and then choose the method that is the most appropriate. Among the deciding factors are the need for speed, the type of door and lock assemblies, the tools, and the manpower available, and the degree of damage the entry will create. The need for speed should be the overriding concern, whether to save a life or cut off fire that is rapidly extending. In certain cases however, the type of door, or the lock assembly will be the deciding factor, since certain types are best opened using specific methods. In some cases there is only one way to get past a specific door. In almost all cases, the degree of danger posed by forcible entry should be consistent with the danger and damage from the hazard, usually fire."

Fire Officers Handbook of Tactics – 3rd Edition  Deputy Chief (retired) John Norman, FDNY

**TRUCK**

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE, portable radio, flashlight, halligan tool</th>
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<tr>
<td></td>
<td>Duties: Incident Command, direct forcible entry operation</td>
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<tr>
<th>HEO</th>
<th>Tools: Full PPE, portable radio, axe, 6’ pike pole</th>
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<tr>
<td></td>
<td>Duties: Ground or aerial ladder placement</td>
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<tr>
<th>VENT</th>
<th>Tools: Full PPE, portable radio, axe, metal and/or wood rotary saw</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Saw operation, assistance with ladder placement if needed</td>
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<thead>
<tr>
<th>FORCE</th>
<th>Tools: Full PPE &amp; SCBA, portable radio, flathead axe, through the lock tool kit</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Forcible entry as directed by Officer</td>
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</table>

Upon arrival at a FORCE assignment, the Truck or Rescue Company Officer should first determine the specific nature of the request and determine the appropriate urgency needed to complete the assignment. The Truck or Rescue Company Officer shall determine if a potential emergency medical problem or other circumstances dictate rapid forcible entry and shall ensure that all members are properly protected by wearing their PPE including gloves and safety glasses.
Firefighter safety shall be paramount when deploying Truck or Rescue Company members to assist law enforcement personnel with gaining access to a structure. If a known or suspected armed or hostile subject is inside the structure into which law enforcement is requesting assistance, they shall be responsible for performing their own forcible entry. This principle also applies to situations where ladders must be raised to access potentially armed subjects. Request a Battalion Chief to the scene if any misunderstanding ensues.

When assisting a civilian claiming to be locked out of their residence, request and wait for law enforcement personnel to verify the authenticity of the civilian’s claim. If not an emergent situation, recommend that the civilian call a locksmith. In this case it is better to use caution as speed is not a factor.

Where speed is not a factor, the Truck or Rescue Company Officer shall ensure that members make every effort to gain entry without damage, trying all doors first and then attempting window access. Be sure to knock loudly on doors and windows so that hearing-impaired persons have an opportunity to hear us prior to forcing entry. This will also allow us to assess for the presence of dogs, as they will in many cases bark to protect their home when presented with unfamiliar noises. If an angry dog appears to be loose in the house and presents a threat, request and wait for MPD and/or MADAC to contain the dog.

Second floor windows are often left unlocked and may be an excellent means of gaining access. In any case where members enter through a window, no less than 2 members shall make entry and each shall carry a hand tool, calling out “Fire Department,” as they progress to unlock the door(s) for other members. Be very cautious as pets or startled occupants may pose a threat to firefighters. Upper level access points such as porch doors may also be left unlocked or poorly secured, making an ideal access point. If glazing must be broken to access locked doorknobs, choose the smallest appropriate pane of glass within reach of the doorknob on the least expensive door. This causes considerably less damage than destroying or damaging a door and doorframe.

Lock disassembly and through-the-lock methods should also be understood and considered when the size up of the building and the situation indicates a less destructive method than “forcible” forcible entry is warranted. To review these methods, companies should reference Through the Lock Course on CenterLearn.

At certain occupancies, Knox Box access may be gained, completely eliminating the need to cause any damage while gaining access. Check the run sheet for Knox Box information. Efforts should be made to locate Knox Boxes in your response area and update dispatch with their presence, if not already indicated.

The Truck or Rescue Company HEO shall position the apparatus to allow for easy access to the ladders and tools. The HEO shall be responsible for all ladder operations, working in concert with the Vent FF to position and raise ground ladders. The Truck or Rescue Company HEO shall operate according to the operational plan as determined by the Incident Commander.

The Truck or Rescue HEO may place a ground ladder to a window or porch roof, if possible, checking for overhead obstructions such as wires, and attempt to enter the window. Before entering, the HEO should size-up the interior of the structure to determine if any of the aforementioned hazards exist, placing the axe or 6’ pike pole (handle side first)
inside the window to feel for occupants or obstructions, particularly at night in unlit rooms.

If the Truck or Rescue HEO is attempting to gain access via a porch door, he should consider bringing a **Halligan Bar** and the **6’ pike pole** to gain entry. Both tools can be used in combination by the HEO to force-entry through a door with limited locking mechanisms. Utilizing an upper porch door will leave the occupancy more secure when the truck company returns to service as the ground level door(s) will remain secure and can be relocked from the interior. The Truck HEO must be sure to size-up the interior of the structure to determine if any hazards exist behind the door.

The same principle regarding limiting damage to the door and framing is true for any exterior, ground-level door as well. This is the easiest method of entry as members can potentially break one pane of glass (if present), reach in and unlock the door. During size-up of these doors, however, members must be aware of any potential hazards present when placing their arms into the occupancy to reach the locks.

If the door contains a **mortise lock** and only one additional lock (**rim locks, segal-lock, slide-bolt**), the Truck or Rescue Officer should consider use of the **Through the Lock Tool Kit**.

If gaining entry to the structure cannot be accomplished by any of the methods described above, conventional forcible-entry operations are warranted. This includes using the **irons** and/or **rotary saw** with the appropriate blade, or using a **sledge hammer**.

If the building is vacant, the Vent FF should cut the door board-up first. This will allow MFD and MPD members to enter the structure without using ladders. Care must be exercised when entering a vacant structure from an upper-floor window. Vacant structures could have holes in the floor and other hazards not easily determined or recognized from an exterior size-up.

When conducting conventional forcible-entry operations to gain entry to a ground-level door or interior occupancy, the Vent and Force Firefighters will utilize the **irons** and/or **battering ram** after determining the door is actually locked. The Truck or Rescue Officer will continue to supervise the operation and continually size-up the incident to determine other means of entry if needed.

The Truck or Rescue Officer should never hesitate to request a Battalion Chief or Engine company to assist with the incident. The Truck or Rescue Officer should also request a “**10-53: Provide Security**,” if there is any indication of a potentially violent incident or threat to operating personnel. After entry has been accomplished, determine if there is a medical problem requiring EMS and act accordingly, requesting needed resources.

Take the opportunity at the conclusion of the **FORCE** assignment to examine the various entry and exit points from the interior, particularly the chosen point of entry. This provides a rare and critical opportunity to critique and improve forcible entry operations. Be sure to leave unoccupied structures that have been forced into in the custody of law enforcement.
Units Dispatched: 2E + (T or R) + M + B + CAR18

**GENERAL**

The frequency of garage fires should not dull the urgency of the response. **GARAGE** assignments should be approached with the same urgent and focused response as an occupied dwelling. The nearness of a detached garage (driveway or alleyway) to other structures and the threat of interior exposure from an attached garage both require that companies rapidly stretch and place a hoseline into operation. Simultaneously, additional companies must protect and search exposures for life hazards and fire extension.

Hazards inherent in fighting garage fires are numerous and vary depending on whether or not the garage is positioned in the alleyway or attached to the dwelling. Garages positioned in the alleyway require companies to advance hoselines and operate to protect exposures, providing limited access to apparatus. Attached garage fires can rapidly extend to the occupied portions of the dwelling, dramatically increasing the life hazard.

Other hazards to consider include but are certainly not limited to: compromised electrical and utility wires, poor construction, age, unprotected structural members, and the unknown storage of contents. Simple approaches can limit the risk of injury or death to responding members.

Members should never lay or operate hoselines under compromised or involved electrical or utility wires (or in areas where those wires could fall if they burn through). This may require operating from a seemingly defensive position, but it will prevent serious electrical trauma to personnel operating at the scene. If the burning wires fall or have fallen prior to our arrival, a firefighter should be posted to guard the wire and all other responding companies should be notified. Visually backtrack the wire(s) and determine if it is in contact with any metal fencing or building siding, as those must now also be considered energized and should be guarded.

If the wire is arcing and dancing on or near the ground, any area within reach of the wire must be guarded for the safety of all operating personnel (the Incident Safety Officer can use red caution tape to isolate this area). This area should continue to be monitored by the originally assigned Firefighter or by the Incident Safety Officer until it is confirmed by WE Energies that the power has been cut to the affected wire(s).

Structural integrity is always a concern at well-involved garage fires. Interior attack is not indicated unless there is a known, viable, life hazard in the garage, which is rare. Operate from a position of safety (outside of the collapse zone) and let the reach of the water stream work for you, minimizing personnel risk from explosions or collapse. The rafter space is often used to store large, heavy items (canoes, stacked lumber, shingles, piping, etc.). If the roof structure should fail, the heavy items and likely much of the roof structure, roof decking, and roofing material could injure, entrap, and/or kill interior operating
firefighters. These structural hazards are not found only in older, decrepit garages. Newer constructed garages are built using roof trusses which are often left totally unprotected in the highest point of the structure, exposed to the gathering heat and flames which can hasten their failure and subsequent collapse.

Contents in garages can include just about anything that will fit into the garage: automobiles, motorcycles, bicycles, rubbish, fertilizers, pesticides, lighter fluid, gasoline, propane tanks, Oxygen and Acetylene cylinders, NOX (nitrous oxide) cylinders, spa/pool chemicals, and any other number of hazardous materials and trip hazards that can be imagined. SCBA usage is mandated when working in or adjacent to a garage fire, from the initial attack through the completion of salvage & overhaul.

Access into a detached garage can prove difficult, especially when the garage is positioned at the rear of the lot abutting an alley. Owners may over-secure the garage in an attempt to fend off theft, with window openings that are boarded up, barred over, glass blocked, or covered with plexi-glass. The service door may be steel in construction, containing multiple locks and drop bars. The overhead door may be bolted or locked into the rails. Each of these obstacles will slow our access, preventing timely ventilation and allowing smaller fires to grow and consume more of the structure.

Milwaukee Fire Department personnel should approach with the notion that each garage fire will present every hazard possible, always using caution and maintaining situational awareness. Given these potential hazards, rapid extinguishment should not be delayed under any circumstance. Well involved garage fires readily extend to adjacent exposures, multiplying the life and fire hazard if not quickly handled.

Based on their size-up, Engine Companies must stretch the proper size and length of hose to reach and cover the involved garage(s) as well as to protect exposed structures. 1¾” or 1.88” hose is sufficient to extinguish most single-car garage fires with no exposure. However, when the garage is larger and is well involved or threatens exposures, a 2½” hoseline is indicated. Stretching multiple 1¾” hoselines will not provide the knockdown power or exposure protection of a well-placed and operated 2½” hoseline.

If additional hoselines are needed, the Incident Commander (IC) should make a special call for additional Engine Companies or the balance of a FULL assignment. If the garage is found to be an attached garage, make a special call for the balance of a FULL assignment. If on arrival, the reported garage fire turns out to be a large commercial garage (auto repair shop, body shop, light industrial shop, etc.), make a special call for the balance of a FULL assignment. In these cases, operate according to the FULL (Structure Fire) operational guidelines.

Fires in attached garages present additional considerations during the initial firefight. The contained fire load can cause an incipient fire to rapidly intensify and take possession of the entire house. Several building codes offer some protection, assuming they were complied with during construction and during subsequent renovations:

- Vertical separations between dwelling and attached garage –
  - “The walls and ceiling between an attached garage and any portion of the dwelling, including attic or soffit areas, shall be ¾-hour fire-resistive construction. . .” (WI COMM 21.08.(1).a.1, 2009)
o “Vertical separations between an attached garage and a dwelling shall extend from the top of a concrete or masonry foundation to the underside of the roof or sheathing or fire-resistive ceiling construction.” (WI COMM 21.08.(1).a.3, 2009)

- Structural elements in attached garages –
  o “Beams, columns and bearing walls which are exposed to the garage and which provide support for habitable portions of the dwelling shall be protected by. . .¾-hour fire-resistive protection.” (WI COMM 21.08.(1).b, 2009)

- Doors separating dwelling from attached garage –
  o “The door and frame assembly between the dwelling unit and an attached garage shall be labeled by an independent testing agency as having a minimum fire-resistive rating of 20 minutes.” (WI COMM 21.08.(1).c.1, 2009)

These and other building codes theoretically provide some degree of protection for dwelling occupants and firefighters alike in the event of an attached garage fire. Reality dictates that improper firestopping during electrical, HVAC, or plumbing work, as well as the potential for inadequate initial construction, leaves open the possibility that fire and smoke will travel freely into the dwelling. In these cases, the fire can travel into a dwelling void space, increasing potential flashover or backdraft conditions.

The presence of autos inside an involved garage should not change the placement and operation of the first hoseline. Furthermore, if an Engine Company advances a hoseline into a structurally sound garage containing a burning automobile(s), the firefighting principles of AUTOF (Auto Fire) assignments apply due to the inherent hazards.

1st ENGINE

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE with SCBA, portable radio, flashlight, TIC, halligan tool</th>
<th>Duties: Initial IC, direct apparatus placement, V-Tac</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEO</td>
<td>Tools: Full PPE, portable radio</td>
<td>Duties: Engine and pump operations</td>
</tr>
<tr>
<td>NOZZLE</td>
<td>Tools: Full PPE with SCBA, portable radio, axe, door chocks</td>
<td>Duties: Nozzle and hoseline operation</td>
</tr>
<tr>
<td>BACKUP</td>
<td>Tools: Full PPE with SCBA, portable radio, flathead axe, 6’ pike pole</td>
<td>Duties: Hose control or extinguisher operation</td>
</tr>
</tbody>
</table>

While responding to a GARAGE assignment, the 1st Engine HEO should slow down upon entering the block. Realize that the garage fire could have been reported as ‘rear of’ the caller’s address but may actually be across the alley and/or down the block. Unless the decision is made to operate from the alley at the end of the block, the 1st Engine Company should be located (and all other Companies notified on the incident talk group) to initiate operations from in front of the address in front of the burning garage.
The reported address should give an indication as to whether the garage is near an end of the block. This is where memorizing 'hundred' blocks for cross streets pays off. This is important for detached garage fires that are situated on an alleyway. If the address is one or two City lots from either end of the block and involved or potentially involved utility wires will not impede safe operations, the HEO can place the apparatus at the entrance to the alleyway to allow for an easier stretch and hoseline advance.

**DETACHED GARAGE FIRES – 1st ENGINE**

Positioning the engine apparatus at the alleyway entrance will prevent the first hoseline from having to traverse an exposed gangway, travel under exposed dwelling electrical wires, or navigate over fences and through rear yards. In this case, the 1st Engine Officer must notify all incoming units via radio of the 1st Engine’s operating position so as to avoid both Engine Companies acting in the Attack Engine capacity, resulting from the 2nd Engine Company believing they were the first to arrive at the given address. The 1st Engine Officer shall immediately determine the tenability and safety of operating from this location and advise the 1st Engine HEO to adjust the apparatus position to a safer location if necessary. Operating a hoseline from the alley has the potential to push smoke and products of combustion toward an occupied residence.

Apparatus should never be placed in an alley. Doing so places the entire GARAGE response at great risk as the apparatus could become an exposure or electrical lines could drop onto it if fire conditions rapidly change or mechanical failure slows extinguishment.

If the involved garage is located near the center of the block, the 1st Engine Officer will ensure the 1st Engine HEO places the apparatus on the street-side of the dwelling address, if able, and in front of an adjacent lot to leave room for the 1st Truck Company. The hoseline will need to be stretched between dwellings and placed in the gangway and/or rear yard. The 1st Engine Officer shall immediately determine the tenability and safety of operating from this location and place the hoseline in as safe a position as possible.

While it is generally assumed that the Truck Company apparatus is given the ‘front of the building’, at detached garage fires, the reasoning may not be as clear. While it is pleasant to provide closer access to the Truck Company’s tools and ground ladders, the positioning becomes critical if the dwelling or adjacent dwellings should become exposed and involved in fire.

The 1st Engine Officer will initiate Incident Command and report the conditions found on arrival over the Incident talk group. Upon arrival of the Truck Company, Incident Command may be passed to the Truck Officer until the arrival of the Battalion Chief.

As early as possible in the fire operation, the Engine and Truck Officers shall conduct a detailed size-up of the structural integrity, fire conditions and contents of the garage, and avoid advancing a hoseline into the involved structure unless absolutely necessary during the overhaul stage or a reported life is at risk. If there is any doubt about any of the aforementioned hazards, then the hoseline must continue to operate from an exterior position. This decision must be relayed to all other Companies and support personnel on the fireground talk group.
The 1st Engine Officer is to ensure that the proper size and length hoseline is stretched for the intended operation. For initial operations, the first hoseline shall be stretched to the side or rear service door of the garage, if possible. Operating from this position allows the use of steam to initially control the fire in an enclosed atmosphere. The Truck and Engine Officers shall communicate the status of forcible entry and eventually coordinate access through the overhead door. In the case of a delayed Truck Company response, the Engine Officer and Backup FF shall use the irons to force entry into the service door. If the service door proves difficult or time consuming, consider deploying water through a garage window until the door can be opened. The Engine Companies shall use caution when operating hoselines from the service door or window while the Truck Company is forcing entry to the overhead door to ensure the safety of all personnel.

Advanced fires indicate the initial use of a 2½” hoseline. Remember that protecting exposures is of vital importance during garage fires and that the initial hoseline may have to simultaneously operate on multiple exposures to protect them. The amount of hose needed to protect exposures shall be considered in the hoseline estimate.

An attack using a 2½” hoseline is easily initiated using the 500 gallons of water carried onboard Milwaukee Fire Department Engine Companies. What is lost in duration (as compared to a reduced line) is gained in bringing the appropriate gallonage, reach, and penetrating power to the advanced fire. 2nd due Engine Companies should continue to establish a positive water supply as quickly as possible to support this operation.

ATTACHED GARAGE FIRES – 1st ENGINE

If the fire is in an attached garage, the 1st Engine Officer shall ensure the 1st Engine HEO positions the apparatus in accordance with apparatus procedures for a FULL (Structure Fire) response. The 1st Engine Officer will consider the extent of involvement of the garage, and the threat to the attached dwelling. Do not position the apparatus at the base of the driveway, as fuel leaking from vehicles and containers inside the garage can flow down a sloping driveway and result in a spill fire directly below the apparatus.

The first arriving Company Officer shall make a special call for the balance of a FULL assignment. The first hoseline at an attached garage shall be stretched to and placed via the front door of the occupied dwelling. This is done in order to place the hoseline between the fire and occupants, or the most severely exposed portion of the dwelling. In this particular type of fire, the occupants and the dwelling itself are the most severe exposures. Therefore, the first hoseline must be placed via the primary means of egress from the structure (front door and interior stairs). However, if occupants are all verified to be out of the building and accounted for, and the dwelling interior does not appear to be immediately threatened, make the initial attack on the garage after making sure the door leading from the garage to the dwelling is closed.

The second hoseline stretched (with occupants trapped or potentially trapped in the attached residence) will be used to extinguish any fire in the garage itself from an exterior position if not already handled by the 1st Engine Company. The 1st Engine Company Officer must remain in constant communication with the Incident Commander and the 2nd Engine Officer to report the status of interior search operations, any extension into the dwelling, condition of and control of the interior door leading from the dwelling to the
garage, the progress of the first hoseline, and the need for more interior hoselines. As detailed above, many code-based protections are in place to offer at least 20 minutes of fire protection for the dwelling during an attached garage fire, assuming those codes were followed to the letter and the door to the garage was not left open by fleeing occupants. Aggressive yet judicious use of salvage and overhaul techniques combined with TIC usage will need to occur following knockdown of the garage fire, in both the garage and dwelling halves of structure.

The 1st Engine Officer shall consider use of the Engine Company’s deck gun after initiating a hose stretch to protect the interior of the dwelling, and assuring the door is closed, during an advanced fire. This may also be necessary if the 2nd Engine Company is delayed for any reason and the 1st Engine HEO can secure a hydrant supply. In the case of a 2nd Engine Company delay, the tank water would be committed to the interior operating hoseline.

The 1st Engine HEO, at the direction of the 1st Engine Officer, and after securing a hydrant, will operate the deck gun on the garage while the Engine Officer, Nozzle FF and Backup FF begin stretching a hoseline for interior operations and close the door separating the garage from the residence. The 1st Engine Officer shall notify all other incoming Companies and support personnel of a deck gun operation and the progress of the interior hoseline.

To be clear, this combination attack does not imply that both would occur simultaneously. It is typically extremely hazardous to operate a hoseline or deck gun into a structure in which Fire Companies are operating. The intent of this guideline is to emphasize the importance of initially protecting the means of egress of the occupants (which represent the greatest life hazard) while recognizing the importance of rapidly knocking down the fire (which almost always reduces or eliminates all other hazards).

In all cases where a hoseline is placed into operation, the Engine Company Officer shall select the hose size and bed and communicate this to the Engine Company Firefighters. The Nozzle FF shall begin the stretch, taking at least 1 section with the nozzle. The Backup FF shall complete the hose stretch and dress the hose, moving up to support the Nozzle FF after the hose has been sufficiently moved forward to the operating area. The Backup FF can then use the 6’ pike pole to block the overhead garage door in the open position, or assist in pulling ceilings, siding, or other salvage and overhaul applications.

Also, in all cases, the Engine HEO shall position the apparatus, operate the pump, and work to secure a positive water supply. If the regular 2nd due Engine Company is not available to respond or the assigned 2nd due Engine Company is delayed, self-supplying is indicated.
Upon arrival, the 2nd Engine Company Officer shall communicate with the Incident Commander to verify their arrival and continue with their assignments to support the operation, unless reassigned by the Incident Commander.

The 2nd Engine Company shall assist the 1st Engine HEO with securing a water supply. This is generally best accomplished by backing down from the nearest intersection, dropping supply lines to the 1st Engine Company, and then proceeding to the hydrant.

**DETACHED GARAGE FIRES – 2nd ENGINE**

If an additional hoseline is needed to extinguish the garage fire or to operate on or in an exposure(s), then the members will stretch the appropriate hoseline from the 1st Engine Company’s apparatus. The 2nd Engine Company shall be mindful of all hazards as mentioned above and shall operate the 2nd hoseline in coordination with Companies already in operation.

**ATTACHED GARAGE FIRES – 2nd ENGINE**

If the fire involves an attached garage and the 1st Engine Company is protecting interior egress in the residence portion of the structure, the 2nd Engine Company will focus on knocking down the visible fire in the garage portion of the structure after communicating with the interior operating company. Once knockdown is confirmed, the 2nd Engine Company may have to reposition their hoseline in the event fire has extended to multiple floors of the dwelling. A FULL assignment should have been requested in this instance and the 3rd Engine Company can back up the 1st Engine Company if the garage requires more time to extinguish.

Conversely, if all occupants have been verified and accounted for and the 1st Engine is initiating exterior extinguishment on the garage portion of the structure, the 2nd Engine will begin interior exposure control in the residence portion of the structure.
In the event of an advanced fire in the garage, a 2½” hoseline may be needed to extinguish fire in the garage based on the fire conditions and/or potential of extension to the occupied portions of the dwelling.

In all cases where a hoseline is placed into operation, the Engine Company Officer shall select the hose size and bed and communicate this to the Engine Company Firefighters. The Nozzle FF shall begin the stretch, taking at least 1 section with the nozzle. The Backup FF shall complete the hose stretch and dress the hose, moving up to support the Nozzle FF after the hose has been sufficiently moved forward to the operating area. The Backup FF can then use the 6’ pike pole to block the overhead garage door in the open position, or assist in pulling ceilings, siding, or other salvage and overhaul applications.

**TRUCK OFFICER**

**Tools:** Full PPE with SCBA, portable radio, flashlight, TIC, halligan tool, tagline
**Duties:** Assume Command if Engine company interior, V-Tac

**HEO**

**Tools:** Full PPE with SCBA, portable radio, axe, door chocks, tagline
**Duties:** Ground ladder or Aerial operations, Ventilation as needed, Lights and Generator as needed

**VENT**

**Tools:** Full PPE with SCBA, portable radio, axe, door chocks, tagline, rotary saw
**Duties:** Ventilation as needed, Forcible entry as needed

**FORCE**

**Tools:** Full PPE with SCBA, portable radio, tagline, flathead axe, door chocks, Pike poles (8’ and/or 10’)
**Duties:** Force entry as needed, Ground ladders as needed, Assist with lights and generator as needed

**DETACHED GARAGE FIRES - TRUCK**

Truck Company operations at garage fires typically consist of: forcible entry to the side or rear and overhead garage doors, entry into exposures to search for life and fire extension, scene lighting, and salvage & overhaul.

The Truck HEO shall position the apparatus near the entrance to the alleyway if the garage fire is located near the end of a block. This allows rapid access to equipment and will assist in keeping the alleyway clear of civilian and vehicular traffic in the hot zone. The Truck HEO shall ensure that the apparatus is not parked underneath utility lines that cross the road.

The Truck Officer shall immediately communicate with the 1st Engine Officer to determine the location and extent of the fire, as well as any exposure concerns. The Truck Officer shall then assume Incident Command. The Truck Officer will pass Command and Operations to the Battalion Chief upon the Battalion Chief’s arrival.
The Vent FF and Force FF will access and secure open all doors to the garage, as directed by the Truck Officer. The Truck Officer shall coordinate with the Engine Officer(s) to ensure that the Vent FF and Force FF are protected while operating to force entry. The Vent FF may have to cut the overhead door and should utilize the correct rotary saw blade. Size-up of the construction of the overhead door is critical prior to attempting to cut.

Once the overhead door is in the open position, it must be secured in the open position by sliding the pointed end of a pike pole between the rail and the lowest edge of the door, positioning the shaft of the pike pole within the rail to act as a chocking system. Vice grips can also be clipped onto the rail just under the lowest edge of the garage door as an added safety measure.

If the fire is advanced and cutting the overhead door will place the Vent FF in danger, then the Vent FF shall attempt to create an opening near the guide-rails of the overhead door with the 8’ or 10’ pike poles. Pushing or pulling a section of the garage that is compromised by the heat of the fire or knocking out a panel may provide enough of an opening to allow placement of the hose stream. As an alternative, wood clapboard siding can usually be peeled back, starting near the corner of the garage, to allow hose stream access to initially darken down interior fire.

The Force FF will assist the Vent FF and Truck HEO with entry to the garage and/or exposures, as well as salvage and overhaul operations. The Force FF will also assist the Truck HEO with the generator, scene lighting and ground ladders if needed. Ground ladders may be required to check for extension and to conduct overhaul on the burned garage and/or on the exterior of exposures, including roofs. At the Truck Officer’s direction, consider placing a PPV during overhaul to clear smoke to provide better evaluation of roof and rafter conditions, as well as contents.

At no time should the Truck Company operate on the roof of the involved structure during a detached garage fire. Due to the age and construction of detached garages, as well as their structural instability during fires, it is unsafe to conduct roof operations or vertical ventilation. Sufficient ventilation is accomplished by accessing all horizontal windows and doors. Access to the roof, if needed, should be gained from a ground ladder, using appropriate tools to extend the Firefighter’s reach.

**ATTACHED GARAGE FIRES - TRUCK**

If an advanced fire is noted in an attached garage, a FULL assignment should be or will have already been requested. In this case, initial Truck Company operations will be aimed at forcible entry, life safety, and closely coordinated ventilation. If the 1st Engine has committed to protecting the greatest exposures (the life and property in the attached dwelling), support that operation by providing forcible entry and search and rescue. Ventilation should be undertaken only after the 2nd Engine Company has knocked down the garage fire. Premature ventilation could draw smoke or fire into the dwelling, disrupting search and rescue operations and spreading the fire.

If occupants are all verified to be out of the building and accounted for, and the dwelling interior does not appear to be immediately threatened, support the 1st Engine Company’s initial attack on the garage by forcing entry into all service and overhead doors and
ventilating all windows. Vertical ventilation would be indicated only if fire was suspected above a finished garage ceiling. In this case, the hole would ideally be placed on the end of the garage furthest away from attached dwelling.

Truck Company personnel should also check exposure(s) for fire extension and any life hazard as directed by the Truck Officer prior to leaving the scene. This may involve forcible entry to all exposures if necessary.

**PARAMEDIC UNIT**

**PARAMEDIC OFFICER**
- Tools: Full PPE, portable radio, EMS equipment and cot
- Duties: Provide EMS triage/treatment/transport

**PARAMEDIC**
- Tools: Full PPE, portable radio, EMS equipment and cot
- Duties: Provide EMS triage/treatment/transport

Upon arriving at a GARAGE assignment, the Paramedic Unit should be parked to guarantee rapid egress so that if operating members or civilians require medical attention and/or transport, they can be readily transported. Paramedic personnel should load their stretcher with immobilization and ALS equipment and move to an area clear of the operational hot zone but near enough to readily access their equipment should any patient(s) require immediate life-saving ALS intervention.

Full PPE is necessary in case a patient must be packaged or cared for in the hot zone. Paramedic personnel should evaluate the condition of the patient(s) involved. If multiple patients are involved, the ranking Paramedic will assume the responsibility of Paramedic Triage Officer, requesting necessary additional resources, including BLS Transport Units, through the Incident Commander.

**BATTALION CHIEF**

The Battalion Chief will operate to ensure that members are operating safely at all stages of the GARAGE assignment and that each Company and Unit is completing their respective areas of responsibility.

The Battalion Chief will function as both Operations and Command in accordance with NIMS guidelines, handling all communications with dispatch upon the assumption of Command. Dispatch should be notified of expected working time for the Fire Units on scene.

If additional resource needs become apparent further into the incident, the Battalion Chief should transmit this and any specific staging information to Dispatch. Additional resources may include but are not limited to: the balance of a FULL (Structure Fire) assignment, WE Energies (gas or electric as needed), Car 14, BES, HURT, HazMat, and/or MPD for scene security and investigation.
The Incident Safety Officer shall evaluate tactical safety and ensure that all members are performing their respective tasks in accordance with established safety procedures. Key among these will be the evaluation and isolation of wires down, proper usage of PPE, evaluation of fire conditions and structural integrity, and evaluation of potential for hazardous garage contents. Any unsafe act shall be stopped immediately and reported to the Incident Commander. The Incident Safety Officer can utilize the red Scene Safety tape to keep civilians and firefighters away from hazardous areas.
GAS assignments are frequent occurrences in the City of Milwaukee. Causes such as an aging gas distribution system or appliances, malfunctions in the gas distribution system or appliances, damage to the gas system or appliances, and gas theft occur frequently. As the primary public response agency, the Milwaukee Fire Department must approach each such assignment deliberately and cautiously, thoroughly investigating to locate, identify, and isolate the source. When these calls go wrong, they typically go wrong in a big and extremely tragic way. It is imperative that Command remains in an exterior position that is a safe distance and upwind throughout a GAS assignment, making it advisable for the Engine Company to remain outside in a proactive support role while the Truck Company investigates using their CO Monitor and the MSA multi-gas detector from the Battalion Chief.

A GAS assignment is typically generated when a caller tells a Dispatcher that they “smell gas” or that “there is a gas leak.” The exact type and source are not always known and will need to be investigated upon arrival. The most common gases used in residential and commercial or industrial applications are: natural gas, liquefied petroleum gas (LPG), and propane.

The Milwaukee Fire Department response to gas leaks will focus heavily on responder and civilian safety while effectively mitigating the leak where able. Understanding the characteristics of the various gases that may be encountered on a GAS assignment is critical to maintaining firefighter safety. Identifying the type of gas that is leaking (which is generally easy to accomplish if the source is known) will aid in the response.

For the purposes of this operating guideline, response details will focus on explosive vapor-type gases. If on arrival it is determined that the type of leak is a petroleum product such as gasoline, heating oil, kerosene, or diesel fuel, refer to the PETROL (Petroleum Spill) Section for operating guidelines. If it is determined that the type of leak is a potentially hazardous chemical other than natural gas, LPG, or propane, evacuate all civilians and MFD personnel from the area (go uphill and upwind) and request a Full or Limited HazMat Assignment. Contact may also be made with the Company Officer of the Hazardous Materials Team via the rig assigned cell phone from a safe atmosphere if further guidance is needed. All members are reminded that non-intrinsically safe electronics which include, but are not limited to cell phones, pagers, and PDA’s are prohibited for carry into IDLH or potentially IDLH environments.

Dispatch notifies WE Energies-Gas at the same time that we are dispatched for a report of a natural gas leak. If more specific information is gathered that will assist WE Energies in dispatching a more appropriate response, request that Dispatch update them with the new information.
Upon arrival, personnel should take all necessary measures to protect human life and property by evacuating and securing the immediate area. Note any odors normally associated with “gas leaks,” such as a rotten egg or sulfur-type smell. The human nose’s ability to continuously smell this odor degrades as more time is spent in a gaseous atmosphere, and perceived lack of odor alone should not be the sole determining factor in halting an investigation. This odor does not occur naturally in any of these gases, but is added by the various utility companies and producers to aid in alerting occupants to a gas leak. The odorant is often referred to as Mercaptan, but there are many different types of odorant used.

WE Energies offers an emergency responder online training on their website. Additional reference material can be located in the WE Energies Electric and Gas Hazards and the First Responder Handbook as well as the WE Energies DVD Recognizing and Avoiding the Hazards. Refer to the DOT Emergency Response Guidebook for additional information.

Regardless of the location of a gas leak, it is critical that MFD personnel do not introduce an ignition source and civilians and personnel from other agencies are also prevented from doing so. Ignition sources include (but are not limited to):

- Apparatus
- Vehicles
- Cigarettes
- Matches/lighters
- Doorbells
- Non-rated flashlights
- Security systems
- Pilot lights
- Pagers
- Spark ignitors
- Non-MFD Radios
- Electrical switches
- Static Electricity
- Telephones

It is important to note that MFD personnel should refrain from ringing doorbells, turning off any switches, switching off circuit breakers, or disconnecting any electrical plugs during a potentially explosive gas leak investigation. There is as much a chance of initiating an explosion from de-energizing electrical appliances or switches as from energizing them.

MFD members shall always wear their full PPE while investigating for cause at GAS assignments with their SCBA donned and at the ready. It is critical to realize that aside from being explosive, various explosive gases can cause illness or death via the displacement of oxygen in a given atmosphere. Diligent use of the MSA multi-gas detector (carried by Battalion Chiefs, Car 18 and the Rescues) will reveal if the oxygen percentage has dropped or if an explosive atmosphere exists.

Ensure that the MSA multi-gas detector completes its fresh-air startup and full calibration in a non-contaminated atmosphere. Begin monitoring prior to entering any enclosed structure. If natural gas (with odorant) is smelled or detected prior to entry, ensure that the LEL is below 10%. While entering or in the structure, continuous attention must be paid to the meter to immediately notice any changes. Advance with the meter slowly to avoid moving faster than the meter’s ability to gain and transmit data. If the LEL begins to rise or the Oxygen saturation begins to drop, don your facepieces. At 10% of the LEL all members and civilians should be evacuated from the structure and consideration should be given toward requesting and staging additional resources and personnel due to the possibility for explosion.
Companies investigating GAS assignments should also use their CO Monitor to ensure that there is not a Carbon Monoxide emergency in addition to the gas leak. In many cases, there are additional problems beyond those initially reported, especially where aging appliances are concerned.

Below are several common explosive gases and their characteristics:

<table>
<thead>
<tr>
<th>SPECIFIC GRAVITY (VAPOR)</th>
<th>LOWER EXPLOSIVE LIMIT (LEL)</th>
<th>UPPER EXPLOSIVE LIMIT (UEL)</th>
<th>10% of the LEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHANE</td>
<td>0.55</td>
<td>5%</td>
<td>15%</td>
</tr>
<tr>
<td>NATURAL GAS</td>
<td>0.6 – 0.7</td>
<td>4.5%</td>
<td>14.5%</td>
</tr>
<tr>
<td>AIR</td>
<td>1.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>LPG (VAPORIZED)</td>
<td>1.3</td>
<td>2.1%</td>
<td>9.5%</td>
</tr>
<tr>
<td>PROPANE</td>
<td>1.52</td>
<td>2.1%</td>
<td>10.1%</td>
</tr>
</tbody>
</table>

As indicated on the chart, it is important to recognize that METHANE and NATURAL GAS TEND to RISE because they are lighter than air and that VAPORIZED LPG and PROPANE TEND to SINK because they are heavier than air. This should guide searching members. If a Natural Gas leak is suspected, monitor high in a structure or area, if vaporized LPG or Propane is suspected, monitor low in a structure or area.

Be sure to ask the occupant if any repair or maintenance work has recently been completed on any gas burning appliances, piping or systems. This will be a good place to begin your investigation.

**EXTERIOR Gas Leak Causes and Response Tactics**

**Damaged natural gas meter** (struck by auto, lawn mower, etc.)
- Verify WE Energies-Gas response
- Secure leak, if possible, by shutting down gas at the meter or plugging the leak with a gas plug or shaved down door chock
- Evacuate structure if unable to control the leak or an interior investigation reveals 10% or greater of the LEL. Consideration should be given toward requesting and staging additional resources and personnel due to the possibility for explosion.
- While wearing full PPE with SCBA, investigate and monitor all floors, including the basement
- Ventilate as needed (for high levels of natural gas, use PPV from the exterior until levels are brought below 10% of the LEL)
- Natural ventilation is often adequate for lower levels of gas
- If hazardous conditions are eliminated, **and** if WE Energies will have a delayed response, the Incident Commander, PRIOR TO LEAVING, can call WE Energies directly [1-800-292-7098] on his/her department cell phone and request that a WE Energies emergency dispatcher be conferenced in on the call. Transmit MFD’s actions so that the responding WE Energies personnel can better understand actions taken at the scene. Provide your contact...
information in case additional information is subsequently needed by WE Energies. It is always preferable to remain on scene for a face-to-face transfer of information. Before leaving the scene, transmit to MFD Dispatch the arrival of WE Energies personnel or that relevant information was transmitted directly via phone.

**Damaged in-ground gas service line or main** (caused by trenching, roadway collapse, or gas main deterioration)
- Verify WE Energies-Gas response
- Determine if high or low pressure leak (leaking high pressure mains emit a loud jet engine like noise, which may hamper radio communications; face-to-face communications will be critical)
- Secure and evacuate an area commensurate to the scope of the leak (Be aware of potential ignition sources within the area, and take necessary steps to eliminate them)—Referring to the DOT Guidebook, a large leak in a high pressure main may require evacuation up to ½ mile; enlist MPD and additional MFD crews for assistance
- Realize that natural gas can travel great distances either through underground utility conduits or beneath frozen soil, surfacing well away from the actual leak
- DO NOT at any time enter underground vaults or pits to access gas meters
- Request additional resources as needed to lay protective hoselines and evacuate the area
- Monitor the atmosphere using the MSA multi-gas detector
- Communicate with and provide support for WE Energies personnel, as they are the technical experts where securing the gas is concerned.
- While wearing full PPE with SCBA, investigate and monitor structures adjacent to the leak to determine if the exterior leak may have migrated into the buildings. Gas may migrate into buildings with or without gas service through floor drains, utility openings, or cracks in the floors or walls.
- Ventilate affected buildings as needed (for high levels of natural gas, use PPV, if safe to do so, from the exterior until levels are brought below 10% of the LEL) AFTER THE EXTERIOR LEAK IS CONTROLLED
- Natural ventilation is often adequate for lower levels of gas AFTER THE EXTERIOR LEAK IS CONTROLLED; natural gas will dissipate outdoors.
- Remain on scene until the arrival and assumption of control by WE Energies

**Damaged or opened LPG or Propane tank** (accidental opening or damage while in use on gas grill or construction/industrial application)
- Verify WE Energies-Gas response (even though many of these applications are not WE Energies' responsibility, they may assist with securing the leak)
- Secure the leak, if possible by shutting down the gas at the grill knob or valve, or by plugging the leak with a gas plug or shaved down door chock
- If safely able, move the grill and/or the offending propane/LPG tank away from any structures if unable to adequately control the leak
- Expect the leaking LPG or Propane to pool in low areas as these gases are heavier than air.
- Evacuate nearby structures if unable to control the leak or if an interior investigation reveals 10% or greater of the LEL. Consideration should be
Given toward requesting and staging additional resources and personnel due to the possibility for explosion.

- While wearing full PPE with SCBA, investigate and monitor all floors of nearby structures, including the basement.
- Ventilate as needed (for high levels of LPG/Propane, use PPV, if safe to do so, from the exterior until levels are brought below 10% of the LEL).
- Natural ventilation is often adequate for lower levels of gas.

**Interior Gas Leak Causes and Response Tactics**

**Malfunctioning Gas Appliance** (Stove, Furnace, Hot Water Heater, Dryer, etc.)

- Verify WE Energies-Gas response.
- On all inside odor/leak complaints, the investigation should begin INSIDE of the building before conducting an outside investigation. The variety of ignition sources coupled with the life hazard potentially present inside of a building necessitates an early interior investigation.
- While wearing full PPE with SCBA, locate the source of the leak (use odor differentials and MSA multi-gas detector).
- Evacuate the structure if unable to control the leak or if the interior investigation reveals 10% or greater of the LEL. Consideration should be given toward requesting and staging additional resources and personnel due to the possibility for explosion.
- Secure the leak:
  - Per NFPA 54 (9.6.4), “each appliance connected to a piping system shall have an accessible, approved manual shutoff valve . . . within 6 feet”
  - If it does not, or the valve is non-functioning, trace the feed line back to the next available valve.
  - Shut the nearest available isolation valve off; if there are none available, shut off the gas at the meter using the Halligan Bar or other tool.
  - If operating in a multi-family dwelling, attempt to shut down the gas supply only to the unit in which the problem exists.
- Update WE Energies of the gas shut off via Dispatch.
  - If hazardous conditions are eliminated, and if WE Energies will have a delayed response, the Incident Commander, PRIOR TO LEAVING, can call WE Energies directly [1-800-292-7098] on his/her department cell phone and request that a WE Energies emergency dispatcher be conferenced in on the call. Transmit MFD’s actions so that the responding WE Energies personnel can better understand actions taken at the scene. Provide your contact information in case additional information is subsequently needed by WE Energies. **It is always preferable to remain on scene for a face-to-face transfer of information.** Before leaving the scene, transmit to MFD Dispatch the arrival of WE Energies personnel or that relevant information was transmitted directly via phone.
- Ventilate as needed (for high levels of natural gas, use PPV, if safe to do so, from the exterior until levels are brought below 10% of the LEL).
- Natural ventilation is often adequate for lower levels of gas.
Damaged or leaking gas valve or piping

- Verify WE Energies-Gas response
- While wearing full PPE with SCBA, locate the source of the leak (use odor differentials and MSA multi-gas detector)
  - This may be problematic and will require patience and diligence, as the possibility exists that the leak will be in a utility chase or wall space notably on upper floors.
- Evacuate the structure if unable to control the leak or if the interior investigation reveals 10% or greater of the LEL. Consideration should be given toward requesting and staging additional resources and personnel due to the possibility for explosion.
- Secure the leak
  - Shut the nearest available isolation valve off, if there are none available, shut off the gas at the meter using the Halligan Bar or other tool
  - If operating in a multi-family dwelling, attempt to shut down the gas supply only to the unit in which the problem exists
- Update WE Energies of the gas shut off via Dispatch
- Evacuate the structure if unable to control the leak or if the interior investigation reveals 10% or greater of the LEL. Consideration should be given toward requesting and staging additional resources and personnel due to the possibility for explosion.
- While wearing full PPE with SCBA, locate the source of the leak (use odor differentials and MSA multi-gas detector)
  - This may be problematic and will require patience and diligence, as the possibility exists that the leak will be in a utility chase or wall space notably on upper floors.
- Evacuate the structure if unable to control the leak or if the interior investigation reveals 10% or greater of the LEL. Consideration should be given toward requesting and staging additional resources and personnel due to the possibility for explosion.
- Secure the leak
  - Shut the nearest available isolation valve off, if there are none available, shut off the gas at the meter using the Halligan Bar or other tool
  - If operating in a multi-family dwelling, attempt to shut down the gas supply only to the unit in which the problem exists
- Update WE Energies of the gas shut off via Dispatch
- Evacuate the structure if unable to control the leak or if the interior investigation reveals 10% or greater of the LEL. Consideration should be given toward requesting and staging additional resources and personnel due to the possibility for explosion.
- Secure the leak
- Update WE Energies of the gas shut off via Dispatch
- Evacuate the structure if unable to control the leak or if the interior investigation reveals 10% or greater of the LEL. Consideration should be given toward requesting and staging additional resources and personnel due to the possibility for explosion.
- Natural ventilation is often adequate for lower levels of gas

Problems from attempts at supplemental heating (propane heater, kerosene heater, salamander heater, etc.)

- “Portable, gas-fired, un-vented heating appliances are prohibited, except during construction or demolition of a building. . .” – WI COMM 65.0621
- Monitor these similarly to other interior fuel gas leaks, with awareness that there may be elevated Carbon Monoxide levels from un-vented combustion
- If LPG or Propane is the involved fuel gas and a leak has occurred, expect it to accumulate low in the room, structure, or area
- Evacuate the structure if unable to control the leak or if an interior investigation reveals 10% or greater of the LEL. Consideration should be given toward requesting and staging additional resources and personnel due to the possibility for explosion.
- While wearing full PPE with SCBA, attempt to shut off the fuel source at the valve and then remove the portable heater from the structure to the outside if safely able.
- Update WE Energies via Dispatch of the heating situation if the weather is inclement and the portable heater was being used in place of a non-functioning furnace
- Ventilate as needed (for high levels, use PPV, if safe to do so, from the exterior until levels are brought below 10% of the LEL). Natural ventilation is often adequate for lower levels of gas

Peculiar to multi-family dwellings or multi-occupancy commercial buildings is the fact that shutting off the main gas meter to stop the gas leak may be speedy, but creates a very real and time-consuming problem for occupants, property owners, and WE Energies personnel after the fact. Before turning the gas back on at the main gas meter, each and every gas-burning appliance must be relit, and many will need to be isolated first to prevent gas free flow. If it is the only option, protection from a gas explosion is the priority. Achieving that...
protection by shutting down the smallest possible branch of gas line is critical, as it will leave the property in a more usable condition in a shorter period of time. If safe to do so, investigate for smaller, unit-isolating meters in the basement or utility areas of the structure.

If, after completing all possible investigations a source is not located, be sure to check the drain traps of all sinks, bathtubs, and floor drains. There is the distinct possibility that if one of these traps has been let to dry out that sewer gas (many times containing methane and having an odor similar to the odorant added to natural gas) may be backing up into the occupancy. Simply pour water into the trap, ventilate, and recheck the MSA multi-gas detector readings.

Beyond all of these investigative tips and tactics, be sure to always provide support for WE Energies personnel as they investigate an unknown source. They carry gas meters that read in parts per million (ppm) and will usually provide very keen insight into how to locate and isolate a gas leak.

Additionally, it is important to note that the City of Milwaukee Code of Ordinance – Building and Zoning Code 265 (Fuel Gas Appliances) simply adopts Wisconsin Building Code Comm 65 (Fuel Gas Appliances), which in many cases adopts or refers to NFPA 54 (National Fuel Gas Code). It is plain to see that many entities are very concerned with the safe transport, storage, usage, and construction of fuel gas appliances and pipelines.

In the event that the gas concentration is within its explosive level AND there exists an ignition source, an explosion will occur. Depending on the volume of gas leaked up to the moment of the explosion and the conditions of the structure, the explosion will likely be very large and will likely compromise the integrity of the structure. Be prepared to provide exposure control with master streams and evacuate adjacent structures. If the involved structure was not evacuated prior to the explosion, the structure will need to be searched. Make a special call for the Heavy Urban Rescue Team to safely search the structure assuming it has been compromised.

In the event that a high or low pressure exterior gas main has ruptured and has ignited, do not extinguish the blowtorch of fire at the rupture site unless exposures are severely threatened. Burning gas is far easier to keep track of than non-burning gas simply escaping into the atmosphere or nearby structures. In cases where another type of fire is exposing an LPG or other gas tank and the tank is venting due to over-pressurization, attempt to extinguish the fire and cool the tank with long reach master streams. Do not directly approach such situations as the potential for BLEVE is high.

**ENGINE**

<table>
<thead>
<tr>
<th><strong>OFFICER</strong></th>
<th>Tools: Full PPE with SCBA, portable radio, intrinsically safe flashlight, halligan tool</th>
<th>Duties: Incident Command, direct apparatus placement, V-Tac, begin size up and investigation, communications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HEO</strong></td>
<td>Tools: Full PPE, portable radio</td>
<td>Duties: Engine and pump operations</td>
</tr>
</tbody>
</table>

Operational Guidelines
GAS (Gas Leak)
Upon arrival, the Engine Company Officer should ensure that all of the principles discussed above in the **GENERAL** section are adhered to. The Engine Officer will initiate Command and begin to investigate the cause of the alarm. If a strong smell of gas is noted from outside with occupants reporting an interior leak, verbally evacuate the occupants, prevent the introduction of any ignition sources to the area, and wait for the BC to arrive so that you can continue the investigation with the assurance of having the MSA Multi-gas detector. In the meantime, the Officer can shut down the gas supply at an exterior meter. The Engine Officer’s Halligan Bar is ideal for shutting off gas meter or in-line stopcocks, as it provides leverage not afforded by shorter hand tools. Make use of natural ventilation by opening unlocked windows and doors while standing by for the Battalion Chief and Truck Company to arrive.

The Engine Company Officer is responsible for initial Command and for the safety of the Engine Company and must operate with the proper level of respect that the incident dictates. The Engine Company Officer will transfer Command to the Battalion Chief upon their arrival.

As a simple guide, if there is 10% or greater of the LEL upon investigation at an interior gas leak (or in structures adjacent to exterior gas leaks) or if the source is not immediately identifiable or controllable, request and stage the balance of a FULL assignment. In this case, the Engine Company shall work to evacuate all persons (including firefighters) from the exposed structure and nearby structures until the arrival of WE Energies-Gas and their determination that the gas has been secured.

The Engine Company HEO should position the apparatus so that the rear hose beds are facing the incident, at least 150’ away and upwind if possible. If the apparatus can be placed at a hydrant nearby, the Engine HEO should flush and hook up to the hydrant. If it is communicated that the Engine Company will withdraw due to elevated gas levels, the Engine HEO will assist the Nozzle FF with stretching precautionary exposure hoselines (2½” or 3” hoseline) and/or master streams (Deluge Set on Portable Base, Deck Gun) as directed by the Engine Officer. All precautionary exposure lines with bales or shutoffs at the working end are to be charged. The Engine HEO shall ensure that the apparatus and the hoselines are not positioned to become an exposure if the gas leak ignites.

The Nozzle FF will primarily standby with the HEO during the investigation phase. If hoselines are to be deployed, the Nozzle FF will begin laying them with the assistance of the Engine HEO as directed by the Engine Officer. If an explosion occurs, the Nozzle FF shall direct the water from the hoseline at exposures initially, knocking down the main fire only after controlling the exposures.
In the event that a high or low-pressure exterior gas main has ruptured and has ignited, do not extinguish the blowtorch of fire at the rupture site if exposures are not threatened. Burning gas is far easier to keep track of than non-burning gas simply escaping into the atmosphere or nearby structures.

The Backup FF will investigate with the Engine Officer after exterior Command has been assumed by the BC, carrying and operating the company’s CO Monitor. The Backup FF must quickly and clearly communicate to the Engine Officer if CO levels climb (SEE the CARBON response guideline for more information). The Backup FF can also provide initial suppression capabilities with the pressurized water extinguisher. In the event that the decision is made to evacuate the structure due to elevated gas levels with no readily identifiable source, the Backup FF will assist in evacuating occupants as directed by the Engine Officer, returning once done to assist the Nozzle FF with handling the protective hoseline.

## TRUCK

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE with SCBA, portable radio, intrinsically safe flashlight, halligan tool, tagline</th>
<th>Duties: Monitor atmosphere and investigation, V-Tac</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEO</td>
<td>Tools: Full PPE with SCBA, portable radio, axe, door chocks, tagline</td>
<td>Duties: Aerial operations, Ventilation as needed</td>
</tr>
<tr>
<td>VENT</td>
<td>Tools: Full PPE with SCBA, portable radio, axe, door chocks, tagline, MSA multi-gas detector (from BC), gas plug (if needed)</td>
<td>Duties: Monitor atmosphere, Ventilation as needed</td>
</tr>
<tr>
<td>FORCE</td>
<td>Tools: Full PPE with SCBA, portable radio, tagline, flathead axe, door chocks, pressurized water extinguisher, CO monitor</td>
<td>Duties: Investigate with Officer</td>
</tr>
</tbody>
</table>

Upon arrival, the Truck Company Officer should ensure that all of the principles discussed above in the GENERAL section are adhered to. The Truck Officer will travel with the entire Truck Crew to investigate the cause of the alarm. If a strong smell of gas is noted from outside with occupants reporting an interior leak, verbally evacuate the occupants and wait for the BC to arrive so that you can continue the investigation with the assurance of having the MSA Multi-gas detector. In the meantime, the Officer can shut down the gas supply at an exterior meter, if not already done by the Engine Company. The Truck Officer’s Halligan Bar is ideal for shutting off gas meters or in-line stopcocks, as it provides leverage not afforded by shorter hand tools. Ensure the Engine Company is in a position to stretch precautionary hoseline(s).

The Truck Company Officer is responsible for the safety of the Truck Company and must operate with the proper level of respect that the incident dictates. As a simple guide, if there is 10% or greater of the LEL upon initial investigation at an interior gas leak (or in structures adjacent to exterior gas leaks) or if the source is not immediately identifiable or
controllable, consideration should be given toward requesting and staging additional resources and personnel due to the possibility for explosion. In this case, the Truck Company shall work to evacuate all persons (including firefighters) from the exposed structure and nearby structures until the arrival of WE Energies-Gas and their determination that the gas has been secured.

The Truck Company HEO should position the apparatus at least 150’ away and upwind if possible, ensuring that the apparatus is not positioned to become an exposure if the gas leak ignites. The Truck HEO will travel with the rest of the Truck Company during the investigation and will employ the ventilation strategy as directed by the Truck Officer. Make use of natural ventilation where able. If it is determined that the Truck Company will withdraw due to elevated gas levels, the Truck HEO will set up the aerial master stream and work with a later arriving Engine Company to obtain a water supply.

The Vent FF will obtain the MSA Multi-gas detector from the Battalion Chief and operate it to assist in locating the source of the leak as well as measuring the amount of Oxygen and Carbon Monoxide in the atmosphere. The Vent FF must quickly and clearly communicate to the Truck Officer if CO levels climb (SEE the CARBON response guideline for more information), O₂ levels drop, or the LEL rises and approaches 10% of the LEL. The Vent FF will assist the HEO with setting up ventilation fans as directed by the Truck Officer. The Vent FF will obtain and place conical gas plugs as directed by the Truck Officer. This is a temporary plug only and should be retrieved after WE Energies has shut down the gas.

The Force FF will travel with the Truck Company and provide initial suppression capabilities with the pressurized water extinguisher. The Force FF will also carry and observe the CO Monitor, alerting the Truck Officer to any rise in Carbon Monoxide levels.

**BATTALION CHIEF**

The Battalion Chief will operate to ensure that members are operating safely at all stages of the GAS assignment and that the Engine and Truck Companies are accomplishing their respective tasks. The Battalion Chief shall provide the onboard MSA multi-gas detector to the Truck Company personnel for further investigation.

The Battalion Chief will function as both Operations and Command in accordance with NIMS guidelines, handling all communications with Dispatch. Dispatch should be notified of expected working time for the Companies on scene.

If additional resource needs become apparent further into the incident, the Battalion Chief should transmit this and any specific staging information to Dispatch. If multiple occupants have been evacuated in inclement weather, consider requesting a transit bus from MCTS for shelter.

As a simple guide, if there is 10% or greater of the LEL upon initial investigation at an interior gas leak (or in structures adjacent to exterior gas leaks) or the source is not immediately identifiable or controllable, consideration should be given toward requesting and staging additional resources and personnel due to the possibility for explosion.
Stage responding companies out of the area immediately surrounding the GAS assignment. Deploy master streams (Deluge Set on Portable Base, Aerial Master Stream, 2½” or 3” hoseline, Deck Gun, etc.) to allow exposure protection while protecting operating Companies. Master stream usage will accomplish this by virtue of extensive reach, gallonage, and penetrating power.

Upon their arrival, the Battalion Chief will work with the ranking law enforcement official and WE Energies-Gas representative to continuously ensure firefighter and civilian safety. We Energies also utilizes the Incident Command System. In all cases where the MFD and We Energies are working together at an incident, the MFD Incident Commander will work to identify the We Energies Incident Commander. Together, they shall determine if Unified Command is necessitated and implement it if so.

Integrity of the scene after a catastrophic event necessitates that WE Energies personnel not be allowed to remove a gas meter or gas delivery appliance from the scene until an on scene investigation has been completed and the removal is approved by Command level MFD and MPD staff.
Electricity, Natural Gas and the First Responder

A handbook for recognizing and handling electric and natural gas hazards in an emergency.
Introduction

This booklet is a guide for first responders and other emergency personnel who confront fires and other emergencies that involve, or pose the threat of, electricity and/or natural gas. The booklet contains information on electric and natural gas devices and how to deal with electric and natural gas emergencies. It is not intended to establish or replace any fire or emergency personnel training guidelines or policies covering this subject. Because fire and police personnel are often the first to arrive at the scenes of fires and emergencies, they should be able to identify electric and natural gas equipment and know how to handle fires involving electric and natural gas equipment.

Be sure to inform We Energies in the event of an electric and/or natural gas emergency. We have specialized knowledge, expertise, tools and equipment to handle any electric and/or natural gas hazard found on the scene. We can help you stay safe around unforeseen electric and/or natural gas hazards that may arise as the emergency progresses.

We are ready 24 hours every day of the year to provide assistance during emergencies. We have dedicated emergency numbers for public safety agencies – do not distribute these numbers to the public. Either number listed below may be called during an emergency.

888-296-4937
or
800-292-7098

Program these numbers into your cell phone so you have them when you need them.
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Utility Safety Pre-Test

Name: _____________________________________________

Date: ___________________________ Employee #: ___________________________

1. Natural gas is toxic and will kill you if you breathe enough of it. T F
2. Natural gas is heavier than air. T F
3. Carbon monoxide is a toxic gas. T F
4. Carbon monoxide levels of 50 ppm can cause death. T F
5. High-pressure gas leaks can easily migrate under a frost cap through sewers or soil layers. T F
6. Natural gas has a lower explosive limit (LEL) of approximately 4 percent and upper explosive limit (UEL) of 5 percent. T F
7. Static electricity is hot enough to ignite natural gas. T F
8. Modern vehicles cannot ignite natural gas. T F
9. Police and fire department vehicles will not ignite natural gas. T F
10. Compressed natural gas (CNG) vehicles are only in use in Europe and California. T F
11. All downed wires should be treated as energized until tested and grounded dead by utility personnel. T F
12. Wooden pike poles will not conduct electricity. T F
13. The best way to de-energize power to a home where overhaul will be conducted is to pull the electric meter. T F
14. If a car hits a pole and wires are down, the best action for the driver to take is to stay in the vehicle. T F
15. Aerial ladders cannot conduct electricity because of the steel-belted radial tires found on most modern trucks. T F
16. All electric wires are insulated. T F
17. Secondary voltage is not enough to stop your heart. T F
18. Only tested and approved rubber gloves can be counted on to protect you from electrocution. T F
19. If your equipment contacts electrical wires, you should stay on the equipment, warn others away and move the equipment away from the wires, if possible. T F
20. We Energies can be called 24 hours a day to provide emergency service to fire departments that need help. T F

Answers for this pre-test are found on page 29 of this brochure.
**National Fire Protection Agency (NFPA 54, NFPA 70)**

NFPA 54 is the National Fuel Gas Code. It is a consensus standard that covers fuel gas delivery systems and utilization devices for LP gas and natural gas.

NFPA 70 is the National Electric Code. It is a consensus standard that covers electric delivery systems and utilization devices.

Both codes are used by utilities and building and fire inspectors to determine if electric and natural gas installations meet the code. Both codes are guidelines unless they have been adopted by ordinance in your community.

If you deal with natural gas or electric delivery and utilization systems or inspect them periodically, you should use the most current versions of NFPA 54 and NFPA 70.

If you have questions about specific applications of the code and how they relate to natural gas or electric facilities, call We Energies.

**Consumer Product Safety Commission (CPSC)**

The CPSC is a governmental body that publishes safety information on a variety of consumer products related to electric and natural gas safety. Examples include flexible connector recalls and ratings of home carbon monoxide detectors. Fire department prevention bureaus and inspectors can gain important information by using the CPSC’s website at www.CPSC.gov.

**DIGGERS HOTLINE**

Damage to electric and natural gas facilities caused by third parties such as contractors and excavators is the leading cause of injury and property damage involving electric and natural gas utilities. For this reason, One-Call Systems are in place across the country to make it easy for excavators to have electric and natural gas facilities located prior to digging. Diggers Hotline is Wisconsin’s one-call provider.

Underground facilities owners such as We Energies are required to belong to Diggers Hotline and to respond to locate requests within three business days of notification.

Excavators are required to call Diggers Hotline three working days prior to disturbing the soil.

If you observe excavators working around electric and natural gas facilities without the required locate marks or flags, call We Energies. We will investigate and make sure the contractor is aware of state law requiring utility notification, verification that hazards do not exist and that public safety is provided for.

Also, fire prevention bureaus can contact Diggers Hotline to obtain free information to distribute to homeowners and excavators.

Call Diggers Hotline at **811** or **800-242-8511**
911 and Public Service Answering Point (PSAP) dispatchers have an important role in electric and natural gas emergencies. They collect and forward information needed for emergency responders to handle utility emergencies. In some cases, we will call dispatchers for assistance. In other cases, fire and police departments will call for emergency assistance from us.

In both cases, clear, concise and accurate information must be relayed to the correct group or agency. Make sure the exact nature of the request is known when you call us for emergency response. We have a “staggered” or “tiered” response protocol for various situations. Knowing exactly what type of help is needed will get your agency the help it needs as quickly as possible. 911 dispatchers may need to ask field units for additional information in order to provide this type of specific information to our dispatchers.

911 dispatchers also need to know that there may be more than one utility that serves their response area. Calling the wrong utility can delay response or, in some cases, may even prevent us from knowing about the emergency.

Even when the same utility provides both natural gas and electric service, individual emergency numbers may need to be called for each service. 911 dispatchers need to make sure they know who provides which type of utility service for the jurisdiction for which they provide dispatching coverage. In addition, they need to know the appropriate emergency number for that utility.

Most utilities will periodically send out service area maps along with notification numbers and procedures. If you are not sure, call to verify the correct area and procedure for your jurisdiction.

If we work together and have specific operating procedures and protocols, utility emergencies will be handled safely and correctly.

### General Dispatch Procedures

1. Follow your department’s standard operating procedures for electric or natural gas emergencies.

2. Call our Public Safety Agency dedicated phone lines as soon as you know you need our assistance. These phone lines place your call at the top of our answering queue.
   888-296-4937 or 800-292-7098

3. Provide specific details about the situation:
   - Original caller’s description of the problem
   - Address, intersection or pole number closest to the emergency
   - Nature of emergency: building fire, wires down, car/pole accident, wire contact, natural gas odors, natural gas leaking or blowing, etc.
   - Assistance required

4. Provide contact info for your on-site personnel and location of incident command post.

   **If a natural gas odor or leak call – don’t phone the location.** A ringing phone can ignite natural gas.
### Suggested Call Responses

<table>
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<tr>
<th>Natural Gas Emergency</th>
<th>Situation</th>
<th>Advice to Caller</th>
</tr>
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</table>
| **Inside Natural Gas Odor** | Slight “rotten eggs” natural gas smell coming from inside building | 1. Don’t use light switches or electrical devices.  
2. Don’t smoke or use open flame devices.  
3. Open doors and windows to ventilate the area.  
4. Leave the area if odor becomes too strong.  
5. Keep others away from the area.  
6. Await assistance from the fire department or natural gas utility. |
| **Outside Natural Gas Odor** | Slight “rotten eggs” natural gas smell coming from outside building | 1. Keep ignition sources, such as lit cigarettes, matches, open flames and vehicles, away from the area.  
2. Close doors and windows unless odor is strong inside building.  
3. Leave the area.  
4. Await assistance from the fire department or natural gas utility. |
| **Inside Natural Gas Leak** | Strong “rotten eggs” natural gas smell or blowing/leaking natural gas coming from inside building | 1. Exit the building immediately.  
2. Leave doors open for ventilation as you go.  
3. Don’t smoke or use open flame devices.  
4. Don’t use light switches or electrical devices.  
5. Shut off natural gas at meter **if it can be done safely**.  
6. Leave the area.  
7. Await assistance from the fire department or natural gas utility. |
| **Outside Natural Gas Leak** | Strong “rotten eggs” natural gas smell or blowing/leaking natural gas coming from outside building | 1. Leave the area immediately.  
2. Keep ignition sources, such as lit cigarettes, matches, open flames and vehicles, away from the area.  
3. Await assistance from the fire department or natural gas utility. |
| **Natural Gas Fire** | Natural gas burning behind the range, dryer, meter unit, etc. | 1. Shut off the source of the natural gas **if it can be done safely**. A safe example would be if the meter valve or appliance valve is away from the fire.  
2. Leave the area.  
3. Await assistance from the fire department or natural gas utility. |
We Energies uses nearly 30,000 miles of transmission and distribution lines to get electricity to our customers. Knowing how electricity gets to homes is important during emergency situations.

Transmission facilities are not owned by We Energies, but may pass through your local community. You can obtain safety information for transmission towers by contacting American Transmission Company.

Electricity leaves a power plant.

The voltage is increased at a “step-up” substation.

The energy travels along a transmission line to the area where the power is needed.

Once there, the voltage is decreased or “stepped-down” at another substation.

The “stepped-down” voltage travels along a distribution line.

The electricity reaches a home or business.
DOWNED WIRES

Treat all downed wires, including telephone and cable television wires, as energized and dangerous until proven otherwise. It is impossible to determine by its appearance if a wire is energized. While some wires will jump, whip around, curl up, make loud sounds or emit showers of sparks, others will lie silent – and deadly.

When you arrive at the scene of a downed wire or broken pole:

1. Establish a safety zone that only authorized persons may enter.
   The safety zone should extend a minimum of two full span lengths of wire in each direction beyond the downed wire. When establishing the safety zone, keep the following items in mind:
   - Stresses may be placed on poles adjacent to the downed wire causing them to break and fall.
   - Wires can slip through insulators and sag to the ground in adjacent spans of wire.
   - Always be on the alert for conductive materials that may be in contact with the fallen wire such as metal fences, guard rails and metal buildings. The safety zone will have to be increased to include them.
   - Continue to guard the scene until relieved by a We Energies employee or other authorized person.
   - Be aware that when a body is in contact with a wire it may be energized. Do not touch the injured individual until the wire has been cleared from the body.

2. Notify We Energies as soon as possible. Include information such as:
   - Nature of incident.
   - Is life in danger?
   - Exact location. The pole tag numbers of each pole involved and adjacent poles are helpful in gathering needed information. However, they should only be obtained if your safety and the safety of the general public is not compromised.
   - Any other hazards involved.

3. Never attempt to move or cut any downed conductors.
   Only electric utility employees, using approved procedures and highly specialized tools, should move or cut any wire.

Other safety points around downed wires:

1. Wood or fiberglass pike poles are not the same as the insulated hot sticks used by electric utility employees. They most likely contain sufficient moisture and/or are contaminated enough to be conductive.
2. Any high-voltage wire, when disturbed, can get out of control. It may dance about, curl up and strike you or bystanders.
3. Keep in mind that your firefighter’s boots are only designed to keep your feet dry. They will not insulate or isolate you from a voltage source.
4. High voltage wires are not insulated. The protective coating found on some wires is to protect the wire from damage, not to insulate it.
5. Be particularly wary during storms or hours of darkness. It is often difficult to see downed or sagging wires. Always use a light when moving about.
SUBSTATIONS

First responders should never enter an electric utility substation unless accompanied by an authorized We Energies representative. Our trained employees can walk you through the substation safely by identifying specific equipment and the voltages that are present. Only our trained employees have the ability and knowledge to de-energize a substation.

If an authorized We Energies representative is not on-site when you arrive, immediately notify us. We’ve included a listing of dedicated phone numbers for your use in the back of this booklet. Be sure to protect the surrounding property and stand by until our representative arrives.

The hazards you may encounter include:

1. High-voltage lines entering the substation, both overhead and underground.
2. Open high-voltage bus work (conductors, wire and aluminum pipe) crisscrossing the station at a relatively low height. Never drive beneath overhead structures without specific approval.
3. Oil-filled switch gear, transformers, regulators and capacitors. Oil is the major firefighting concern. The only practical way to extinguish the fire is to cool the oil below its ignition temperature (400°F). A spray or fog stream, rather than a straight stream, works best.
4. Toxic smoke and gases due to burning oil and insulating materials.
5. Collapsed steel framework and aluminum bus work caused by the intense heat of a fire.
6. Explosions from oil-filled equipment, both overhead and at ground level.
7. Exploding glass and porcelain insulators. The yard stone may spall and throw fragments with considerable force.
8. Falling wires, both inside and outside the substation.

CAUTION: Some equipment, such as circuit switches and breakers, have porcelain housings that are pressurized with SF-6 gas. If they are involved in the fire and sprayed with water, the sudden temperature change may cause a violent failure.

Privately Owned and Municipal Substations

Fire departments should contact the owners of these stations to develop a pre-emergency plan. In most cases, the primary power entering the substation is provided by the local utility, and they should be included as part of the plan.

Do not try to salvage any electrical apparatus, transformer or switch that is on fire. There is nothing in the substation worth a fire-fighter’s life.

Never operate electric utility high-voltage switches that are within a substation property, mounted on poles, or located within manholes or vaults. Many of these switches are not designed to drop electric load. Attempting to open the switch could cause an explosion or flashover and create an extremely hazardous situation.
CAR/POLE ACCIDENTS

Arriving at the Scene
When you arrive at the scene of a vehicle accident involving electrical equipment or wires, address all potential hazards before reacting to the accident itself. There may be downed wires or wires hanging low to the ground that are energized. These wires may energize other objects they are in contact with such as guard rails, fences, or telephone and cable television wires. Also, be aware that overhead conductors could fall any time as a result of the accident.

You must remain alert. As in any emergency, do not develop a false sense of security because the wire and/or electrical equipment involved appears harmless.

As outlined in the section on downed wires, establish a safety zone and notify We Energies. If there appears to be a possibility of fire, lay out hose lines. Use a spray or fog nozzle rather than a straight stream nozzle.

If there are not enough personnel on hand to accomplish these tasks, delegate bystanders to make phone calls and help maintain the safety zone.

Helping Individuals in a Vehicle
You should always be cautious while approaching a vehicle. Remember, the vehicle and anything attached to it (such as a camper or trailer) may be energized at hazardous voltages. Without endangering your life, get as close to the vehicle as possible, but no closer than 10 feet. This is to provide a margin of safety in case an occupant suddenly opens a vehicle door. With a calm, authoritative voice, gain the attention of the people inside the vehicle. Tell them they are safe as long as they remain in the vehicle and that help is on the way. Be careful not to frighten them any more than they already are.

Gain their confidence and trust, and stay with them until the emergency is over. The vehicle occupants have one overriding thought in mind: to get out of the vehicle. If you were to leave them, even for a short period of time, they might feel the emergency is over or they may once again become frightened and attempt to leave the vehicle. In dire emergencies and under ideal conditions, the driver can try to start the vehicle and carefully drive or back the vehicle out from under the wires. Be aware that the wire may weld itself to the vehicle body or become lodged behind a bumper or door handle.

If it is imperative to have the occupants exit a vehicle in contact with a conductor (for example, the vehicle is burning), they must not contact the ground and any part of the vehicle at the same time. In most cases, this is an extremely dangerous maneuver because secure footing is unavailable. Coach the occupants to jump as far as possible away from the vehicle to avoid any contact and/or falling back onto the vehicle. Once on the ground, they should use small shuffling steps to move a safe distance away from the vehicle.
UNDERGROUND LINES AND EQUIPMENT

We Energies has two separate underground electrical distribution systems. One is a conduit system, the other a direct burial system (URD). While both systems utilize wires and cables that run underground, they differ from each other dramatically. The hazards presented by each system also are unique.

Conduit system

Conduit systems are usually located in metropolitan areas. URD systems may be found in metropolitan areas, but are more prevalent in suburban and rural areas.

The conduit system consists of lead-covered, high-voltage cables; rubber-covered, low-voltage cables; and transformers and switch gear. These are located in manholes, vaults, cable manholes and throughout a system of concrete covered ducts.

Under normal conditions, the insulation and lead sheath covering these cables provide adequate electrical protection. However, an electrical failure of a cable could result in an explosion and/or fire. In addition, gases from failed cables could accumulate in manholes or vaults providing another potential explosion source. Natural or manufactured gases may also seep into manholes, vaults or tunnels through conduit runs and broken sewers.

CAUTION: Unless human life is at stake, there is no great urgency to extinguish the fire or enter a manhole. Maximum damage to its contents has already taken place.

When attempting to cope with a fire or explosion in a manhole a first responder should:

1. Call We Energies. Give the location, number of manholes involved and nature of emergency.
2. Establish a safety zone. Keep the public away and route traffic around the area.
3. If the cover is in place and smoke is coming from the holes in the cover, do not attempt to remove it until the conditions have been thoroughly discussed with an authorized We Energies representative. If flammable gases are present in the manhole, removing the cover may provide sufficient air to cause an explosion. If the transformer has failed and the oil is above the ignition temperature, removing the manhole cover may cause a backdraft. The resulting explosion could seriously harm you and others nearby.

A spark resulting from removing the cover may cause a gas explosion in the manhole. If there are gases present in the duct package that runs manhole-to-manhole, there may be additional explosions in other manholes.

Explosions in manholes can propel a manhole cover (which weighs approximately 270 pounds) a significant distance. Maintain a safe distance and be prepared to evacuate the area quickly if an explosion occurs.

4. If the manhole cover is off, do not enter the manhole or take any further action until the conditions have been discussed with an authorized We Energies representative. Manholes must always be treated as highly hazardous confined spaces. Except for rescue in coordination with a We Energies representative, a first responder should never enter a manhole.
**Direct Burial (URD)**

The direct burial system consists of wires and cables buried in the ground. High-voltage switchgear and transformers are contained in metal enclosures mounted on top of concrete pads on the ground. Pedestals (small upright metal boxes) stand above ground and are connection points for underground low-voltage cables (120 to 240 volts).

Never open ground-mount electrical equipment or attempt to extinguish a fire involving the equipment until it is de-energized by We Energies personnel. There are two reasons for this:

- You risk electrocution if you open energized ground-mount electrical equipment.
- Any piece of electrical equipment will continue to burn until it is de-energized, regardless of the method employed to extinguish the fire. If one is on fire, nothing can be done to save it. It is already beyond repair.

If the emergency involves a motor vehicle running into a piece of ground-mount equipment, it should be handled as if it were an electrical wire on a vehicle. If the car is no longer in contact with the equipment, continue to treat the metal equipment enclosure as energized at high voltage.

**AERIAL EQUIPMENT**

Whenever possible, contact We Energies to de-energize electrical lines in advance of working with aerial equipment.

If action is needed before you contact We Energies, use extreme caution when positioning fire department apparatus at the scene of a fire. Never park vehicles near or under overhead electrical conductors. The heat of the fire could cause a wire to melt or burn.

Position aerial ladders and articulating booms as far away as possible from overhead wires. While the requirements of the law allow the aerial device to be as close as 10 feet to a wire energized at 50,000 volts, that is too close to be safe. Operator error, or one of the outriggers settling slightly into the ground, may cause the boom or aerial ladder to swing into the wire or become dangerously close.

If any part of the aerial apparatus comes into contact with an electrical conductor, the entire vehicle must be considered energized at high voltage.

If the aerial device is an articulated arm, the firefighter in the basket should immediately rotate the arm away from the wire, cradle the arms and reposition the vehicle.

If the apparatus is an aerial ladder, the vehicle should be considered energized at high voltage and guarded as such. As long as the firefighter on the vehicle remains still and does not touch the wire or any other object such as the building, they will remain safe from electric shock. Remember, if you touch the wire and contact any other object you will provide a path to ground and will most certainly be injured and possibly killed. Immediately request that the line be de-energized. When the line has been de-energized, the vehicle can be considered operational. Ideally, the vehicle should be relocated.

As in most overhead wire contacts, those who are at the highest risk of electric shock are those who are in contact with the ground such as firefighters at the end of the hose lines or anyone who touches the energized truck while standing on the ground.
STRUCTURE FIRES

In residential and commercial buildings, it is seldom necessary to interrupt the electric service to the entire building. It is usually best to leave the power on as long as you safely can. The electric power may be useful for lighting during firefighting, evacuation and overhaul operations. It also may be useful in running pumps, fans and other power equipment needed to minimize property damage.

When safe firefighting tactics require the power to be shut off, use the following actions as appropriate:

1. First, de-energize the fire-affected area by removing the fuses or opening circuit breakers or safety switches as needed.
2. Open the main disconnects to de-energize the entire building.
3. If the building is damaged to the extent that the service is no longer required, or if the main disconnects cannot be utilized, the power supply to the building should be interrupted. This should only be done by an authorized We Energies representative.

Never pull an electric meter to de-energize the building. Meters are not switches. They have been known to explode, sending out a shower of razor-sharp glass splinters.

Reasons for not removing a meter include:

1. Pulling an electric meter may not de-energize the electric service to the building.
   - Services over 200 amperes are metered by current transformers. Pulling the electric meter will not shut off the electric supply to the building.
   - Some meter bases are equipped with automatic bypasses. When the meter is removed, the bypasses close and the building remains energized.
   - People have developed many unique methods to bypass the meter. While We Energies continually looks for these dangerous and illegal practices, we can’t guarantee they don’t exist.
2. If explosive gases are present in the building, the service wire piping can act as a chimney. A small amount of gas may be present in the meter socket and pipe. When the meter is removed, a small arc will occur and the gas may explode.
3. If the meter glass is exposed to the heat of a fire, it can build up internal stresses and explode on contact.
4. After an electric meter is removed, the energized contacts in the meter socket are left exposed. The exposed contacts present an electrical hazard to anyone who is near the meter base.

CAUTION: Use extreme caution when installing and removing roof ladders and stay a safe distance away from overhead conductors. Contact with an overhead electric line can cause serious injury or death.
POLE AND POLE-MOUNTED EQUIPMENT FIRES

Most pole fires are caused by lightning, equipment failure or insulator breakdown (broken or contaminated by salt spray or air pollution).

If a grass or small brush fire is burning under power lines or around poles, use standard firefighting practices to extinguish the fire. If the pole bases are deeply charred, contact We Energies. We will inspect the poles for possible replacement.

If there is a downed wire involved in the fire, use a spray stream to keep the fire in check and protect the surrounding area.

If the fire is near the top of the pole or is in pole-mounted equipment and it appears that the fire will not endanger life or property, let it burn. Most pole-mounted equipment contains oil. If the equipment is still energized, little can be done to extinguish the fire, as the oil will continue to re-ignite. Notify We Energies and protect the area as outlined in “Downed Wires.”

In rare cases where the fire must be attacked and the electric equipment has not been de-energized, use extreme care. The extinguishing agents of choice are dry chemical or water spray. If the pole or cross arm continues to burn, chances are one or more insulators are broken. There is little that can be done until the line is de-energized.

CAUTION: Never use a straight stream. Although the firefighters manning the hose line may be far enough away to be safe, the distances between wires or from a wire to a ground source are not sufficient to prevent a flash over (arc) caused by a straight stream. Thus, you may burn down the wire and nothing would be gained.

ANIMAL RESCUE

The fire department is usually the first to be called upon to rescue cats or other animals that have climbed utility poles. There have been times when firefighters have lost their lives while attempting to rescue animals. All of these calls should be turned over to We Energies. In most cases, these animals will return to the ground if left alone.

If you are attempting to rescue an animal from a tree, check carefully for nearby overhead lines. Power lines in trees are particularly difficult to see. Identify their location before going aloft. Never touch a power line or allow a tree branch to make contact.

CAUTION: It is difficult to tell utility lines apart. It’s safest to assume all overhead lines, including cable and phone, are energized.

SUMMARY

Remember the following principles when dealing with electrical emergencies:

1. Call We Energies or the local power company.
2. Treat all wires as dangerous and energized at high voltage.
3. Exercise extreme caution when approaching the scene of an electrical emergency.
4. Establish a safety zone at the scene of an electrical emergency. Prevent all unauthorized persons from approaching the scene.
5. Continue to guard the scene until relieved by an authorized utility representative.
6. Never tamper with energized wires or equipment. Your primary responsibility is to save lives, including your own.
PROPERTIES OF NATURAL GAS

Natural gas by itself will not burn. Before it will ignite, it must be mixed with air in a proportion of approximately 4 percent to 15 percent gas in air. Unless the gas-to-air ratio is within this range, natural gas will not ignite.

Natural gas is non-toxic. However, it is a simple asphyxiant. If an enclosed area contains enough natural gas to displace the oxygen, people could suffocate from a lack of oxygen as they would if they were drowning in water.

When it is burned properly, the major by-products of combustion are harmless carbon dioxide and water vapor. However, if it is not burned completely, dangerous carbon monoxide gas can form.

Natural gas is the predominate fuel for heating in Wisconsin and much of the nation. In addition, cooking ranges, water heaters, clothes dryers and other household appliances use natural gas.

Natural gas is used by retail stores, office buildings, churches, schools, restaurants, public buildings, theaters and other types of buildings for heating, cooling and to run appliances.

Compressed natural gas is becoming more popular as a safe, economical alternative fuel for automobiles, trucks, buses and industrial equipment, such as forklifts.

Factories use natural gas for cooling, space heating and industrial processes such as the heat-treating of metals and drying procedures.
TRANSMISSION FACILITIES

We Energies receives its natural gas from large pipeline companies. This gas is compressed in large diameter pipelines at high pressure (300 to 1,000 p.s.i.) from natural gas fields in Texas, Louisiana and other locations. These pipelines are not owned by We Energies, but may pass through your local community. Obtain safety information for these pipelines directly from their owners.

LOCAL DISTRIBUTION

Natural gas enters the local pipe distribution system through facilities called gate stations. At gate stations the natural gas is metered, reduced in pressure, and an odorant is added to make the gas easier to detect.

PIPING SYSTEM

Natural gas is supplied to homes and other buildings by means of underground gas mains and service laterals.

The We Energies underground distribution system is composed of thousands of miles of gas mains and hundreds of thousands of gas service laterals.

In the 1920s and 30s, cast iron pipes were used for gas mains. Later, pipe materials such as steel and special plastics became available.

In the 1950s, the company began a long-term program to replace all cast iron pipe, first with coated steel pipe and later with newly developed plastic pipe. Both of these are used extensively today.
The system in the Milwaukee area was renewed by inserting plastic pipe inside the old cast iron. The system now is composed almost entirely of plastic and steel pipe.

Natural gas mains are usually located underground in roadways or under the grassy areas between curbs and property lines. Some mains are located on private property. We Energies has records showing the locations of all mains and service laterals in its distribution system.

A typical natural gas main is two inches in diameter and carries 15 to 60 p.s.i. of gas pressure. Main sizes range from 3/4-inch to 30 inches in diameter. Pressures go as high as 1,000 p.s.i.

TELEMETERING EQUIPMENT

Another type of equipment used with natural gas service is the telemeter box. Always located outdoors, these gray, metal boxes are mounted on posts. This equipment is located near natural gas mains.

Telemeters monitor and report natural gas line pressure information by means of electrical impulses sent over telephone lines. With this equipment, the underground system can be monitored 24 hours a day for changes in pressure. Significant changes in pressure can indicate problems in the system. Currently these are only used in southeast Wisconsin.

The telemeter box is usually located between the curb and sidewalk or on the lot line just behind the sidewalk and adjacent to a power pole.

If a telemeter device is damaged (for example, by a vehicle), there is an underground shut-off valve that firefighters are allowed to operate.

This is the only exception to the rule against emergency personnel operating underground valves.

You can recognize this underground valve because the valve box cover is square, rather than round, and is always located at the base of the post. Because of this, it should never be mistaken for another valve.

LIQUID ODORANT STORAGE

The odorant that gives natural gas its distinctive smell is called mercaptan. It's a flammable sulphur-based compound that is injected in the pipeline at gate stations. Liquid odorant may be stored in cylinders at these gate stations prior to injection. The storage of this compound does not cause an extreme hazard, but fire departments that have gate stations and mercaptan storage cylinders in their communities should be aware of the properties and characteristics of this chemical. Contact Customer Services at We Energies for more information on the chemical properties of mercaptan if there is storage in your area.
OTHER FUEL TYPES

Liquid Propane Gas (LPG) and Liquefied Natural Gas (LNG)

In certain areas Liquid Propane Gas (LPG) or Liquefied Natural Gas (LNG) is used to augment the supply to the natural gas system. LPG or LNG used for this process is stored in large storage cylinders at these locations. The LNG or LPG is vaporized at these locations and injected into the existing natural gas distribution system. This vaporization of the LNG or LPG is generally done during extremely cold weather to maintain adequate gas supplies to the area and to reduce costs.

When the LPG or LNG is vaporized, the flammable gas that is present at the plant is heavier than air and more difficult to dissipate in a leak situation than natural gas.

For these reasons LPG and LNG storage facilities have special fire protection and prevention requirements specified in NFPA 58, NFPA 59 respectively. Department of Transportation codes also apply. Utilities that own these facilities will provide information on fire control equipment, its location and quantity of units, and familiarize you with potential hazards, communications and emergency control capabilities at the plant. Contact the gas utility that owns these facilities for more information.

Compressed Natural Gas (CNG) Vehicles and Stations

More and more vehicles are being modified to run on Compressed Natural Gas (CNG). It burns cleaner than other fossil fuels and is more economical. These vehicles are equipped with special cylinders that are capable of holding the high pressures required, from 2,000 to 3,600 p.s.i., to store CNG for vehicle operation. Vehicles that use CNG have a blue and silver diamond sticker on the body of the vehicle to warn emergency responders that CNG in cylinders is present. If there is an emergency involving CNG, treat it like any other natural gas emergency:

- Keep people away.
- Keep ignition sources away.
- If ignited, protect exposures with fog spray.
- Use fog spray to direct gas vapors away from ignition sources or from accumulating in confined areas.

Vehicles that use CNG must follow the guidelines published in NFPA 52 and filling stations must also follow Wisconsin Department of Commerce rules on location and required safeguards.
Taking control of a natural gas emergency may involve closing an above-ground natural gas valve. Natural gas mains and services are equipped with valves that can be used to control the flow of natural gas through the pipe.

Do not attempt to operate underground valves or above-ground valves at regulator sites or at meters.

The only service valves fire and emergency personnel should operate are those located above ground.

Only personnel from We Energies should operate underground valves. We Energies has engineering records that indicate the location of all valves and what each one controls. By verifying the location and purpose of a valve, the possibility of operating the wrong valve and creating a greater hazard is eliminated.

Fire and emergency personnel are authorized to operate the above-ground meter shut-off valve. This valve is located at the natural gas meter serving homes and smaller buildings. Some commercial and industrial buildings have special processes that can be damaged or malfunction if natural gas is shut off. Make sure you have pre-plans with these businesses so you know what to do in the event of an incident.

### CLOSING NATURAL GAS VALVES

1. If you shut off a valve, leave it off and notify We Energies.
2. We Energies will ensure safety and turn the service back on. Shutting off the natural gas supply extinguishes all pilot lights, which are small, constantly burning flames used to ignite gas at a burner. If you open the valve, you may create hazard.
3. Most shut-off valves installed on service laterals, whether above ground or below ground, require only a 1/4 turn clockwise to shut off the natural gas supply.
**SERVICE LATERALS**

Service laterals are pipes that carry natural gas from the main to homes and buildings.

For homes and most buildings, service laterals in areas served by We Energies are of three types: copper, steel and plastic. Service laterals range from 1-1/8 inches in diameter for copper and polyvinylchloride (PVC), to 3/4 to 2 inches for steel, and 5/8 to 4 inches for polyethylene plastic. Larger service laterals, such as those serving factories, are usually made of steel and range in size from 2 to 12 inches in diameter.

**Outside Meters and Valves**

We Energies prefers to install meters outdoors, adjacent to homes or buildings. An outside meter allows greater accessibility and safety.

On an outside meter, the natural gas inlet pipe (riser) is above grade leading to the meter. The shut-off valve is located below the regulator (see *Service Lateral – Outside Meter Set* below). To close the valve, use an adjustable or pipe wrench and give the valve core a 1/4 turn clockwise (see *Closing Natural Gas Valves* on page 18).

The service regulator is located above the valve. The regulator reduces line pressure from 15 to 60 p.s.i. to approximately 1/4 p.s.i. to 2 p.s.i. Some large buildings and businesses may have a 2 p.s.i. or higher system after regulation. High pressure services also may be found in our service territory. The pressure in these steel services can be 100 to 720 p.s.i. before regulation takes place at the wall of the building or at lot line regulators.

**SERVICE LATERAL – OUTSIDE METER SET**

1. A regulator (pressure reducing device) is located in the vertical pipe coming up from the service lateral (riser) ahead of the meter.

2. A shut-off valve is located in the riser below the regulator.

3. An underground shut-off valve is generally not installed.
Inside Meters and Valves

Many meters are still located inside homes and buildings.

The meter shut-off valve for this type of installation is located inside the building at the point where the service pipe comes through the basement wall (see Service Lateral Inside Meter Set below).

This valve may not be accessible because of fire or water in the basement. In this situation, an underground shut-off valve or “curb stop” should be operated only by We Energies personnel. An underground curb stop is installed on all services where the meter is located inside buildings.

Also, an underground stop is part of the equipment serving all larger buildings, such as four family or larger apartment buildings, hospitals, churches, theaters, schools, commercial buildings and industrial buildings.

SERVICE LATERAL – INSIDE METER SET

1. A regulator (pressure reducing device) is located in the vertical pipe coming up from the service lateral (riser) ahead of the meter.

2. A shut-off valve is located in the riser below the regulator.

3. An underground shut-off valve is generally installed.
LARGE BUILDINGS/INDUSTRIAL AND COMMERCIAL

Natural gas equipment for larger buildings and factories often includes other devices such as secondary regulators, relief valves and overpressure automatic shut-off valves.

These devices are usually found in conjunction with the meter. The meter and its equipment may be located:

- Outside, either above or below ground.
- Indoors, in a vault or pit.
- In a special building or room.
- On rooftops.

Some buildings may have an inside meter and an outside regulator. In this application, the above-ground valve is located outside with the regulator.

Fire Department personnel can operate the above-ground natural gas service line valve, which is common to larger meter installations (see Typical Industrial Meter Installation below).

On larger natural gas shut-off valves, the valve head is usually square requiring a large, adjustable wrench to operate.

Large buildings may have more than one service lateral. In an emergency, each service lateral may need to be shut off.

TYPICAL INDUSTRIAL METER INSTALLATION

1. Some large commercial or industrial natural gas customers may have a separate building or room apart from the main building for the meter installation.

2. This drawing shows an industrial meter installation with a regulator ahead of the meter. The shut-off valve is located ahead of the regulator.

3. Service laterals supplying natural gas to commercial or industrial buildings are generally equipped with an underground shut-off valve installed in a box or vault.
GENERAL PRECAUTIONS

General precautions to consider when a natural gas leak is known or suspected

- Use natural gas detection instruments, if available, to determine if natural gas is present.
- If your instrument shows that any measurable quantities of natural gas are present, evacuate the area.
- If an instrument is not available and you smell natural gas, use the most cautious choice available to you and assume there is an ignitable mixture present. Evacuate the area.

CAUTION: Eliminating ignition sources, ventilating the hazard area from outside and shutting off the natural gas supply at outside meter unit valves are effective means of minimizing hazards associated with natural gas leaks and accumulations. Take these actions only when they can be done safely.

In addition:

- Keep people and vehicles away from the hazard area.
- Do not allow anyone to enter or remain in buildings where natural gas is present.
- Do not smoke, ring doorbells, operate electric light switches, use phones, ventilation fans or elevators. A single spark could be an ignition source.
- Do not plug electric fans into house electrical outlets. They could be an ignition source.
- Use Positive Pressure Ventilation (PPV) and remember to keep the PPV itself out of any area where natural gas is present. A remote exhaust hose should be used to prevent carbon monoxide accumulation.
- Do not open stoves, ovens, furnaces, or other appliances.
- Do not open natural gas valves that have been closed. Call We Energies to re-establish natural gas service after a natural gas valve has been closed.
SPECIFIC EMERGENCY ACTIONS

In all cases, remember your emergency priorities; protect people by immediate evacuation, protect property only if it can be done safely and call We Energies for assistance.

Natural Gas Escaping Inside

- Evacuate the building.
- Eliminate ignition sources and keep people from operating electrical devices.
- Shut off natural gas at the source. An outside meter service valve is the best choice if available. An appliance valve or inside meter service valve also can be considered if it is safe to do so.

🔥 CAUTION: Natural gas instruments can tell you if it is safe to be in an area where you suspect natural gas is leaking or where you smell natural gas. If it is not safe, evacuate the building, keep people away, check neighboring homes for natural gas migration and wait for the utility to shut off the natural gas.

Natural Gas Escaping and Burning Inside

- Evacuate the building and keep people out.
- Protect interior exposures and combustibles using hose streams and water spray.
- Shut off natural gas at the source.
- Extinguish any remaining fires.

🔥 CAUTION: If you extinguish the fire before the natural gas is shut off, an explosion may occur as the accumulating natural gas is ignited by nearby ignition sources. If you must extinguish the fire to perform a rescue, do so as part of a coordinated effort of extinguishment and natural gas shutdown. Watch for re-ignition.

Natural Gas Escaping Outside

- Approach the area from upwind (wind at your back).
- Keep vehicles and people out of the area where natural gas is leaking.
- Remove or eliminate all ignition sources.
- Check nearby buildings and structures for natural gas. Natural gas can migrate long distances under pavement or through telephone and electric ducts or sewer lines.
- Use fog spray to move escaping natural gas away from hazard areas such as roads or buildings where the natural gas could ignite.
- If possible, keep water out of excavations where natural gas is blowing.
- Do not enter any excavation or confined vault or pit where natural gas is blowing to stop the flow of natural gas. Natural gas may exclude oxygen in these areas. In addition, static electricity may accumulate on plastic pipe, creating an ignition hazard if you were to enter such an area.
- Protect people and adjacent buildings and call We Energies to make any needed repairs or remotely shut off the natural gas.

🔥 CAUTION: Use the wind to your advantage at outside natural gas incidents. In order to maintain a safe work zone around your equipment and to avoid other ignition sources, position vehicles upwind or outside the plume of the natural gas leak. This will prevent intake of natural gas into the vehicle combustion system which may ignite the natural gas. If you smell natural gas, you need to move to a safer location. Watch out for wind shifts throughout the incident.
Natural Gas Burning Outside

- Keep people away from the area.
- Protect exposures with water spray.
- Let the natural gas burn unless an above-ground valve can be used to shut off the source. If rescue is needed in the fire area, extinguish the fire using dry chemical extinguishers and fog spray to dissipate the leaking natural gas until We Energies can shut off the natural gas supply.
- Check nearby buildings and structures for natural gas. Even when natural gas is burning, some of the natural gas can migrate long distances under pavement, through telephone and electric ducts, or through sewer lines.
- Wait for We Energies to shut off the natural gas using emergency valves or other remote shut-off means. Remember that underground valves or valves inside fenced-in areas at regulator or gate stations should only be operated by We Energies.

**SOURCES OF IGNITION**

There are many ignition sources that must be considered when natural gas is leaking. If there is an ignitable mixture of natural gas present, (about 4 percent to 15 percent gas in air), elimination of ignition sources needs to be the first priority. Common ignition sources are pilot lights, spark ignitors, electrical switches and disconnects, and any other source over about 900°F. Other ignition sources not always considered are door bells, security systems, non-rated flashlights, pagers, radios and static electricity. Eliminate all ignition sources.

If you need electricity disconnected to the building because of natural gas accumulation, do not shut off circuit breakers or pull the electric meter. The act of pulling the meter may cause an arc or spark that could ignite the natural gas. Call the local electric utility to have the electric service disconnected at the pole.

Consider the possibility that the building could be served by an automatic source of backup power, such as a generator fueled by diesel or natural gas.
If there is no hazard of natural gas accumulating, an electrical disconnect could be used to shut off the alternate power source. Another option may be to shut off the natural gas or diesel fuel line to the generator. In the case of natural gas generators, shutting off the natural gas supply may cause the generator to try to restart, creating an ignition source hazard in the area of the generator. For this reason, we do not recommend that you operate any switch or ignition source if there is a danger of accumulating natural gas being ignited. It may be better to keep people away, including firefighters, until the natural gas hazard has been dissipated by shut-off or ventilation.

**INCOMPLETE COMBUSTION AND CARBON MONOXIDE**

Incomplete combustion of natural gas or other fossil fuels can produce carbon monoxide (CO). This odorless, colorless gas is toxic and flammable. The health effects of carbon monoxide are serious and may be fatal.

Incomplete combustion may occur in an over-gassed, under-gassed or unvented appliance. It also can be caused by a flame supplied with insufficient oxygen. A broken or plugged appliance or furnace vent, or a plugged chimney, may allow CO to be present in living quarters. Carbon monoxide poisoning also can be caused by automobile exhausts, charcoal or gas grills and paint thinners.

Signs of carbon monoxide poisoning are: headache, vomiting, dizziness, burning eyes, drowsiness, faintness, insomnia, irritability and coughing. Sometimes these symptoms are mistaken for the flu.

We Energies has information for fire departments and emergency personnel on how to respond to carbon monoxide customer calls. We will assist fire service officials if called. We will make the situation safe by shutting off the natural gas supply to the appliance or home. If carbon monoxide is suspected, evacuate people from the contaminated area and, if needed, call We Energies.

**SUMMARY**

If you suspect a natural gas leak, take the following steps:

1. Call We Energies immediately from a phone outside the building. We will send a radio-dispatched crew to the area to investigate the problem.
2. Clear the building of all occupants.
3. Keep all sources of flame and sparks away from the suspected natural gas leak area. Don’t smoke, use a light switch, flashlight, elevator, phone or matches. Eliminate all ignition sources.
4. If it can be done safely, ventilate the building by opening windows and doors to permit the natural gas to escape.
5. Attempt to locate and shut off the above-ground natural gas meter valve.
6. Stand by for assistance from We Energies at a safe distance.
TAKE CONTROL

- Establish a safety zone of 25 to 30 feet around the scene of an electrical emergency. Prevent all unauthorized persons from approaching the scene.
- Continue to guard the scene until relieved by an authorized utility representative.

BE AWARE OF ELECTRIC HAZARDS

- Use extreme caution when approaching the scene of an electrical emergency, especially at night.
- Treat all wires as dangerous and energized at high voltage.
- Do not attempt to move downed power lines.
- Do not spray water on downed lines, transformers or other electrical equipment.
- Do not cut into locked cabinets. Cutting tools could make contact with energized equipment inside the cabinet.

MAKE THE RIGHT CALL

- Call the local power company.
- Be specific as to the nature of the emergency, location and type of assistance you require.
- Provide contact info for your on-site personnel and location of incident command post.

Public Safety Agency dedicated phone lines
888-296-4937 or 800-292-7098
Natural Gas Emergency Response Guidelines
These are guidelines only. Your resources and training should guide your actions.

TAKE CONTROL

Outside Natural Gas Leaks
- Establish a safety zone, keeping the wind at your back.
- Shut off natural gas if you can do so safely.
- Eliminate ignition sources, including vehicle engines or power equipment.
- Check adjoining buildings for natural gas.
- Use water spray to direct the natural gas from hazard areas.

Inside Natural Gas Leaks
- Evacuate the area.
- Do not use electrical devices such as phones, doorbells or other ignition sources.
- Shut off natural gas if you can do so safely.
- Ventilate the area by opening windows or leaving doors open as you go.

BE AWARE OF NATURAL GAS HAZARDS

Use Your Nose
- If you do not have a natural gas detection instrument, check for natural gas odor using your nose as you enter the area.
- If you smell natural gas, assume natural gas is leaking and take the most cautious actions available to you.

Use a Natural Gas Detection Instrument
- If you have a natural gas detection instrument, turn the instrument on in clear air.
- Sample near the ceiling as you enter. If the detector shows more than a trace of natural gas, then assume natural gas is leaking.

Check for Natural Gas Outside
- At manholes, sewer openings and storm drains.
- Alongside building walls at the ground.
- At door and window cracks if you can’t get in the building or home.

Check for Natural Gas Inside
- In upper areas of rooms and buildings as you enter.
- In basement drains and sewer openings.
- Where the natural gas pipe enters the building.

MAKE THE RIGHT CALL
- Call the local natural gas company.
- Be specific as to the nature of the emergency when calling for assistance.
Public Safety Agency
dedicated phone lines
888-296-4937
or
800-292-7098
24-HOUR ASSISTANCE FOR POLICE AND FIRE DEPARTMENT EMERGENCY USE ONLY. Please do not release these numbers to the public.

888-296-4937 or 800-292-7098

So we can quickly and effectively respond to an emergency, always provide the following information when you call:

- **Exact location of the emergency** (municipality, fire number and the street address)
- **Type of emergency** (natural gas or electric)
- **Nature of emergency** (fire, explosion, natural gas leak)
- **Number of emergency personnel at the emergency location**

Website:
www.we-energies.com/firstresponders

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Public Contact Information

24-hour lights out and electric emergency
800-662-4797

Natural gas emergency
800-261-5325

Customer service and billing questions
800-242-9137

Diggers Hotline (Wisconsin)
811 or 800-242-8511

Miss Dig (Michigan)
811 or 800-482-7171

Wisconsin Telecommunications Relay System
800-947-3529

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Utility Safety Pre-Test Answers

1. **F** 5. **T** 9. **F** 13. **F** 17. **F**
4. **F** 8. **F** 12. **F** 16. **F** 20. **T**
GRASS (Grass fires) can occur any time of year but occur primarily during the spring, summer, and early fall. Weather conditions conducive to grass fires include warm temperatures, low humidity, dry conditions, and strong winds. Companies operating at a grass fire must always be mindful of current and changing weather conditions (storms, wind direction, etc.), as these can directly affect firefighter safety and the success of the fire attack. Before initiating extinguishment, companies must also ensure that the grass fire is not a result of electrical current from a downed wire. In this case, proceed cautiously to contain the fire and call for WE Energies-Electric to secure the power before final extinguishment. In a charred area, a downed wire is well camouflaged and could easily be stepped on.

Areas with a relatively high incidence of grass fires are along railroad right-of-ways, alongside freeways, in large open fields (located by high tension power lines), and in park fields. Request the appropriate outside agency via Dispatch to assist with automobile or train traffic control (Milwaukee County Sheriff’s Department for freeway runs or the appropriate railroad company for fires along railways).

Grass fires can range from small extinguisher fires to multi-alarm large-area fires. In Milwaukee, we do not have the terrain or topographic expanse of wildland areas to experience major wildland fires similar to those in the western United States. We do, however, have areas of uninterrupted wildland that are large enough to challenge firefighting operations. Often, these wildland areas butt up against populated, structured areas throughout the city. Members operating at GRASS incidents should observe the many natural barriers that exist (roadways, freeways, parking lots, playgrounds, etc.) which will assist in containing a large grass fire.

The high heat conditions associated with summer grass fires make working in the open sun in full PPE exhausting. All members should wear PPE that is appropriate for these incidents. Large, fast moving, out of control vegetation fires will require more complete PPE packaging than will low ground vegetation fires. Furthermore, for small, localized grass fires or during the overhaul stage, Incident Commanders may allow crews operating in high ambient temperatures to ‘dress-down’ their PPE, ensuring that all members continue using bunker pants, fire boots, and gloves. Any member operating a hoseline or near an operating hoseline should also continue using their helmets and safety glasses. Company Officers should not hesitate to request additional companies for crew rotation at large grass fires. Request a Battalion Chief early in the incident to provide hydration for crews working in high ambient temperatures.

If hoselines must be laid over railroad tracks, several actions must be taken. First, attempt to make contact with the railroad company that owns the tracks and verify via Dispatch that
they have shut down rail traffic to the area. Second, until verification is received, send one firefighter approximately ¼-mile in each direction wearing a traffic safety vest to signal any oncoming trains to stop. Make a special call for additional resources to accomplish this.

Lastly, ensure that no hose couplings from any hoselines laid over the train tracks are resting on the tracks, the railroad ties, or the ballast (gravel) foundation of the railway. Another solution used successfully in the past is to dig out the ballast between two railroad ties for the length of both ties, feed a dry section of 1¾”, 2½” or 3” hose under the rails, reconnect it and then charge it. This eliminates the worst-case scenario of a train passing through and severing operating hoselines.

Grass is classified as a fine fuel due to its small surface area. This is cause for concern because once bunched up in a cured, dried state in high atmospheric temperatures it becomes an easy ignition source, acting as kindling. In addition to elevated temperatures, grass fires can ignite as the result of fallen utility wires, lightning strikes, arson, or many other causes.

Another critical factor is wind, which plays a major role in the tactical approach to grass fires because it dictates the movement of the grass fire in an upward and downwind orientation along the landscape. Large quantities of smoke as a result of grass fires should not be underestimated since grass is often treated with pesticides and germicides that produce hazardous byproducts when burning.

In handling GRASS assignments, companies should operate with their own safety and the safety of any civilians as the first priority, the protection of any exposed buildings or vehicles as the next priority and the final extinguishment of the grass fire last. If buildings or vehicles are already involved or become involved after arrival, follow the operating guidelines respective to the new fire situation.

For small grass fires, pressurized water extinguishers will work to adequately knock down visible flame. Larger fires may require a reduced or medium-sized handline or deck gun to knock down. The mobility and speed with which a reduced handline can be placed, operated, and moved as needed makes it an ideal choice for grass fires requiring a hoseline.

For larger grass fires that are growing circumferentially in all directions (and with no structures or vehicles exposed or potentially exposed), a speedy and effective method to achieve initial knockdown is to travel from the upwind edge of the burned out area, traveling along the sides with corn brooms, physically rubbing the fire out as progress is made towards the downwind edge of the burning area. Be prepared to stamp out the broom occasionally, as it will heat up and eventually ignite. At the end of a successful corn broom knockdown, expect to see the broom’s bristles greatly reduced in size.

The entire burned out area will need to be overhauled to extinguish the many smoldering hotspots that will likely remain. While overhauling, keep a watch on the overall area to make sure no open burning has restarted. Make a special call for additional resources as needed to accomplish the labor-intensive overhaul stage.
If Firefighters operate from the blackened, burned out area and travel upwind to downwind, batting down the burning grass along the outer edge as they proceed, they should encounter less punishment from the smoke and convective heat currents pushing forward from the leading edge of the fire. This also leaves them a safe area of refuge should wind or fire conditions drastically change. Retreating into the burned out area will reduce the likelihood of burn injuries as the fuel has already been burned away.

**ENGINE**

<table>
<thead>
<tr>
<th>OFFICER</th>
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<tbody>
<tr>
<td>Tools: Full PPE with SCBA, portable radio, flashlight, corn broom</td>
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<tr>
<td>Duties: Incident Command</td>
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<table>
<thead>
<tr>
<th>HEO</th>
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</thead>
<tbody>
<tr>
<td>Tools: Full PPE, portable radio</td>
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<td>Duties: Engine and pump operations</td>
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</tbody>
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<table>
<thead>
<tr>
<th>NOZZLE</th>
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</thead>
<tbody>
<tr>
<td>Tools: Full PPE with SCBA, portable radio, axe, corn broom, backpack water extinguisher (if equipped)</td>
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<tr>
<td>Duties: As assigned by Officer</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>BACKUP</th>
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</thead>
<tbody>
<tr>
<td>Tools: Full PPE with SCBA, portable radio, pressurized water extinguisher, flathead axe, drag forks and shovels as needed</td>
</tr>
<tr>
<td>Duties: As assigned by Officer</td>
</tr>
</tbody>
</table>

Upon arrival, the Engine Officer should immediately size-up the nature and extent of the grass fire. Evaluation of possible exposures, the initial knockdown method, the safest and most effective initial attack point, possible refuge points, the need for additional resources, and available water supply must occur quickly and be communicated to the Engine Company crew. The Engine Officer should also examine for possible causes that might pose a hazard to operating members, such as downed utility wires or evidence of accelerants. The Engine Officer should ensure that the Engine HEO positions the rig to support the safest and most effective firefighting operation.

If needed, climb atop the apparatus or briefly reposition the apparatus to gain a better and more complete view in order to ensure that the initial plan takes into account the entire scope of the problem. Call for additional resources as needed (WE Energies, MPD, railway company, MCS, Forestry Department, etc.).

The Engine Officer, after having detailed the operational plan to the Engine Company, may assist in an initial corn broom knockdown attempt, remaining vigilant of the overall scene conditions, fire behavior, and wind direction. This will allow the Nozzle FF and Engine HEO to begin a hose stretch into the operating area, speeding both initial knockdown and time to water. Unless anticipating having to operate in an exposed structure or vehicle, the Engine Officer may travel without the Halligan Bar.

If, based on fire conditions upon arrival, the Engine Officer anticipates needing over ½ of the 500 gallon onboard water tank, a special call should be made for an additional Engine Company, unless the Engine HEO has secured a hydrant.
The Engine Officer should remain alert to the health and safety of the Engine Company members at all times, referring to the present guidelines on rehabilitation and operating in extreme temperatures.

The Engine HEO should position the rig to support the operational plan of the Engine Officer. If possible, the Engine HEO should position to connect to a hydrant. The Engine HEO should not drive the apparatus out onto a field, regardless of wind direction and direction of approach. If the wind shifts the Engine apparatus could become an exposure as well as bogging down in mud from runoff firefighting water. Further, the superheated diesel exhaust blowing out over already dried-out grass could cause secondary grass fires to ignite. Additional reference material can be obtained in the Motor Vehicle Instruction Guide (D13 – Wildland Fires).

The Nozzle FF should begin initial corn broom knockdown or begin a hose stretch as directed by the Engine Officer. In the event that a hose stretch is ordered, be sure to stretch enough hose to cover not only the burning area but as much of the surrounding grass or brush area as possible, as the burning area is ever growing and changing until knockdown and extinguishment.

The Nozzle FF should use water sparingly until a positive water supply has been confirmed by the Engine HEO. It is best to initially use a 30° fog spray to dampen a wide area, but a straight stream may be needed to hydraulically overhaul and thoroughly soak deep seated hotspots or heavily overgrown areas. Be sure to wet down unburned areas adjacent to the burned-out area, as embers that have not yet sparked a visible fire may have traveled to those areas on the convective currents.

For small to medium-sized fires not requiring a hoseline, the Nozzle FF should make use of the backpack-style water extinguisher available on some Engine Companies. This allows the Nozzle FF to alternately employ the corn broom and wet down hotspots as needed.

The Backup FF is responsible for initiating the initial corn broom knockdown as directed by the Company Officer. If a hose stretch is chosen as the initial tactic, the Backup FF will complete the layout, dress the hose for use in the operating area, and support the Nozzle FF throughout the operation.

For very small, localized grass fires, the Backup FF can carry and use the pressurized water extinguisher to suppress the fire. At larger grass fires requiring the corn brooms and/or hoselines, the Backup FF will initiate those tactics in place of carrying the pressurized water extinguisher.

After knockdown, the Backup FF can employ the pressurized water extinguisher, shovel(s), and/or drag forks to assist in overhauling the area.
MILWAUKEE FIRE DEPARTMENT
Operational Guidelines

Approved by: Chief Mark Rohlfing

2012

17.0 – HEAT (Furnace Trouble)

Units Dispatched: (T or R)

**GENERAL**

*HEAT (Furnace Trouble)* assignments frequently occur with the arrival of the winter season’s first cold spell. They can certainly occur at any time of year, but obviously occur more regularly when cold weather causes people to activate their furnaces.

People generally heat their homes and businesses with one of several methods: forced air, radiant, or steam. Each can cause different emergencies. In most cases, Milwaukee Fire Department interaction will simply be to investigate for cause and to shut down the affected system as needed, while providing for the immediate safety of the occupants.

The investigation may be as simple as observing the telltale ‘first start-up of the season’ musty or dusty odor associated with forced air heating and calming the fears of an occupant. This situation can be handled by advising the occupant to change the air filter and to give it some time to normalize. *HEAT* assignment investigations can also be as simple as activating the system and listening as the heat begins to flow through the ducts, which may be causing the ductwork to ‘pop’ as it expands. New homeowners or renters often are familiar with the noises of their previous residence and can become alarmed at noises they perceive to be different or possibly dangerous.

During summertime, when a central air conditioning system is activated after sitting idle for several days during humid weather, humidity that has condensed and settled in the ductwork can emit from vents in the form of vapor, alarming unfamiliar occupants into thinking the system is ‘smoking.’

If smoke is in fact noted issuing from HVAC vents and the source is not readily identifiable (large building, difficult access, etc.), make a special request for a *FULL (Structure Fire)* assignment and initiate civilian evacuation and then possible suppression efforts. Many instances of the ignition of dust buildup and/or debris in heating vents have occurred. The primary hazard in this case is the rapid transmission of smoke to multiple areas of the occupancy, as well as the possible communication of fire to multiple areas, including void spaces. The use of the TIC will aid in identifying superheated ductwork and or excessively warm void spaces, allowing the Truck Company to focus their efforts appropriately.

In any motor driven appliance (forced air furnace, AC compressor, etc.), there exists the possibility of a burnt belt from unit malfunction. This situation is identifiable by a distinct burnt rubber odor and possibly a haze of smoke. Other symptoms of belt failure or burnout may include overheated drive motors and/or a lack of motion where expected (blower squirrel-cage, compressor fan, etc.). This can occur when there is electrical input, but no electrical output. Ensure that the unit is de-energized, that any gas feeds have been shut down, and that no fire extension has occurred within the unit.
A smoky odor could also result from cracked or damaged heat exchangers, a condition which may result in elevated CO levels while the furnace is operating. If frayed or worn rubber belts are noted (or any of the above symptoms are noted), advise the occupant to have the unit repaired by a qualified technician and to leave the system off until the repair is completed.

**HEAT** assignments can become more problematic if large numbers of occupants at a multi-family dwelling or assembly occupancy will be left without heat during extremely cold weather due to a heating system failure. Many downtown structures are heated with steam generated at the WE Energies facility just south of downtown. Emergencies involving steam leaks from such facilities must be considered serious events as steam burns or scalding can occur to responders and civilians alike. Request that WE Energies personnel respond to assist with such emergencies and evacuate the immediate area until WE Energies arrival and mitigation. Never enter manholes, vaults, or utility chambers from which steam or smoke is emitting.

The Milwaukee Fire Department shall not, under any circumstances, provide HVAC or appliance repair services for the obvious reason of liability. The property owner is responsible for arranging and paying for all repairs to their property. WE Energies provides outstanding emergency service to diagnose (and in some cases repair) heating systems in extremely cold weather. Incident Commanders at **HEAT** assignments should request WE Energies personnel early in the incident if the occupants at any type of occupancy will be without heat during extremely cold weather. This is a matter of life safety as well as property conservation. Plumbing left to freeze will likely burst, potentially causing tremendous water damage within the structure.

In instances where occupants are evacuated due to lack of heating during cold weather, ascertain whether alternate shelter has been arranged with family or friends. Request a Milwaukee County Transit Service (MCTS) bus or buses as needed for large numbers of evacuees with the understanding that the MCTS response can often be delayed. In the meantime make a request for additional units as needed to provide temporary shelter. Paramedic Units provide an ideal multiple-seat heated shelter. Remind displaced occupants to take wallets, money, keys, phone, medications, and a change of clothing with them.

If evacuating a multi-family dwelling, leave a note on the main entry door explaining the circumstances, as some of the occupants may not have been present during our response. Request that MPD respond through dispatch to assist with securing evacuated buildings if needed.

For the sake of clarity, if on arrival for a **HEAT** assignment the cause of the emergency is found to be a natural gas or propane leak associated with HVAC equipment or portable heating equipment, call for and operate under the **GAS** (**Gas Leak**) response guidelines. If on arrival for a **HEAT** assignment the cause of the emergency is found or suspected to be a Carbon Monoxide leak associated with HVAC equipment or portable heating equipment, call for and operate under the **CARBON** (**Carbon Monoxide**) response guidelines. If on arrival for a **HEAT** assignment the cause of the emergency is found to be a furnace or other HVAC component fire, call for and operate under **APPL** (**Appliance Fire**) guidelines. If on arrival for a **HEAT** assignment the cause of the emergency is found or suspected to be a
water leak associated with a radiator’s water or steam feed, call for and operate under the WATER (Water Leak) response guidelines. A clear understanding of all of the response type guidelines will allow the Company and/or Chief Officer to incorporate a wide range of resource material into the incident action plan.

If no problem is found during the investigation and the heating system appears to be functioning normally, be sure to provide Carbon Monoxide monitoring of the occupancy. This helps to assure the occupant(s) and provides an added layer of security in declaring the incident mitigated.

### TRUCK

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE with SCBA, portable radio, flashlight, TIC, halligan tool, tagline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Incident Command and investigation</td>
</tr>
<tr>
<td>HEO</td>
<td>Tools: Full PPE with SCBA, portable radio, axe, tagline</td>
</tr>
<tr>
<td></td>
<td>Duties: Aerial operations, Ventilation as needed, Circuit or Fuse panel control</td>
</tr>
<tr>
<td>VENT</td>
<td>Tools: Full PPE with SCBA, portable radio, axe, door chocks, tagline, CO Monitor</td>
</tr>
<tr>
<td></td>
<td>Duties: As directed by Officer, Monitor CO</td>
</tr>
<tr>
<td>FORCE</td>
<td>Tools: Full PPE with SCBA, portable radio, tagline, multi-purpose dry chemical, CO₂</td>
</tr>
<tr>
<td></td>
<td>or pressurized water extinguisher, flathead axe, door chocks, toolbox</td>
</tr>
<tr>
<td></td>
<td>Duties: Investigate with Officer, suppression as needed</td>
</tr>
</tbody>
</table>

Upon arrival, the Truck HEO should position the apparatus in front of the given address. As always, this will provide for ready access to the tools onboard the apparatus and will place the apparatus in a proper position should the incident escalate.

The Truck Officer should initiate the investigation by speaking with the caller (if able). Determine the nature of the situation and investigate for the cause. Remember that our primary responsibilities include providing for our own safety and the safety of civilians, while preventing or limiting the loss of property associated with the response. The Truck Officer should deploy the Truck Company personnel to eliminate any electrical, gas, or fire hazards associated with the HEAT response. Several scenarios that could cause HEAT assignments warrant respiratory protection. As such, the Truck Officer should verify that members are properly prepared with full PPE and SCBA donned.

The Truck Officer will investigate with the Force FF. If it is determined that the furnace interior must be accessed, several important steps must first occur. It is critical that all combustibles be removed from the immediate area around the furnace prior to accessing the interior. Further, it is critical that the gas line feeding a natural gas burning furnace is shut off at the nearest stopcock and that the electric switch controlling the furnace is shut off prior to accessing the interior of the furnace. Many furnaces are equipped with kill switches which activate when the cabinet door is removed; we will not rely solely on these for protection and will shut the systems down as detailed above.
The Truck HEO, after positioning the apparatus, will travel with the Vent FF as directed by the Truck Officer to assist in the investigation and/or system shut off. The Truck HEO will handle the shutting down of electrical circuits or fuses at the electrical panel as directed by the Truck Officer.

The Vent FF will travel with the Truck HEO to accomplish the directives of the Truck Officer. The Vent FF will carry the CO Monitor regardless of the specific complaint to provide an added layer of security to the Truck Company response. Additional information regarding Carbon Monoxide monitoring may be found in the CARBON (Carbon Monoxide) response guideline.

The Force FF will investigate with the Truck Officer and will provide access and initial suppression as needed. The Force FF will provide mechanical assistance by deploying the tools in the toolbox as directed.
High-rise buildings present several unique challenges not encountered in traditional low-rise buildings, including: accessibility concerns, longer access/egress distance, evacuation considerations, uncommon smoke movement, water delivery difficulties, and ventilation limitations. Appropriate strategic decisions must be made by initial arriving units based on pre-incident planning knowledge and a thorough situational assessment.

A structure can be defined as a high rise based on the following standards:

1. The International Building Code (IBC) identifies a high-rise as a “building with an occupied floor located more than 75' above the lowest level of fire department vehicle access.” Similarly, the 2012 edition of the NFPA standard 101 Life Safety Code defines a high-rise building as “a building more than 75' in height, measured from the lowest level of fire department vehicle access to the floor of the highest occupiable story.”

2. The National Fire Incident Reporting System (NFIRS) identifies a high-rise as a structure 7 or more stories in height.

These definitions provide a standard code for mandating fire resistive construction features and enhanced fire protection systems (See Appendix 18.2 for General Overview and size up). For ease of situational assessment, the NFIRS definition will serve as the basis for the tactical considerations and personnel assignments outlined within this guideline.

The Milwaukee County high-rise operational guideline was developed cooperatively by representatives from Fire Departments across Milwaukee County gathered into a research committee, equipment committee, guideline committee, and training committee. This guideline will serve as the basis for incident scene management and operations at any high-rise fire incident within the county.

A **HIGHRISE 1 Response** will be sent anytime the dispatcher receives a credible report of fire or fire conditions within a structure seven or more stories in height. A **HIGHRISE 1 Response** will consist of the following alarm complement (44-45 personnel):

- 4 Engine Companies
- 4 Truck Companies
- 1 Heavy Rescue Company
- 2 Paramedic (MED) Units
- 4 Command Officers
- Incident Command Post (ICP)
- Compressed Air (CAIR1)
While the basic firefighting tactics used on high-rise fires are the same as those used on other structure fires, these buildings present special considerations and problems. A steady, adequate stream of appropriate resources will enhance coordination and tactical discipline. Incident progression based on observed/reported conditions and length of travel must be realistic and additional resources requested early.

Setting up a four-deep deployment model is ideal for organization during a high-rise fire incident:
- Hazard Zone – Actively working
- On Deck (including Recycle)
- Forward Staging – In reserve
- Rehab – Temporarily Out of Service

Establishing fire control/confinement and completing the primary search of the fire floor and floor above the fire are the primary objectives of the initial alarm.

**HIGHRISE 1 Response**
(See Appendix 18.12 for High Rise 1 Alarm schematic)

**FIRE INVESTIGATION TEAM (FIT)**

**1st ENGINE** – see Appendix 18.1 for Required equipment

Initiate, maintain, and control incident communications - transmit a brief, but effective initial radio report and assume street name command (designated by dispatch) in a mobile command mode as FIT along with the 1st arriving Truck Company. The FIT should be aggressive, but methodical in their investigation for fire.

- Water supply (see Appendix 18.3 for Water Supply procedures).
  - Drop off crew at main point of entry.
  - Hook up to Fire Department Connection (FDC) for standpipe operations.

- Elevator control (see Appendix 18.4 for Personnel & Civilian movement procedures).
  - Take elevator to Forward Staging (3 floors below reported fire floor) with hose packs and high rise bag.

- Identify and report the attack stairwell. Proceed up the attack stairwell to the floor below the reported fire floor, known as Forward Recon, and report conditions to Operations (if established) over the fire ground channel.

- Check the layout and room numbering system on the floor below and orient yourself to the stairs.
  - If an open floor plan is discovered, strongly consider the utilization of only the 2 ½“ hose.

- Locate and report the confirmed fire floor/conditions to Operations.
- Flush the standpipe outlet in the attack stairwell on the floor below the confirmed fire floor and prepare the hose packs for deployment.

- Connect the inline pressure gauge and hose line to the standpipe outlet. Leave one firefighter at the connection to control and monitor water pressure (see Appendix 18.3 for Water supply procedures).

- Deploy the hose line for fire control with assistance from the 1st Truck.

- Communicate location, conditions, actions, and needs to Operations (if established) over the fire ground channel.

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**1st TRUCK** – see Appendix 18.1 for Required equipment

Gather required reconnaissance information and support the Engine Company’s objective of locating and gaining access to the fire floor. The FIT should be aggressive, but methodical in their investigation for fire.

- Gather reconnaissance information
  - Knowledgeable staff onsite (building manager, maintenance, security)

- Obtain keys from the Knox Box or building staff
  - Unlock main floor stairwell doors

- Elevator control (see Appendix 18.4 for Personnel & Civilian movement procedures). Assign one firefighter (with forcible entry tools, combination ladder, extra radio battery and extra SCBA cylinder) to remain as elevator control.
  - Take elevator to Forward Staging (3 floors below the reported fire floor).
  - Elevator control communicates with Command on the command channel

- Determine and report attack stairwell. Proceed up attack stairwell to the floor below the reported fire floor, known as Forward Recon, and report conditions to Operations.

- Check the layout and room numbering system on the floor below and orient yourself to the stairs.

- Locate and report the confirmed fire floor/conditions to Operations.

- Assist Engine Company with locating the fire, deploying the hose line, and forcible entry/door control.

- Conduct a primary search and rescue for endangered occupants on the fire floor, beginning near the fire area and proceeding outward. Consider the use of search lines for accountability and egress.

- Communicate location, conditions, actions, and needs to Operations over the fire ground channel.

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Operational Guidelines
HIRISE (High-Rise Fire response)
INITIAL FIRE STANDBY UNITS

2nd ENGINE

☐ Secondary water supply (see Appendix 18.3 for Water Supply procedures).
  o Drop off crew at main point of entry
  o Hook up to hydrant and supply 1st Engine for FDC standpipe operations

☐ Assume lobby command (gatekeeper position until arrival of Chief Officer) via radio from the mobile IC and gather further information
  o Retain building manager/security as a resource for lobby command
  o Hold arriving crews in the lobby until confirmation of fire location from FIT

☐ After confirmation of fire location from FIT or Command, proceed to Forward Staging, then up to Forward Operations with hose packs and high rise bag; Drop the hose packs and high rise bag in Forward Operations.

☐ Proceed up attack stairwell to Forward Recon.
  o Check the layout and room numbering system on the floor below and orient yourself to the stairs.

☐ Move up and assist with deployment of the first hose line. Remain committed to hose line management as needed.

☐ Prepare to relieve the firefighters on the first hose line.

☐ Communicate location, conditions, actions, and needs to Operations over the fireground channel.

2nd TRUCK

☐ Bring combination ladder and drop in lobby for use by Lobby Control Group (3rd Engine)

☐ After confirmation of fire location from FIT or Command, proceed to Forward Staging, then up to Forward Operations with salvage covers.

☐ Proceed up attack stairwell to Forward Recon.
  o Check the layout and room numbering system on the floor below and orient yourself to the stairs.

☐ Move up to the fire floor and position salvage covers to protect the elevator shafts. https://drive.google.com/open?id=0B-Pi3-IknmgoOTQ3WnVoMFFfRDQ

☐ Assist with a coordinated primary search and rescue on the fire floor as needed. Consider the use of search lines for accountability and egress.

☐ Communicate location, conditions, actions, and needs to Operations over the fireground channel.

Operational Guidelines
HIRISE (High-Rise Fire response)
3rd ENGINE

- Assume Lobby Control Group functions.
  - Obtain keys from the Knox Box or building staff and ensure main floor stairwell doors are unlocked if not done by 1st Truck.
  - Retain knowledgeable staff onsite (building manager, maintenance, security)
    - Inquire about occupant notifications already made, evacuations already in progress, fire control room location, and lobby phone number for backup communication.
    - Obtain pre-fire plans and/or blueprint maps.
    - Secure a list of known persons within the building who require special assistance.
  - Locate fire control room with annunciator alarm panel and public address phone.
    - Make announcements over the building PA system as designated by the Incident Commander (see Appendix 18.11 for Communication Panel Template).
    - Consider shutting down the HVAC system unless the building has a working smoke handling purge system or stairwell pressurization.
    - Verify that the fire pumps are working.
  - Elevator control (see Appendix 18.4 for Personnel & Civilian movement procedures). Assign one firefighter (with forcible entry tools, combination ladder, extra radio battery, and extra SCBA cylinder) as elevator control for a second elevator car.
    - Place ALL elevators in the fire service mode.
    - Elevator control communicates with Command on the command channel.
  - Control the flow of civilians in the lobby to a safe location where they can be accounted for.
  - Communicate information and needs to Command over the command channel.

4th ENGINE

- Secure water supply (see Appendix C for Water Supply procedures).
  - Drop off crew at main point of entry
  - Hook up to secondary hydrant and prepare to supply FDC sprinkler connection or standpipe connection as determined by Command.

- After reporting to Command, proceed directly to Forward Staging with hose packs and high rise bag.
  - Each member must also bring an extra SCBA cylinder

- Drop the hose packs, high rise bag, and extra SCBA cylinders in Forward Staging (equipment cache).

- Remain in Forward Staging and report to the Operations Chief for assignment over the fire ground channel.
  - Prepare to relieve the firefighters on the first hose line OR
  - Deploy the second hose line (already staged in Forward Operations by the 2nd Engine) as either a backup line on the fire floor or to the floor above the fire floor.

Operational Guidelines
HIRISE (High-Rise Fire response)
Operational Guidelines
HIRISE (High-Rise Fire response)

- Flush the standpipe outlet in the attack stairwell **two** floors below the confirmed fire floor (Forward Operations stairwell) or on a floor as directed by Operations, and prepare the hose packs for deployment.
- Connect the inline pressure gauge and hose line to the standpipe outlet. Leave one firefighter at the connection to control and monitor water pressure (see Appendix 18.3 for Water supply procedures).

☐ Communicate location, conditions, actions, and needs to Operations over the fireground channel.

**3rd TRUCK**

☐ After reporting to Command, proceed directly to Forward Staging with extra SCBA cylinders, salvage covers, and combination ladder.
  - Drop the SCBA cylinders and combination ladder in Forward Staging (equipment cache).

☐ Remain in Forward Staging and report to the Operations Chief for assignment over the fireground channel.
  - Clear the attack stairwell of occupants to five floors above the confirmed fire floor.
  - Assist the Engine Company with extension check, deploying the hose line, and forcible entry/door control on the floor above the fire.
  - Position salvage covers to protect the elevator shafts on the floor above the fire. https://drive.google.com/open?id=0B-Pi3-Iknm6QOTQ3WnVoMFFFDQ
  - Conduct a primary search and evacuation for endangered occupants beginning directly above the fire area and proceeding outward. Consider the use of search lines for accountability and egress.
    - Evacuate ambulatory civilians if necessary to a safe location via the designated evacuation stairwell.

☐ Communicate location, conditions, actions, and needs to Operations over the fireground channel.

**4th TRUCK**

☐ After reporting to Command, proceed directly to Forward Staging with extra SCBA cylinders.
  - Drop the SCBA cylinders in Forward Staging (equipment cache).

☐ Remain in Forward Staging and report to the Operations Chief for assignment over the fireground channel.
  - Clear the designated evacuation stairwell of occupants on and above the confirmed fire floor to a safe location.
    - The evacuation stairwell door to the fire floor and floor above the fire should not be opened unless necessary for a firefighter or civilian rescue need.
  - Continue to clear the evacuation stairwell of occupants until reaching the top floor of the building, redirecting occupants to a safe location.
- Communicate top floor (fire/smoke) conditions and needs to Operations over the fire ground channel.
  - If top floor conditions are safe, clear the designated attack stairwell of occupants on and above the confirmed fire floor, redirecting occupants to a safe location.

1st RESCUE

- After reporting to Command, proceed directly to Forward Staging, then up to Forward Operations with Rapid Intervention equipment and Stokes basket.

- Report to the Operations Chief for assignment over the fire ground channel.
  - Standby in Forward Operations as the Rapid Intervention Team (RIT).
    - Acquire information on fire conditions and crew locations/accountability.
    - Monitor location of fire attack crews and reported conditions/actions via radio.
  - May be otherwise assigned by Operations as long as a dedicated RIT company is in place (see Appendix 18.13 for Rescue Company capabilities).

1st PARAMEDIC UNIT

- After reporting to Command, proceed directly to Forward EMS (4 floors below confirmed fire floor). This location will provide ready access should any patient(s) require immediate life-saving ALS triage and intervention.
  - Paramedic personnel should load their stretcher with immobilization and ALS equipment, as well as Rehab supplies (water cooler, towels, tracking forms).
  - Full PPE is necessary in case a patient must be packaged or cared for in the hot zone.

- The ranking Paramedic will assume the responsibility of Forward EMS Group Supervisor, requesting additional resources as needed through Command over the command channel.
  - Additional resources requested to assist in EMS/Rehab should bring additional ALS equipment and Rehab supplies.

2nd PARAMEDIC UNIT

- Report directly to Lobby Command.
  - Paramedic personnel should load their stretcher with immobilization and ALS equipment, as well as Staging tracking forms.
  - Full PPE is necessary in case a patient must be packaged or cared for in the hot zone.

- The ranking Paramedic will assume the responsibility of EMS Staging Group Supervisor, requesting additional resources and transport units as needed through Command over the command channel.
COMMAND OFFICERS

1st Command Officer

☐ Report directly to the lobby and formally establish the command post in the main lobby (or other suitable location as conditions dictate).
   o Assume Command / Operations and communicate with the current IC (company officer) for critical information via LCAN report.
   o Provide a follow-up report to dispatch, including mode of operation, current activities, and estimated incident duration.
   o Make a resource determination and request additional resources (HIGHRISE 2) as needed.

☐ Retain Command designation and location throughout the incident, formally relinquishing Operations and other command/staff duties to later arriving Command Officers.

2nd Command Officer – see Appendix 18.7 for Operations checklist.

☐ Report to Command, then proceed directly to Forward Staging before moving up the stairwell to two floors below the confirmed fire location and establish Forward Operations, assuming the role of Operations.
   o Obtain vital information from Command before moving up to establish Forward Operations.
   o Wear full PPE and SCBA with extra SCBA cylinder.

☐ Maintain responsibility for the direct management of all incident tactical activities, tactical priorities, and the overall safety of personnel working within the hazard zone.
   o Strongly consider the establishment of floor divisions led by company officer division supervisors

☐ Communicate benchmark progress and needs to Command over the command channel.

3rd Command Officer – see Appendix 18.6 for Safety Officer (ISO) checklist.

☐ Report to Command, then proceed directly to Forward Staging before moving up to Operations.
   o Report to and obtain vital information and unit accountability from the Operations Chief.
     ▪ Maintain direct dialogue with the Operations Chief.
   o Wear full PPE and SCBA with extra SCBA cylinder.

☐ Assess and monitor tactical safety and identify potential hazardous conditions, developing measures to enhance personnel safety. The ISO has emergency authority to alter, suspend, or terminate unsafe acts/conditions when imminent danger is involved.

☐ Meter atmospheres (including stairwells) as directed by the Operations Chief.
**4th Command Officer**

- Report to Command, then proceed directly to Forward Staging.
  - Report to the Operations Chief over the command channel for assignment and assist the Operations Chief as an aide or as designated.
    - Monitor the fire ground channel and backup channel (8TACRED).
    - Maintain duplication in accountability and communications.
    - May be initially detailed to remain and coordinate companies exiting in Forward Staging.
  - Wear full PPE and SCBA with extra SCBA cylinder.

**Incident Command Post (ICP)**

- A dedicated Incident Command Post staffed by specially trained and qualified personnel will be sent to the scene of a reported fire in a High Rise building or at the discretion of the IC.
- The main functions of dedicated ICP members are to assist the IC with personnel accountability, information gathering, and communications.
- It is the IC’s decision whether to move the command post location to the ICP rather than in the lobby

**HIGHRISE 2 Response**

4 ENGINES, 4 TRUCKS, 1 HEAVY RESCUE COMPANY, 2 PARAMEDIC UNITS, 4 COMMAND OFFICERS

All incoming 2nd Alarm units shall monitor the fire ground CHANNEL and dispatch channel while enroute for further instruction in regard to direction of entrance and placement of apparatus.

**5th ENGINE**

- After reporting to Command, proceed directly to Forward Staging with hose packs and high rise bag.
  - Each member must also bring an extra SCBA cylinder

- Organize the hose packs and extra SCBA cylinders in Forward Staging (equipment cache).

- Officer will assume the duties of Forward Staging Group Supervisor unless otherwise assigned by the Incident Commander. May be relieved of Forward Staging Group Supervisor duties by a 2nd Alarm Command Officer.
  - Communicate needs to the Command Chief over the command channel.
6th ENGINE
- After reporting to Command, proceed directly to Forward Staging with hose packs and high rise bag.
  - Each member must also bring an extra SCBA cylinder
- Organize the hose packs and extra SCBA cylinders in Forward Staging (equipment cache).
- Report to the Forward Staging Group Supervisor and standby in Forward Staging for assignment.

7th ENGINE
- Report to Command on arrival to a suitable Base Staging location.
  - Report the Base Staging location to Command and organize Base Staging by resources.
- Officer will assume the duties of Base Staging Group Supervisor unless otherwise assigned by the Incident Commander.
  - Communicate needs to the Command Chief over the command channel

8th ENGINE
- Report to the Base Staging Group Supervisor and standby in Base Staging for assignment.

5th TRUCK
- After reporting to Command, proceed directly to Forward Staging with extra SCBA cylinders.
- Report to the Forward Staging Group Supervisor and standby in Forward Staging for assignment.

6th TRUCK
- After reporting to Command, proceed directly to the designated attack stairwell.
  - Clear the designated attack stairwell of occupants from the ground floor up to Forward Staging.
  - Consider PPV fan usage to pressurize attack stairwell as needed.
  - Communicate progress and needs to Command over the command channel; later to Ground Support if established.

7th TRUCK
- After reporting to Command, proceed directly to the designated evacuation stairwell.
  - Search the designated evacuation stairwell for occupants needing assistance from the ground floor up to Forward Staging.
  - Consider PPV fan usage to pressurize attack stairwell as needed
Operational Guidelines
HIRISE (High-Rise Fire response)

- Communicate progress and needs to Command over the command channel; later to Ground Support if established.

8th TRUCK
- Report to the Base Staging Group Supervisor and standby in Base Staging for assignment.

2nd RESCUE
- After reporting to Command, stand by in lobby with Rapid Intervention equipment, forcible entry equipment, and Stokes basket.
- May be assigned as needed by the IC (see Appendix 18.13 for Rescue Company capabilities).

3rd PARAMEDIC UNIT
- After reporting to Command, proceed directly to Forward EMS.
  - Paramedic personnel should load their stretcher with immobilization and ALS equipment, as well as Rehab supplies (water cooler, towels, tracking forms).
  - Full PPE is necessary in case a patient must be packaged or cared for in the hot zone.
- Report to Forward EMS Group Supervisor for assignment.

4th PARAMEDIC UNIT
- Report to the Base Staging Group Supervisor and position ambulance as directed for rapid egress.

COMMAND OFFICERS

5th Command Officer – see Appendix 18.8 for Fire Attack Branch Director checklist.
- Report to Command, then proceed directly to Forward Staging before moving up to Operations.
  - Report to and obtain vital information from the Operations Chief before moving up to the floor below the confirmed fire floor to establish Forward Recon as the designated Fire Attack Branch Director (Fire Attack Chief).
  - Wear full PPE and SCBA with extra SCBA cylinder.
- Supervise incident tactical activities, coordinate tactical priorities, and monitor the overall safety of personnel working on the original fire floor and the floors with active fire spread above the original fire floor or as designated by Operations.
  - May move as needed between Forward Recon, the fire floor, and the floors above the fire floor, utilizing the attack stairwell.
  - If not already established by Operations, strongly consider the establishment of floor divisions led by company officer division supervisors.
  - Communicate progress and needs to the Operations Chief over the command channel.
6th Command Officer – see Appendix 18.9 for Forward Staging Group Supervisor checklist.

☐ Report to Command, then proceed directly to Forward Staging.

☐ Assume the duties of Forward Staging Group Supervisor from the company officer.
   o Organize and inventory the equipment in Forward Staging.
   o Organize and maintain accountability for the crews in Forward Staging.

☐ Communicate needs to the Command Chief over the command channel

7th Command Officer – see Appendix 18.10 for Ground Support Branch Director checklist.

☐ Report to Command, then assume the position of Ground Support Branch Director (Ground Support) unless otherwise assigned by the Incident Commander.
   o Manage and coordinate the flow of personnel, equipment, and supplies to and from upper floors via the elevators and/or stairwells (see Appendix 18.4 for Personnel and Civilian movement procedures).

☐ Communicate progress and needs to the Command Chief over the command channel.

8th Command Officer

☐ Report directly to the command post location and assist the Command Chief as an aide (Planning).
   o Monitor the Command channel and backup command channel (8TACWHITE).

High Rise 3 Response

4 ENGINES, 4 TRUCKS, 2 PARAMEDIC UNITS, 2 COMMAND OFFICERS

All incoming 3rd Alarm units shall monitor the fireground channel and dispatch channel while enroute for further instruction in regard to direction of entrance and placement of apparatus.

☐ Report to the Base Staging Group Supervisor over the command channel and standby in Base Staging for assignment.
18.1: Required equipment

18.2: General Overview and size up

18.3: Water supply procedures

18.4: Personnel and Civilian movement procedures

18.5: Communication guidelines

18.6: Safety Officer (ISO) checklist

18.7: Operations checklist

18.8: Fire Attack Branch Director checklist

18.9: Forward Staging Group Supervisor checklist

18.10: Ground Support Branch Director checklist

18.11: Communication Panel template

18.12: HIRISE 1 Alarm schematic

18.13: Rescue Company capabilities
## Required equipment (minimum)

### ENGINE

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE with SCBA, portable radio, flashlight, TIC, haligan tool, hose pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEO</td>
<td>Tools: Full PPE with SCBA (if interior), portable radio</td>
</tr>
<tr>
<td>NOZZLE</td>
<td>Tools: Full PPE with SCBA, portable radio, axe, door chocks, hose pack, high-rise bag</td>
</tr>
<tr>
<td>BACKUP</td>
<td>Tools: Full PPE with SCBA, portable radio, flathead axe, 6’ pike pole, hose pack</td>
</tr>
</tbody>
</table>

### TRUCK

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE with SCBA, portable radio, flashlight, TIC, haligan tool, tagline, SCBA bottle</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEO</td>
<td>Tools: Full PPE with SCBA (if interior), portable radio, axe, door chocks, tagline, SCBA bottle</td>
</tr>
<tr>
<td>VENT</td>
<td>Tools: Full PPE with SCBA, portable radio, axe, door chocks, tagline, combination ladder, SCBA bottle</td>
</tr>
<tr>
<td>FORCE</td>
<td>Tools: Full PPE with SCBA, portable radio, tagline, flathead axe, door chocks, Pike pole (8’ and/or 10’), water extinguisher, SCBA bottle</td>
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</table>

### PARAMEDIC UNIT

<table>
<thead>
<tr>
<th>PARAMEDIC OFFICER</th>
<th>Tools: Full PPE, portable radio, EMS equipment and cot, tracking forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARAMEDIC</td>
<td>Tools: Full PPE, portable radio, EMS equipment and cot, towels</td>
</tr>
</tbody>
</table>

* See the Operational Guideline for extra equipment needs based on order of arrival and company assignment
General Overview and size up

Because upper floor fires must be mitigated from inside the building, it is vitally important to have a basic understanding of construction materials, occupancy types, provided life safety systems, and fire/smoke movement considerations.

CONSTRUCTION

High Rise building construction methods and life safety features are largely dependent on the building codes and available technology at the time of construction. Generally speaking, there are three recognized eras of high rise building construction.

Pre-World War II Era (Prior to the 1940’s)

Pre-World War II high-rise structures are generally considered to be solidly built, utilizing concrete and steel with many reinforcing features. These structures typically had stairways enclosed within fire towers which would prevent the introduction of smoke into exit pathways. Mechanical systems, including HVAC systems, were generally floor-specific, so fire and smoke spread to other floors was limited. Because of the localized ventilation systems, many of these structures had windows that opened and allowed for ventilation. Fire alarm detection and notification systems, sprinkler and standpipe systems and emergency generators were not yet part of the equation.

Existing high-rise buildings from this era have generally undergone extensive remodeling and reconstruction, requiring the additions of alarm and suppression systems to relatively modern code levels. This remodeling and reconstruction has led to increasingly complex floor plans and the presence of void spaces.
**Post-World War II – 9/11/2001 Era** (1940s through 2001)

Post-World War II through September 11, 2001 high-rise structures were generally built utilizing fire-resistive and lighter weight materials. In the earlier years of this era, structural steel and concrete decking were the materials of choice. After catastrophic failures resulted from the elongation of steel under high heat conditions, code standards evolved to require that these exposed structural steel members were protected by a coating of fire-proof material. The fire-proof coatings have a limited lifespan and are only effective if installed correctly.

The use of lighter weight structural materials allowed for larger, open floor spaces. As these spaces were occupied and adapted for use, multiple rooms and dropped ceilings were often added, resulting in more void spaces and maze-like floor plans.

Functional enclosed spaces, or cores, became prevalent after 1960 to house the stacked building mechanicals, utilities, elevators, and stairways. These vertical channels provide a method of travel for smoke and fire.

As energy efficiency became a higher priority during this era, new structures were built with fixed windows and relied more heavily on a universal HVAC system. The early HVAC systems were found to contribute to fire and smoke spread to otherwise unaffected areas of the building.

Most buildings of this era contain sprinkler and standpipe systems, fire detection and notifications systems, complex HVAC controls, fire department elevator controls and emergency power. Buildings constructed late in the era also tend to include fire walls and fire doors which protect stairwells and serve to better compartmentalize the structure during fire conditions.
Post-9/11/2001 Era (2002 through Present)

The International Building Code re-focused on the increased protection of structural materials and a better resilience of building components to reduce the likelihood of collapse after the events of September 11, 2001. Codes were also updated to require a method for mechanical or natural ventilation of individual floors.

**OCCUPANCY TYPES**

High-rise structures may present with a variety of layout options, but generally are of two major occupancy types – residential and commercial/business. Other industrial occupancy types (i.e. air traffic control towers, power plants, etc.) may be found in structures meeting high-rise criteria but, since these receive special building code exceptions, they should be addressed by means of a site-specific pre-incident plan. This document will focus on the two most common occupancy types – residential and commercial/business.

The lower levels of both major occupancy types generally house lobbies, street-level commercial spaces, and parking decks. Common to both is a central lobby or atrium containing elevator and stairwell access.

**Residential Occupancies**

The upper floors of residential occupancies can contain apartments, hotel rooms, hospital rooms, or other living quarters. Residential floor plans are generally comprised of center hallways supporting individual living units and tend to be highly compartmentalized. While building cores housing the elevators and stairwells may be found in the middle of the structure, additional stairways are usually found at the ends of the hallways. Long hallways or hallways providing access to multiple wings of the building may be protected by fire doors. Residential floor plans are typically consistent from floor to floor and provide 24 hour occupancy.

Appendix 18.2: General overview and size up
Variations to the typical residential floor plan may be expected in healthcare facilities where compartmentalized living quarters are interspersed with nursing stations and other large open areas. Luxury apartments or condominiums may also provide unique challenges, such as suites encompassing multiple floors, limited access in the form of private entrances, or restricted access to some floors.

**Commercial Occupancies**

Commercial/business occupancies will include tenant spaces in the form of offices and conference rooms. Commercial and business high rise floor plans may be compartmentalized or open, and may vary from floor to floor based on use and tenant. Typically these floor plans will contain a center core surrounded by offices along the perimeter of the building. Occupancy loads may vary greatly, depending on the type of business and the hours of operation.

**LIFE SAFETY SYSTEMS**

An important tactical consideration during a high-rise fire is the use of built-in life safety systems to assist in fire control. Depending on the age of the building and prevailing code standards at the time construction, some or all of the following systems may be present. Life safety systems can vary greatly in terms of system layout and location of control valves. Fire crews should consider the review of these systems to be a vital component of their building pre-planning program.

**Fire Sprinklers**

Most high-rise buildings constructed after 1990 will be completely or partially protected by fire sprinklers. When properly installed and maintained, fire sprinkler systems are designed to quickly control and extinguish most fires with water from two or less heads. Older high-rises may or may not have sprinkler systems, and sprinkler systems that are present may or may not meet actual fire flow demand. Fire Department Connections (FDC’s) will generally be found on the street-facing side of the building and a fire hydrant will be located within 100' of the FDC. Multiple FDC’s are common and may be found on each side of the structure.

**Standpipes**

As with sprinkler systems, most high-rises constructed after 1990 contain standpipe systems. Standpipe connections are found in stairwells and, depending on the layout of the structure, may also be found in hallways. Standpipes may be dry (in older construction) or pressurized (in newer construction). Fire Department Connections for the standpipe system may be integrated into the sprinkler system or FDC’s may be stand-alone units.
Fire Pumps

All high-rise buildings are required by code to have auxiliary fire pumps designed to increase the pressure in the sprinkler and/or standpipe system when the pressure drops (sprinkler head or standpipe valve is opened). These pumps are designed to function on emergency power if necessary.

Fire Control Room

The control of numerous building systems during an emergency may be consolidated to one central hub called a fire control room. This room will have monitors and controls for all of the systems listed, as well as keys, building plans and additional communication devices. These rooms are generally located on the ground level, close to the lobby in a high-rise.

Fire Alarm/Building Notifications

While detection and notification systems will be present in most high rise structures, their features vary greatly depending on code requirements at the time of construction. Systems may be automatically activated by smoke or fire or may require manual activation. Systems may include both audio and visual alerts and modern buildings may issue occupant evacuation instructions by means of a pre-recorded message.

Most systems will be designed to display the location and type of alarm at a main control panel. The main control panel for the fire alarm system will generally be located in the fire control room or the mechanical room if no fire control room is present.

Communication System (see Appendix K for Communication Panel template)

Installed communications systems, present in newer high-rise buildings, use hard wiring to allow intra-building communication using a series of high-reliability speakers and telephone devices located throughout the building. This system allows the fire department to speak to occupants over a PA system and also allows the Incident Commander to speak directly to functional command officers, potentially freeing up the Command channel for reassignment.
Emergency Power Systems

Modern high-rise buildings are required to have back-up emergency power available for the life safety systems. Large generators provide the power necessary to run essential services such as fire pumps, emergency and egress lighting, alarm and notification systems and other building services.

HVAC Systems

The spread of fire and smoke to other parts of the building through the circulation system is a major concern. Modern high-rises may be equipped with HVAC systems that are zoned to prevent the spread of smoke to multiple floors by shutting down completely or by exhausting air to the exterior of the building. This function may be automatic or manually controlled.

Fire Fighter Elevator Control (see Appendix D for Personnel and Civilian movement procedures)

Elevator control features are found in most modern high-rises. In buildings with dedicated fire control rooms, these features may be controlled from this room. Mechanical rooms for elevators will generally be found on the roof or on the lowest level served by the elevator.

Taller high-rises may contain express elevators which only serve a particular group of floors. Fire crews must identify and become familiar with this service during pre-planning. Freight elevators may also be present, but may not be located in the public elevator core.

Elevator systems are highly susceptible to smoke, fire, and water damage. Their availability and reliability during an incident is not guaranteed.

Stairwells (see Appendix D for Personnel and Civilian movement procedures)

Most high-rises will have at least two stairwells serving the structure. In larger high-rises, stairways may be present that serve only a limited number of floors. Stairwells will typically be separated from the building by a two-hour fire rated wall and a fire door of the same rating. Additionally, stairwells may remain pressurized or contain rooftop openings to facilitate ventilation. Pre-planning is necessary to identify the stairway layouts and available access points in high-rise structures.

Stairwell doors may or may not be locked from the stair side. Doors with electronic locks in buildings with fire control rooms will generally unlock upon the transmission of a fire alarm. Most stairwell doors will be fire-rated and will thus present forcible entry challenges.

Occasionally, a building tenant may occupy multiple floors and will have access stairs for tenant use between these floors. Such stairs, which are limited to a particular tenant space, will generally be open and unprotected.

FIRE LOADS

The fire load found in all types of high-rise occupancies (residential, commercial, and business) is typically consistent with what is found in medium and low rise structures containing similar occupancies. Because a majority of the materials found in these types of occupancies would be considered ordinary and not require special suppression systems, we can assume the compartmentalization of a floor would have a greater impact on fire operations than the fuel load. Exceptions may include certain healthcare facilities and industrial occupancies.
FIRE AND SMOKE SPREAD

Fire Spread

The fire resistive construction of high-rise buildings helps to protect structural elements and thus limits fire load. Sprinkler systems also provide a measure of protection by limiting and extinguishing fires early. Although sprinkler systems have proven to be extremely reliable and effective, fire departments should still prepare for situations where a sprinkler system is not present or is not functioning properly.

Horizontal fire spread is significantly impacted by building compartmentalization and by construction features that allow for extension through void spaces. Large, open spaces in commercial occupancies allow for rapid horizontal movement of smoke and fire whereas residential occupancies tend to be more compartmentalized and are more likely to limit horizontal fire extension.

Vertical fire spread may occur due to features that are common in all types of high-rise buildings. Void spaces, chases, and ducts may allow for vertical spread of fire, especially if fire-stopping is not present or inadequate. Vertical fire spread may also occur via stairways, elevator shafts, windows, and/or through the void space between curtain walls and floors.

Smoke Spread

The spread of smoke through a high-rise can be described through three different models – mushrooming, the stack effect, and the reverse stack effect.

Mushrooming can be described as the spread of smoke unaffected by environmental conditions. In this model, smoke will rise until it reaches a ceiling or roof level which serves as an upper barrier. Once smoke reaches the upper barrier it will begin to bank down towards the fire.

The stack effect is observed when temperatures are colder outside of the fire structure than inside. As smoke rises it will lose heat to the colder exterior walls of the structure. As the temperature difference between the smoke and interior environment begin to equalize (neutral plane), smoke will begin to stratify and spread horizontally. In this model, smoke may never reach the building’s roof level.

The reverse stack effect occurs when exterior temperatures are warmer than interior temperatures. In this model, smoke may be pulled downward to floors below the fire floor.

Wind Driven Fires

Special consideration should be given to the potential for wind driven fire events during high-rise fires. “Ground friction” ensures that ground level wind conditions are not consistent with upper level wind conditions, which are much higher. These conditions can be extremely dangerous and pose numerous fire extinguishment challenges. The following factors must be present for a wind driven fire to occur:

- A fire that occurs in a compartmentalized area
- An open or broken exterior window in the fire compartment
- Wind blowing toward the exterior opening (as little as 10 mph can contribute to a wind driven fire)
- An open path from the fire compartment to a hallway or other passage (as may be caused by a door that has failed or been left open)

The intensity of wind driven fires may overwhelm suppression systems and fire barriers, contributing to significant fire spread and increasing risk to firefighters and civilians within the flow path.
Water Supply procedures

ARRIVAL PROCEDURE  https://drive.google.com/open?id=0B-Pi3-IknmqoVmV4OFdnWEFSQ0U

Upon arrival to a report of a fire in a high-rise building, the driver of the first due Engine should drop off the Officer and crew at the main entrance. The driver will then hook up to the building’s Fire Department Connection (FDC) for standpipe operations. The second due Engine will hook up to the nearest hydrant and supply the 1st Engine for FDC standpipe operations. A hydrant will typically be located near the FDC per local code. The third due Engine should position and prepare to hook up to secondary hydrant for the purpose of supplying the FDC sprinkler connection or standpipe connection as determined by Command.

FDC CONNECTION

FDC supply through the first due Engine must be with the intent of delivering the necessary water flow through the standpipe system for a proper interior attack. It is advisable to connect a Siamese appliance to one side of the FDC supplied by (2) 3-inch (or minimum 2-1/2 inch) hose lines. This leaves one connection still available at the most common FDC. Another 3-inch (or minimum 2-1/2 inch) hose line should be connected to this second FDC connection. Starting pressures into a standpipe FDC should begin at 150 psi with an additional 5 psi calculated for every floor above the first floor up to a maximum of 250 psi. Communication between the attack crew and Engine driver is needed to verify sufficient water flow.

If more than two connection points to the standpipe system are found for larger high-rises, the initial Engine should generally supply #1 and #3. Using a separately hydranted Engine for #2 and #4 is advised.

Care should be taken to inspect the FDC for damage or debris that would inhibit firefighting operations. If the FDC is unusable, you can redirect supply lines with a Siamese to the 1st floor standpipe utilizing a double female adapter. Ensure the first floor PRV is removed, if applicable, and communicate the delay to Operations, requesting additional assistance from standby crews.
STANDPIPE CONNECTIONS FOR INTERIOR ATTACK

When the FIT determines the fire floor, the attack team should flush the standpipe outlet in the attack stairwell on the floor below the confirmed fire floor and prepare the hose packs for deployment. Connect the inline pressure gauge and hose line to the standpipe outlet and leave one firefighter at the connection to control and monitor water pressure, once flowing. Deploy the hose line for fire control with assistance from the first Truck.

The inline pressure gauge will ensure companies have a reliable flow of water to the nozzle from the standpipe. Once the attack line is charged, a firefighter will be left in the stairwell to ensure proper water flow is maintained. Friction loss to the high-rise attack line should be estimated at 10 PSI per section or approximately 40 psi for the high-rise hose pack. The starting pressure at the discharge gate in the stairwell would then be 65-80 PSI. The firefighter at the gate will monitor radio requests from the Officer on the attack line and adjust water flow from the stairwell.

The second attack line will be connected to the standpipe in the stairwell on a floor as directed by Operations utilizing the same procedures. This line will typically be laid as a backup line on the fire floor or to the floor above the fire floor.

CHALLENGES

Pressure Reducing Valves (PRV) and Pressure Reducing Devices (PRD) can pose a significant threat to firefighting operations.

A Pressure Reducing Valve (PRV) is designed to limit the amount of pressure a standpipe outlet can deliver. Whenever possible these should be completely removed. Studies by the Los Angeles Fire Department have shown that up to 75% of installed PRV’s failed to provide adequate water flow for an effective fire attack. This is the primary reason why an inline pressure gauge is imperative on the attack line.

Several types of PRV’s are available and may be installed in modern high-rises. Pre-fire planning in your area will help to identify these. Familiarity with these valves and the best way to manipulate them is extremely important. If the valve is not easily manipulated, careful and specific force should be sufficient to break them off. If adequate water flow due to an irremovable PRV is not possible, communication from the gate firefighter should be made immediately to the attack team Officer and Operations.
A Pressure Reducing Device (PRD) is a more mechanical and permanent means to regulate pressure from the standpipe orifice. PRD’s are designed to be installed in a specific order to restrict pressure on lower floors and allow greater pressures on higher floors. If the PRD’s are not installed in the proper ascending fashion (as was the case at the One Meridian Plaza fire in Philadelphia in 1991), available pressures on various floors will be inadequate or impossible to predict. This flaw in installation cannot be overcome by increasing pressure at the FDC connection. If adequate water flow due to an improperly installed PRD is not possible, communication from the gate firefighter should be made immediately to the attack team Officer and Operations.

ALTERNATIVES TO STANDPIPES

On confirmed fires on or below the third floor to include the basement, first arriving officers may consider deploying the 2-1/2-inch lead line (skid load) and bypassing standpipe operations as the initial “quick attack” hose line. This method may allow first arriving companies to deliver water to the fire more quickly. Traditional standpipe operations could then be utilized to back up initial lines laid and to check for fire extension. This tactic must be clearly communicated to arriving resources and supported correctly to be effective.

The pre piped waterway of an aerial ladder can be utilized as a portable standpipe when additional water is necessary or standpipe operations are unavailable or ineffective on fires on the third through seventh floors. Aerial standpipe operations will allow a workable solution to pressure issues from standpipes equipped with PRV’s / PRD’s, but will also render the aerial useless for rescue of occupants or egress for fire crews operating in the building. Connection to the aerial standpipe should remain at the floor below the confirmed fire location after an effective supply is achieved. Again, this tactic must be clearly communicated to arriving resources and supported correctly to be effective.

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Personnel and Civilian movement procedures

SIZE-UP

In order to determine the initial mode of ascent, the Fire Investigation Team (FIT) will have to assess the situation to gain access to the fire floor in the most efficient manner. Gather necessary reconnaissance information from knowledgeable staff onsite (building manager, maintenance, security) and check the annunciator panel before deciding on a mode of ascent.

- Elevator use is recommended if:
  - Reported fire is above the fifth floor
  - Power supply is not threatened
  - No fire, smoke, or water (sprinkler activated) is present in elevator shaft
  - Evacuation of non-ambulatory civilians is needed
- Stairwell use is recommended if:
  - Reported fire on fifth floor or below, including basement
  - Elevator fails to perform any function
  - Elevator is unable to be put into fire service mode

If multiple stairwells are available, it is most desirable to have evacuees limited to a single stairwell with another used for fire attack. Going “against the flow” of civilian evacuees creates a timely and difficult ascent, so the coordination of separate stairwells, or notifying occupants to “protect in place” will be a valuable tool.

ELEVATOR OPERATIONS

A key component of efficient high-rise fire operations is the safe and reliable use of elevators to transport firefighters and equipment to and from assigned locations within the building. However, past experience has shown that elevators can malfunction during emergency operations, making it imperative to understand the built-in firefighter controls and to protect the system from fire and water damage. Fires reported above the 5th floor warrant elevator usage after a quick inspection confirms the elevator is working properly.

Building codes for newer high-rises require the installation and/or retrofitting of fire service elevator control systems. These systems provide manual control over all automatic elevator controls in the cars, providing a greater margin of safety for firefighters and occupants. By installing the “firefighter’s key” into the system, the elevators are taken out of automatic operation and placed under the manual control of firefighters. The manual control system is divided into two phases:
• **Phase 1** is often referred to as firefighter’s recall. It brings the cars nonstop to the lobby or predesignated area and automatically opens the doors. In many systems, the Phase 1 operation can be started by the activation of the smoke detector system in the building. In other systems, you will need to activate Phase I control by installing the “firefighter’s key”. The purpose of Phase 1 is to ensure that the building occupants use the stairways and to prevent the car from stopping on the fire floor with the doors opening automatically.

- **Phase 2** is firefighter control. This phase allows firefighters to manually control the elevator car from inside the car. Utilizing an elevator that does not allow Phase 2 control is not suggested.
The proper steps for elevator override are as follows:

1) Locate the fire service control key, typically found in the elevator key box located near the elevator on the elevator’s home floor.
2) Insert the key in the red fire service key slot near the elevator and turn switch to the “on” position. This will recall the elevator(s) to the home floor and enable the in-car controls (Phase 1).
3) Once in the car, depress the “call cancel” button. This will cancel any commands that were previously entered in the elevator car.
4) Remove the key from the fire service key slot near the elevator while maintaining the “on” position. Insert the fire service key into the key slot inside the car and switch to the “on” position. This will allow control of the car from within the elevator car only (Phase 2).
5) Once in the fire service mode the car doors can only be opened and closed manually by depressing the appropriate button and holding it until the operation is complete. The floor can then be manually selected. Once you arrive at the selected floor, the “door open” button must be fully depressed and held until the door completely opens.
6) If you choose to keep the car on a selected floor, switch the fire service key to the “hold” position. **It will be the practice to always keep a firefighter (FIT-1st Truck) with the elevator car to maintain control at all times throughout the incident.**

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Option: If available, service elevators remote from the fire area may be a viable option for later arriving companies after the fire floor has been verified. They typically service all floors and can handle a heavier load capacity. Again, a firefighter will need to remain with the elevator car to maintain control at all times throughout the incident.

When using the elevator in high-rise investigation or operations:

- Wear full PPE with SCBA activated and face piece donned when known or suspected smoke/fire conditions exist.
- Carry forcible entry tools and a combination ladder in case the car malfunctions and company members need to extricate themselves.
- Communicate floor anomalies to Command (i.e. no 13th floor)
- Stop every five floors on the way up to check for smoke in the hoist way and to ensure the elevator is operating properly.
- Ensure occupants (civilians) are not trapped in stuck elevators.
- DO NOT let trapped occupants escape the car via the hatch unless extreme circumstances dictate and equipment and personnel (HURT) are in place.
- Final stop is per company assignment as outlined in the High-Rise guideline, but will rarely be above Forward Operations Staging (3 floors below the reported/confirmed fire floor).
STAIRWELL OPERATIONS

If the elevators are unusable or unable to be properly placed into “fire service” mode, the stairwells will have to be utilized for personnel, equipment, and civilian movement. In most high-rise occupancies, the occupants are generally mobile and unless directed otherwise, will use the closest stairwell to exit the building on their own. The congestion of firefighters moving upward while occupants are attempting to evacuate causes problems for both. This problem can be controlled through early designation of one or more stairwells for firefighting operations and another stairwell(s) for occupant evacuation.

If stairwell use for personnel, equipment, and civilian movement is necessary in a fire above the fifth floor, immediately striking a HIGHRISE 2 Alarm is indicated for the large number of personnel needed to effectively complete the operation. A stairwell support procedure must be put into place and coordinated by the Ground Support Branch Director, in order to supply needed equipment to Forward Staging for use by fire control companies.

- Firefighter teams of two are positioned every three floors apart in the designated firefighting stairwell.
- The ground level team carries equipment/supplies up three floors to waiting firefighters, who then carry the equipment/supplies three more floors to waiting firefighters. This continues until the last team of firefighters delivers the equipment to Forward Staging.
- This procedure will continually repeat itself under the guidance of the Ground Support Branch Director until all needed items are delivered to Forward Staging.

STAIRWELL SMOKE CONTROL

Newer high-rise buildings are mandated by code to have enclosed pressurized stairwells designed to provide the occupants and firefighters a smoke-free environment while moving within the stairwell. The basic principle of a pressurized stairwell is to enclose the stairwell tightly and then add a fan to increase the air pressure inside the stairwell. When a door or doors to enter the various floors are opened, the air pressure inside the stairwell will push the smoke back and keep the smoke from entering the stairwell. If numerous doors are left open at the same time, the stairwell pressure can decrease to the point that smoke fills the stairwell.

Positive Pressure Ventilation Fans (PPV’s) can be used when the building does not have a fixed stairwell pressurization system, or the system is out of service for any reason. The use of PPV’s shall not be initiated until authorized by the IC. PPV’s can be used to pressurize the attack and evacuation stairwells or to sequentially ventilate floors of a building after the fire has been controlled. Due to the large square footage of floors and the volume of stair shafts in high-rise office buildings, multiple fans in tandem or in series may be needed to effectively accomplish this. When gas-powered PPV fans are utilized, carbon monoxide levels in the stairwell must be monitored.

Natural Vertical Ventilation is another option when the building does not have a fixed stairwell pressurization system, or the system is out of service for any reason. Opening the door(s) at the top and bottom of the stairwell once the fire is extinguished can assist in the removal of smoke via the stairway.

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Appendix 18.4: Personnel and Civilian movement procedures
SEPARATION OF ATTACK AND EVAC STAIRWELLS

The following can serve to organize an orderly occupant evacuation while still maintaining fire operations during a high-rise fire event:

- Determine if a full, partial, or no evacuation is needed, and communicate to occupants via the building PA system if equipped (see Appendix K for Communication Panel Template).
- Quickly ascertain from the alarm panel and knowledgeable staff onsite (building manager, maintenance, security) the number of stairwells in the building and the location of stairwells and standpipes in relation to the fire.
- Relocate endangered occupants proximal to the fire area to an area of refuge at least four floors below the fire (isolated from Forward EMS/Rehab) as coordinated by the Ground Support Branch Director.
- Do not evacuate more than three floors at a time.
- The fire floor and the floor above the fire take initial priority.
- Unlock all stairwell doors, but keep closed in order to control smoke travel.

TRANSPORT OF INJURED

If elevators are being used, a second elevator car secured by the Lobby Control Group should be utilized specifically for EMS purposes. If stairwells need to be used, companies must be assigned to the Ground Support Branch Director to safely and efficiently move critical non-ambulatory patients from Forward EMS to EMS Staging (lobby) for further treatment and transport. As with stairwell support referenced above, it may be necessary to assign firefighter teams of two set up every three floors in the evacuation stairwell to facilitate this downward movement of critical patients.
OUTSIDE CITY OF MILWAUKEE

The purpose of this guideline is to provide a standard for the appropriate use of radio channels during Milwaukee County high-rise incidents **outside** the City of Milwaukee. This guideline should not hinder the decision making or initiative of members to recognize and implement changes based on recognized special circumstances that require special needs. Any on scene alteration to this guideline shall be appropriately communicated to the Incident Commander.

The need for clear and concise radio communication is essential for safe and effective scene management as high-rise communications produce unique challenges.

Familiarity with your personal radio as well as mobile and base radios is imperative to ensure transmissions are sent and received on the appropriate frequency. It is mandatory that personnel maintain a high level of proficiency in the manipulation of their radio equipment.

The appropriate channels should be utilized to ensure information is delivered to the appropriate receiver. The following are described as they represent the channels that will be used for high-rise responses outside of Milwaukee. Additional conventional channels (8TACGOLD, 8TACBLACK, 8TACGRAY) are available for further sectoring of communications – a dedicated company (personnel) can be utilized to monitor additional channels.

It is imperative that each company verifies positive communications with their direct supervisor prior to committing within a hazard zone.

*Profiles 15/TG1 MFD DISPATCH* - Primary Dispatch – DISPATCH is the primary talkgroup used to communicate with Milwaukee Fire Dispatch during any event. The primary use of this channel is for communications to and from Milwaukee Fire Dispatch.

*Profile 15/TGX* – Utilize the municipality’s direct dispatch talk group for communication with the host jurisdiction’s dispatch center & with the Staging Group Supervisor during a high-rise mutual aid request.

Incident scene conventional channels can be found by flipping the A/B or A/B/C selector switch on top of the portable radio to the B or B/C position and rotating the channel dial to the proper position.

*8TACRED* – Operations – Primary fire ground channel assigned for suburban fire departments. This will be the primary operations channel for the duration of a high-rise incident.

*8TACWHITE* - Command – Primary channel for communications between Command Officers and Division/Group Supervisors.

*8TACBLUE* – EMS – If designated by Command, 8TACBLUE is the primary channel assigned to EMS (Forward EMS and EMS Staging) during the high-rise operation.

*Communications Relay* - The use of a communications relay system must be considered when using conventional channels in a high-rise. It is recommended that the radio relay start with the forward operations location utilizing communication relay personnel stationed every 5 floors below that location.

Appendix 18.5: Communication guidelines
Communication guidelines

CITY OF MILWAUKEE

The purpose of this guideline is to provide a standard for the appropriate use of radio talk groups during Milwaukee County high-rise incidents inside the City of Milwaukee. This guideline should not hinder the decision making or initiative of members to recognize and implement changes based on recognized special circumstances that require special needs. Any on-scene alteration to this guideline shall be appropriately communicated to the Incident Commander.

The need for clear and concise radio communication is essential for safe and effective scene management as high-rise communications produce unique challenges.

Familiarity with your personal radio as well as mobile and base radios is imperative to ensure transmissions are sent and received on the appropriate talk group. It is mandatory that personnel maintain a high level of proficiency in the manipulation of their radio equipment.

The appropriate talk groups should be utilized to ensure information is delivered to the appropriate receiver. The following are described as they represent the talk groups that could be used for high-rise responses inside the City of Milwaukee. Additional talk groups and conventional channels (8TACGOLD, 8TACBLACK, 8TACGRAY) are available for further sectoring of communications—a dedicated company (personnel) can be utilized to monitor additional channels.

It is imperative that each company verifies positive communications with their direct supervisor prior to committing within a hazard zone.

**Profile 13/TG1 MFD DISPATCH** - Primary Dispatch – DISPATCH is the primary talkgroup used by MFD companies to communicate with Milwaukee Fire Dispatch during any event.

**MWFDDISP** – MWFDDISP is the primary talkgroup used by suburban companies to communicate with Milwaukee Fire Dispatch & with the Staging Group Supervisor during a high-rise mutual aid request.

**Profile 13/TG2 (MWFDP13T2)** – Operations – Talk Group 2 is the primary fire ground channel. This will be the primary fire ground channel for the duration of a high-rise incident. In the event of a radio failure, 8TACRED is designated as the primary backup to Talk Group 2 for operations.

**Profile 13/TG3 (MWFDP13T3)** - Command – Talk Group 3 is the primary channel for communications between Command Officers and Division/Group Supervisors. 8TACWHITE is designated the primary backup for Talk Group 3 in the event of a radio failure.

**Profile 13/TG4 (MWFDP13T4)** – EMS – If designated by Command, Talk Group 4 is the primary channel assigned to EMS (Forward EMS and EMS Staging). 8TACBLUE is designated the primary backup for Talk Group 4 in the event of a radio failure.

**Communications Relay** - The use of a communications relay system must be considered when using simplex channels in a high-rise. It is recommended that the radio relay start with the forward operations location utilizing communication relay personnel stationed every 5 floors below that location.
ADDITIONAL COMMUNICATIONS INFORMATION

Building Communication System (see Appendix K for Communication Panel template)

Installed communications systems, located in a Fire Control Room in newer high-rise buildings, use hard wiring to allow intra-building communication using a series of high-reliability speakers and telephone devices located throughout the building. This system allows the fire department to speak to occupants over a PA system and also may allow the Incident Commander to speak directly, via connected landlines, to functional command officers and Division/Group Supervisors, potentially freeing up the Command channel for reassignment.

Mobile repeaters (VTAC / Portable VTAC)

The Milwaukee Fire Department currently has two mobile VTAC repeaters that should be utilized during a high-rise incident within the City of Milwaukee. One mobile VTAC should be established by the Safety Officer in Forward Staging (prior to the Safety Officer reporting to Forward Operations) near an exterior wall or window to ensure system connectivity.

- Suburban units will not be able to connect to the OpenSky mobile VTAC with their own radios.

Incident Command Post

- The City of Milwaukee Incident Command Post (ICP) has the ability to patch radio frequencies as needed for positive communications.
- The ICP will deliver (12) additional OpenSky handheld radios to the incident scene for utilization as necessary by assigned suburban resources or commanders entering the hazard zone.
Safety Officer (ISO)

- Interior size up and gather information
- Wear full PPE with SCBA; bring metering equipment (4-gas; HCN)
- Set up mobile repeater in Forward Staging (City of Milwaukee)
- Report to Forward Operations (2) floors below the confirmed fire floor
- Tactical safety advisor to the Forward Fire Operations (FFO) Chief
- Personnel accountability
- Duplication of communications (backup channel)
- Continual Risk / Benefit Analysis
- Amount of fire involvement (Occupant survivability?)
- Smoke conditions in stairwells
- Structural stability of construction
- Scene security / Occupant control
- Weather conditions (Hot, Cold) – effects on smoke movement
- High winds (Wind-driven fire concerns)
- Time (Reevaluate progress every 10 minutes)
- RIT available
- Electrical hazards
- Safe operations (PPE, SCBA, Glasses, etc...)
- Ventilation (lack of); HVAC (helping or hindering?)
- Egress available; Stairwell doors unlocked but left closed
- Utilities (isolated)
- Dead loads / live loads on roof – upper floor fire
- Water weight in structure (prolonged incident)
- On-deck (Forward Operations) and staged (Forward Staging) companies
- Relief / rotation of personnel
- Forward EMS/Rehab (Rest, food, fluids, EMS evaluation)
- Hazmat concerns?

*ADVISE IC OF POTENTIAL HAZARDS*

Additional ISO support should be considered as needed
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<td>E3 – Lobby Control Group</td>
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<td>B1 - Command</td>
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Appendix 18.6: Safety Officer checklist
## Operations

- Wear full PPE with SCBA
- Take Command Board
- Establish Forward Operations (2) floors below the confirmed fire floor
- Obtain progress/LCAN report from FIT
- Confirm fire location (floor, area)
- Identification of stairwells used for fire attack and evacuation
- Directly manage hazard zone tactical priorities (IAP) and activities
- Assign resources to tactical level areas - Utilize Branches/Divisions/Groups
- Maintain personnel accountability
- Request additional personnel via Command to maintain on-deck crews
- Ensure all tactical priorities are met (fire control, searches, vent, salvage)
- Continuously re-evaluate strategic effectiveness vs. risk
- Communicate progress and needs to Command

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Appendix 18.7: Operations checklist
**High Rise Fire guideline schematic**

*{High rise 1 alarm}*

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Appendix 18.7: Operations checklist
### Fire Attack

- Wear full PPE with SCBA
- Take Command Board
- Report to Forward Operations (2) floors below the confirmed fire floor
- Report to and obtain vital information from the Operations Chief
- Establish Forward Recon (1) floor below the confirmed fire floor
- Obtain progress report/LCAN from assigned companies
- Directly manage tactical activities on assigned floors / divisions
- Strongly consider the use of Divisions for Fire Attack resources
- Maintain personnel accountability
- Request additional personnel via Operations
- Ensure tactical priorities are met (fire control, search, extension, salvage)
- Communicate progress and needs to Operations

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## High Rise Fire Guideline Schematic

### {High Rise 1 Alarm}

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<th>Clear stairwells/Extension (T4)</th>
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<td>Fire control/Search &amp; Rescue E1, E2, T1, T2</td>
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Appendix 18.8: Fire Attack Branch Director Checklist
## Forward Staging

- Wear full PPE with SCBA
- Take command board
- Establish/assume Forward Staging (3) floors below confirmed fire floor
- Organize and inventory the equipment in Forward Staging
- Organize and maintain accountability for personnel in Forward Staging
- Supply personnel and equipment to Operations as requested
- Request additional resources and equipment via Command

### Equipment Staging

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<td>High rise equipment bags</td>
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<td>Forcible entry tools</td>
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<td>Salvage covers</td>
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<td>Combination ladders</td>
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<td>Fans – smoke ejector and/or PPV</td>
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<td>Bottled water</td>
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<td>Extra radio batteries</td>
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### UNIT TIME IN ASSIGNMENT TIME OUT

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## High Rise Fire guideline schematic

**{HIGH RISE 1 ALARM}**

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<th>IC/EMS/Personnel Staging E3 – Lobby Control Group MED2 – Lobby EMS B1 - Command</th>
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</table>
## Ground Support

- Take Command Board
- Report to main floor elevator/stairwell location
- Manage activities of the *Lobby Control Group*
- Coordinate flow of personnel, equipment, & supplies to Forward Staging - Establish *stairwell support* procedures if elevators are unusable
- Coordinate injured patient movement from Forward EMS to EMS Staging
- Control the flow of occupant evacuation if needed
- Coordinate occupant evacuation holding area (Forward EMS or Lobby)
- Coordinate clearing of all stairwells from ground floor to Forward Staging
- Coordinate with Command for SCBA cylinder refilling during long event
- Communicate progress and needs to Command

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### High Rise Fire Guideline Schematic

#### {High Rise 1 Alarm}

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Appendix 18.10: Ground Support Branch Director checklist
Communication Panel Template

This template will serve as the investigating message to be delivered:

- "Attention! Attention! This is not a drill. This is a message from the (Insert) Fire Department. We are currently investigating a report of fire on the (Blank #) floor(s). Please remain calm and in your current location if safe. You will be updated further shortly." (Repeat Message)

This template will serve as the confirmed fire message to be delivered:

- "Attention! Attention! This is not a drill. This is a message from the (Insert) Fire Department. We have confirmed a fire on the (Blank #) floor(s). Please evacuate floor(s) (Blank #) only! Use the (Insert Stairwell Location Here) stairwell and proceed down to floor (Blank #) where you will receive further instruction.”” (Repeat Message)

This template will serve as the under control message to be delivered:

- "Attention! Attention! This is a message from the (Insert) Fire Department. The fire has been extinguished on floor(s) (Blank #) and conditions will improve shortly." Further instruction will be coming soon.”” (Repeat Message)
### High Rise Fire guideline schematic

**{High rise 1 alarm}**

<table>
<thead>
<tr>
<th>Floor Type</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top floor</td>
<td>Stairwell</td>
<td>Clear stairwells/Extension (T4)</td>
</tr>
<tr>
<td>1st floor</td>
<td>Stairwell</td>
<td>Fire control/Evacuation (E4), (T3)</td>
</tr>
<tr>
<td>2nd floor</td>
<td>Stairwell</td>
<td>Fire control/Search &amp; Rescue E1, E2, T1, T2</td>
</tr>
<tr>
<td>Forward Recon</td>
<td>Stairwell</td>
<td>1st line hookup</td>
</tr>
<tr>
<td>Forward Staging</td>
<td>Stairwell</td>
<td>Equipment/Personnel</td>
</tr>
<tr>
<td>Forward EMS</td>
<td>Stairwell</td>
<td>EMS (Meds)/Rehab MED1 – Triage/Treatment</td>
</tr>
<tr>
<td>Command Post</td>
<td>Stairwell</td>
<td>IC/EMS/Personnel Staging E3 – Lobby Control Group MED2 – Lobby EMS B1 - Command</td>
</tr>
</tbody>
</table>
Rescue Company Capabilities

Heavy Rescue Companies, in addition to their conventional firefighting capabilities, offer a variety of additional rescue techniques in High-Rise fires or other High-Rise rescue scenarios. While the guideline assignment for the 1st-arriving Rescue Company is to the RIT function (geographically co-located with Operations), the Rescue Company can provide timely and reliable special operations support at any point during an incident.

If the RIT function can be re-assigned to a different dedicated company and a civilian technical rescue scenario or other technical support function must be handled, Operations may choose to re-deploy the Rescue Company. It is critical that their basic, albeit not all-inclusive, menu of options is understood by all Command Officers.

Rescue Company 1 and Rescue Company 2 are staffed, trained, and equipped to offer the following services as needed:

**GLASS CUTTING AND/OR GLASS PANES REMOVAL**

With exterior access limitations inherent in taller buildings, interior access via windows is a safer alternative for rescuers and trapped victims alike. Importantly, this can be undertaken with complete control over removed glass, eliminating the addition of falling and flying glass to the risk continuum.

- Indications for use include providing:
  - Access to trapped workers on swing-stage, bosun’s chair, or other working platforms
  - Access to rescuer and victim packages being lowered below the fire floor in a roof rope rescue scenario
  - Interior access to access-inhibited roof setback sections
  - Ventilation flow path outlet

**ROOFTOP ROPE RESCUE**

While a high-risk, low-frequency occurrence, the need for such rescues has presented itself over and over again at structure fires. The Rescue Company is staffed, trained, and equipped to provide a rapid and rescuer-safe means of deploying a pre-assembled roof-bag in short order, as a stand-alone system or in conjunction with other available equipment.

- Indications for use include providing:
  - Access to trapped victims or firefighters from an upper window inaccessible by aerial ladders and unreachable via the interior
  - Elevator shaft access to and Stokes Basket removal of trapped and/or injured civilians or firefighters – such situations can occur if an elevator fails with passengers on board or when shaft doors remain in the open position and a victim falls down the shaft
  - Controlled and safe Stokes Basket stairwell lowering of injured victims – this allows for complete control of movements and maintenance of level and stable positioning of victim throughout
HIGH-RISE RESCUE COMPANY RIT BASKET

Given their initial tasking to RIT, an augmented RIT Basket inventory will afford the Rescue Company the greatest versatility of response capabilities. Additional equipment will include:

- Stokes basket with attached bridal
- (1) Patient Access Bag
- (1) Roof Rope Bag
- (1) Belay Bag
- (1) Truck Cache Bag

Importantly, the majority of High-Rise fires, once confirmed, will trigger a HIGH-RISE 2 response, which includes a 2nd Heavy Rescue Company. The 2nd Rescue Company shall report to Command with all required equipment and will be assigned as per need by Command.
Following the horrific terrorist attacks of September 11th, 2001, numerous legitimate anthrax attacks occurred, both locally and nationally. In addition to these real anthrax attacks, numerous copycat fake nuisance anthrax attacks took place. These reported incidents quickly taxed the special operations capabilities of fire departments across the nation. Reduced responses were created to provide an initial investigation and mitigation force while not drawing too many resources into the mix. On the report of an unknown substance discovered, Milwaukee Fire Department dispatchers will dispatch an IR (Investigative Response). These responses present a unique hazard since very little information about the reliability or accuracy of the caller’s report can be verified prior to our arrival. For the purpose of this operational guideline, basic procedures will be detailed.

Dispatchers are diligent about providing updated information as available while we are responding, but due to the sensitive nature of such incidents, they may opt to contact responding companies via the rig assigned cell phone. When dispatched on an IR response with insufficient information, the Company Officer may call dispatch in an attempt to gather additional details. This can limit uncertainty and help the unit properly prepare for the event. Likewise, if sensitive information must be relayed to dispatch, consider using the company cell phone to limit outside entities (media, fire buffs, etc.) from prematurely being notified and potentially drawing more civilians into a hazardous area.

The unknown nature of the incident indicates a methodical approach and thorough evaluation of the scene. The substance may be harmless (soap shavings, flour, etc.), but could just as easily be lethal (ricin, anthrax, etc.). Consider the occupancy type when evaluating the scene. For instance, a flour-like substance around the kitchen entrance to a bakery should cause less concern than a flour-like substance found in a package mailed to a politically or religiously significant occupancy. IR responses can also be initiated when far less dramatic attacks occur, such as when angry lovers or prisoners mail body fluids or a suspicious material to the target of their anger.

Regardless of the material, the Milwaukee Fire Department will treat every substance as if it is deadly until proven otherwise. Biological weapons such as ricin and anthrax are virtually undetectable, are created and dispersed covertly, and are difficult to identify. These agents make a seemingly safe area become an IDLH (Immediately Dangerous to Life or Health) zone quickly and with no warning.

Should an event escalate or be found beyond the capabilities of initial responding units, a special call for more, appropriate resources should be made. Responding units must be ready for the worst-case scenario and shall be prepared to recognize legitimate hazards and begin mitigation procedures as safely able. In some cases, the best course of action is to pull back and wait for the HazMat Team and/or law enforcement to arrive.
Terrorist attacks of any kind are very unpredictable and by their very definition are designed to create the greatest amount of terror in the shortest period of time. On approaching such incidents, be aware of strange odors, unusual smoke or haze emitting from automobiles or structures, or anything that appears to be ‘out of place.’ These would be things that are difficult to describe but that catch the eye and cause the experienced and/or alert Officer, HEO or Firefighter to take notice. Since MFD personnel safety is most important, recognizing the potential for secondary devices is critical.

Secondary devices use the initial incident to draw first responders into the scene and are then activated by a time delay or remote control to cause harm to responders and fleeing civilians. The United States Fire Administration (USFA) provides the following guidelines for fire personnel to protect against secondary devices. Following these procedures will increase the safety of Milwaukee Fire Department personnel:

1) Anticipate the presence of a secondary device at any suspicious incident (vehicle, package, individual, other abnormalities)
2) Investigate for a secondary device before moving into the incident area
3) Avoid touching or moving anything that may conceal an explosive device (backpacks, bags, suitcases, boxes)
4) Effectively manage the scene with boundaries, exclusion zones, triage areas, etc.
5) Evacuate victims and non-essential personnel from the area as quickly as possible
6) Preserve the scene as much as possible for evidence collection and crime investigation.

In any response in which potential terrorist activity is suspected, refer to the CBRN (Chemical, Biological, Radiological, Nuclear) response guidelines for operating standards (laminated sheet). Remember, time, distance, and shielding are three elements that provide for the safety of our members when operating at a suspected terrorist incident. Further, request HAZMAT or LHAZMAT and law enforcement response as appropriate.

Terrorists typically target heavily populated areas. Anytime a number of individuals present common acute symptoms, a deadly agent should be considered. Although biological agents usually present symptoms well after exposure, patients who initially complain of headaches, fever or cough should be appropriately triaged. Once patients are in triage, it will be important to ascertain the route of the exposure (inhalation, ingestion or cutaneous absorption), the amount of the agent and the duration of the exposure. This information will help determine the appropriate decontamination process. Realize that it may be difficult to determine this information for some time after the Milwaukee Fire Department’s involvement has concluded.

To accommodate for potentially difficult or secure communication in a large building or over a large area, Officers and Commanders should consider utilizing their company assigned cell phones as appropriate.

The MFD has a specific set of SOP’s governing biohazard detection at the downtown postal facility located at 345 West St. Paul Avenue (#2006-24).
**ENGINE**

<table>
<thead>
<tr>
<th>OFFICER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tools:</strong> Full PPE with SCBA, portable radio, flashlight, N95 mask, safety glasses, EMS gloves, cell phone, DOT Guidebook</td>
</tr>
<tr>
<td><strong>Duties:</strong> Initial Command and Investigation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tools:</strong> Full PPE with SCBA, portable radio, N95 mask, safety glasses, EMS gloves</td>
</tr>
<tr>
<td><strong>Duties:</strong> Engine and pump operations, Hot Zone tape (as needed)</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>NOZZLE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tools:</strong> Full PPE with SCBA, portable radio, N95 mask, safety glasses, EMS gloves, Gross Decontamination Kit (as needed)</td>
</tr>
<tr>
<td><strong>Duties:</strong> Nozzle and hoseline operation for decontamination (as needed)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BACKUP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tools:</strong> Full PPE with SCBA, portable radio, N95 mask, safety glasses, EMS gloves, pressurized water extinguisher (as needed), Mark 1 Kit (as needed)</td>
</tr>
<tr>
<td><strong>Duties:</strong> Investigate with Officer, minor decontamination (as needed)</td>
</tr>
</tbody>
</table>

On arrival, resist rushing into this unknown situation. Approach from uphill and upwind, keeping a safe distance and spotting a hydrant to prepare for possible decontamination efforts. All personnel should be properly packaged as indicated per rider position.

Perform a methodical situational size up, remaining aware to possible secondary devices. Consult with knowledgeable personnel onsite, finding out what happened and attempting to identify the chemical or material and its associated hazards (DOT Emergency Response Guidelines).

If the chemical is unidentifiable or found to be potentially hazardous, immediately call for the appropriate HAZMAT response and for the Health Department. Also, ensure MPD response and consider staging EMS units for triage, treatment, and transport of civilians. Hold an additional paramedic unit dedicated for our personnel. A Rescue unit should be requested if long duration SCBA use is anticipated.

If the chemical is unidentifiable or found to be potentially hazardous, attempt to isolate all civilians and responders from the immediate IDLH atmosphere. Evacuate only what is necessary, attempting to evacuate to another part of the building indoors – close to, but out of harm’s way from the original product release. Utilize police to reroute traffic and secure a perimeter around the incident.

On their arrival, confer with and assist the Haz Mat Team as directed. Begin gross decontamination efforts as needed (Wet, strip, flush, cover).
Upon arrival, the Battalion Chief will confer with and assume Command from the Engine Officer. Several considerations for commanding this type of response are:

- Evaluate severity and extent of substance and exposure potential
- Ensure 10-53 response to assist with crowd control, traffic control, investigation, and mass casualty patient management as needed
- Request the Milwaukee Police Department’s or Milwaukee County Sheriffs Department’s Explosive Ordnance Disposal Unit as needed
- Request additional Fire response as needed (consider mass casualty, decontamination, crew rotation, and transport needs for large or escalating incident)
- Consider request for Health Department and extra SCBA cylinders
- Evaluate status of building mechanical systems if indoors (HVAC running? dampers? positive or negative pressure capabilities?)
- Evaluate evacuation possibilities or protect in place
- Consider additional EMS resources into staging
- Request appropriate HazMat response or confer with HazMat via cellphone as needed
- Provide for decontamination and request a Decon Trailer (stationed with E33, E35 and E38) as needed
- Request weather conditions from dispatch as needed (this will help with determining staging locations, evacuation routes, and establishment of hot, warm, and cold zones)
Operational Guidelines

LOCK (Lock Out) assignments generally result when an individual is prevented from getting into their home, office, or vehicle. These responses can include a variety of situations and levels of urgency, including a small child locked inside an auto or a resident locked outside their home while a potentially dangerous situation exists inside. It is imperative that responding units conduct a thorough evaluation of the circumstances before taking invasive action.

The investigation and information gathered through an occupant interview will dictate the appropriate mitigation procedures. In situations that are determined to not cause a threat to property or human life, a certified locksmith should be suggested. In those situations determined to be emergent or potentially emergent, entry will be indicated with the amount of damage caused consistent with the urgency of the emergency.

The two types of lock out situations that MFD routinely responds to include: structural lock outs and vehicular lock outs. As with any fire department response, professional and efficient mitigation should be the focus, secondary only to responder and civilian safety. Each situation will necessitate a continual cost vs. benefit analysis to dictate responder action.

**GENERAL**

**OFFICER**
Tools: Appropriate PPE, portable radio, flashlight, halligan tool, EMS Tablet (?)
Duties: Size up, Direct company operations

**HEO**
Tools: Appropriate PPE, portable radio, axe, door chocks, wheel chocks(?), cones(?)
Duties: Apparatus placement, As assigned by Officer

**VENT**
Tools: Appropriate PPE, portable radio, axe, door chocks, forcible entry equipment
Duties: As assigned by Officer

**FORCE**
Tools: Appropriate PPE, portable radio, flathead axe, door chocks, forcible entry equipment
Duties: As assigned by Officer
Before forcing access to a structure or vehicle, verify that there is an actual or potential threat to property or human life. There has to be a reasonable suspicion that an emergency exists to justify causing damage to another’s personal property. If forcible entry is indicated, a determination must be made regarding rapid forcible entry vs. taking the time to seek out the least damaging option. This determination will be guided by the perceived urgency of the emergency. Whenever forcible actions are taken to access a building or vehicle, MPD must be requested via dispatch to verify identification and ownership of the property, as well as to properly document the damage caused by MFD intervention.

FORCING ENTRY INTO A RESIDENCE

Upon arrival, position the Truck in front of the building in preparation for emergency tactics if needed, and to keep the necessary tools and equipment for the operation in a convenient location.

The Truck Officer should perform a systematic size up of the situation, including conferring with the caller or occupant, and report the establishment of Command to dispatch, requesting any further resources as needed. Personnel safety is the first priority, so the Officer needs to ensure all firefighters are appropriately packaged with full PPE, including gloves and safety glasses, prior to using forcible techniques. If forcible techniques must be utilized, the Officer shall explain the methods that will be used to the owner, if available.

The Vent FF and Force FF are to carry and operate the proper tools for the situation, as assigned by the Truck Officer using the techniques described in the FORCE section of these guidelines. Remember to “try before you pry” and attempt all obvious ways into the residence first, such as unlocked windows, a Knox Box, or a keyholder.

In order to affect forcible entry into a residence, certain criteria must be met:

1) The residence has a juvenile or disabled/chronically ill person locked inside who may be in immediate danger  
2) An individual is locked outside their residence with a timely need to get their prescribed medication  
3) The resident or caller has advised Dispatch or on scene personnel that there is the possibility for a fire inside the residence (stove on, fireplace operating, etc.)  
4) MPD or MCS is on scene and needs our assistance to gain entry  
5) A Chief Officer has determined the need to make entry  

Be careful with providing good intent customer service in non-emergent situations, as the department could be held liable for any damage created.

FORCING ENTRY INTO AN AUTOMOBILE

Upon arrival, position the Truck to protect responders from the flow of traffic and to keep the necessary tools and equipment for the operation in a convenient location. Utilize traffic cones as needed to supplement responder safety for incidents on the roadway or in parking lots. The Truck HEO shall place wheel chocks as a preventive measure for all vehicles needing forced entry.
The Truck Officer should perform a systematic size up of the situation, including conferring with the caller or owner of the vehicle, and report the establishment of Command to dispatch, requesting any further resources as needed. Personnel safety is the first priority, so the Officer needs to ensure all firefighters are appropriately packaged with appropriate PPE, including gloves, traffic vests, and safety glasses, prior to using forcible techniques. If forcible techniques must be utilized, the Officer shall explain the methods that will be used to the owner, if available.

The Officer shall try to ascertain the circumstances surrounding the event, gathering information regarding a trapped civilian in medical distress or a trapped child and considering the obvious danger of temperature extremes. This information will assist with determining the level of urgency by which to enter the vehicle. Once the level of urgency is determined and the locks are located, the Officer is to decide the most appropriate strategy to enter the vehicle. It shall be the policy of the MFD to effect entry into a locked vehicle by means of breaking a window only in those situations where there is a fire or medical emergency, and after all doors have been checked.

The Vent FF and Force FF are to carry and operate the proper tools for the situation, as assigned by the Truck Officer. Remember to “try before you pry” and attempt all obvious ways into the automobile first, such as a hide-a-key or compelling a lucid trapped child to open the door from the inside. After gaining access, provide EMS as needed.

One appropriate entry tactic is to utilize commercially available wedges (or wooden door chocks) to create a gap. Begin gently tapping the wedge between a front door’s weatherstripping and the door frame at the upper corner of the door nearest the B post. This will create a small gap that can be utilized for the passage of a stiff wire, which can be bent into a position to actuate the door handle or to slide the lock. If the wire will not reach the lock from the initially created gap, another wedge can be used to gap closer to the lock. If too much pressure is applied to the gap via the wedge, the window could fail. Having another member spot from the opposite end of the vehicle is often helpful for articulating the direction in which to move the stiff wire.

The MFD will only make forcible entry attempt into a vehicle when there is a threat to life. Any other vehicle lockouts should be referred to law enforcement. Be careful with providing good intent customer service in a non-emergent situation, as the department could be held liable for any damage created.

The MFD is currently using the Big Easy Lock Out Tool Kit that has been assigned to all Truck companies and Rescue 1 and 2. The kit includes the BigEasy Tool, inflatable wedge, sure grip strip tool, non-marring wedge, a paint protector, and storage bag. Repair and replacement of these kits can be requested through the department shop via Manager Plus and normal requisition methods.

As a resource, companies should refer to Company Based Training Document **008-2016 Vehicle Lock Out.**
Units Dispatched: (T or R) and/or E

**GENERAL**

LR (*Limited Response*) assignments are dispatched when the information received is so vague or incomplete, that Dispatch cannot specify a more appropriate response type. The Computer Aided Dispatch (CAD) system will recommend sending a lone Truck Company, but dispatchers are instructed to send a lone Engine Company if it seems more appropriate. In certain cases, dispatch may send both an Engine and Truck Company.

Some examples for use of this run type include:

- An Engine Company at a BLSPI requests a Truck Company to force a door; the call type is changed in CAD to LR and a Truck Company is sent.
- MPD requests assistance with accessing a roof via ladder for evidence recovery; dispatched as LR and a Truck Company is sent.
- A credible caller reports that “something” is on fire, but the caller cannot see or identify it as a situation that would dictate using another call type (i.e. AUTOF, GARAGE, FULL, RUBB); dispatched as LR and an Engine Company is sent.
- A caller shouts “We need the fire department!” and then hangs up and cannot be reached on call-back; dispatched as LR and usually an Engine Company is sent.
- A caller reports that they had a fire, but thinks it’s out / wants it checked.

**TRUCK**

<table>
<thead>
<tr>
<th><strong>OFFICER</strong></th>
<th>Tools: Full PPE with SCBA, portable radio, flashlight, TIC, halligan tool, tagline</th>
<th>Duties: Assume Command and investigate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HEO</strong></td>
<td>Tools: Full PPE with SCBA, portable radio, axe, door chocks, tagline</td>
<td>Duties: As directed by Officer appropriate to the run type</td>
</tr>
<tr>
<td><strong>VENT</strong></td>
<td>Tools: Full PPE with SCBA, portable radio, axe, door chocks, tagline, 6’ pike pole</td>
<td>Duties: As directed by Officer appropriate to the run type</td>
</tr>
<tr>
<td><strong>FORCE</strong></td>
<td>Tools: Full PPE with SCBA, portable radio, tagline, flathead axe, door chocks, CO Monitor</td>
<td>Duties: As directed by Officer appropriate to the run type</td>
</tr>
</tbody>
</table>

On arrival at LR assignments, care should be taken to size up conditions on the exterior of the building and to place the apparatus appropriately. A full investigation should be completed, including seeking out the caller and/or bystanders for exact information if the
nature of the incident is not obvious. Once the appropriate call type is identified, the first arriving Officer, as the Incident Commander, shall special call for the appropriate resources and operate under the recommended guidelines for the identified call type.

Before determining a situation to be a false alarm, the Incident Commander shall request any updated information from Dispatch and fully survey the immediate and surrounding areas of the address or intersection given.

<table>
<thead>
<tr>
<th>ENGINE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OFFICER</strong></td>
</tr>
<tr>
<td>Tools: Full PPE with SCBA, portable radio, flashlight, TIC, halligan tool</td>
</tr>
<tr>
<td>Duties: Assume Command and investigate</td>
</tr>
<tr>
<td><strong>HEO</strong></td>
</tr>
<tr>
<td>Tools: Full PPE, portable radio</td>
</tr>
<tr>
<td>Duties: As directed by Officer appropriate to the run type</td>
</tr>
<tr>
<td><strong>NOZZLE</strong></td>
</tr>
<tr>
<td>Tools: Full PPE with SCBA, portable radio, axe, door chocks</td>
</tr>
<tr>
<td>Duties: As directed by Officer appropriate to the run type</td>
</tr>
<tr>
<td><strong>BACKUP</strong></td>
</tr>
<tr>
<td>Tools: Full PPE with SCBA, portable radio, flathead axe, door chocks, CO Monitor</td>
</tr>
<tr>
<td>Duties: As directed by Officer appropriate to the run type</td>
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</tbody>
</table>

On arrival at LR assignments, care should be taken to size up conditions on the exterior of the building and to place the apparatus appropriately. A full investigation should be completed, including seeking out the caller and/or bystanders for exact information if the nature of the incident is not obvious. Once the appropriate call type is identified, the first arriving Officer, as the Incident Commander, shall special call for the appropriate resources and operate under the recommended guidelines for the identified call type.

Before determining a situation to be a false alarm, the Incident Commander shall request any updated information from Dispatch and fully survey the immediate and surrounding areas of the address or intersection given.
The Milwaukee Fire Department is often requested to mitigate petroleum spills (gasoline, diesel fuel, motor oil, home heating oil, antifreeze, etc.), which may pose a fire danger or threat to the environment. The MFD has the capability to absorb and dispose of varying quantities of petroleum-based products. The goal is to ensure member safety by first identifying the fluid and determining that it is not in fact a hazardous material. When in doubt, contact Engine 25 from the company assigned cell phone for guidance. Identifying the fluids in question and donning appropriate PPE, including gloves and safety glasses, best accomplishes member safety. When dealing with petroleum products or other flammable liquids, DO NOT wear the traffic safety vest as it lowers the flame resistant capabilities of firefighting turnout gear. Be sure any flow of traffic is stopped or sufficiently re-directed around the work area.

### Small spills

A small petroleum spill requires limited resources to effectively absorb and dispose of the material, removing the fire danger and threat to the environment. Generally considered, a small petroleum spill encompasses spills of less than 25 gallons. The goal is to safely contain or remove the product itself and ensure the atmosphere/environment has been rendered safe after eliminating any possible ignition sources. There are two (2) common methods to accomplish this: application of Oil-Dri or other appropriate absorbent and/or application of an emulsifier. Additionally, if a vehicle or vehicles from which petroleum based fluids are actively leaking is still present, Plug-n-Dike may be used to prevent the leak from continuing.

Before applying absorbent or emulsifiers, utilize barn brooms to push all solid debris out of the way.

### Oil-Dri Application

All engine companies carry a 5 gallon container filled with clay absorbent (Oil-Dri). The initial placement of Oil-Dri is aimed at preventing fluids from entering sewers or waterways, using damming or diking techniques. The Oil-Dri should next be placed over the entire fluid area with a thin coat. Allow it to sit for several minutes and then utilize a barn broom to agitate the Oil-Dri and to allow maximum absorption of the product. A shovel can then be utilized to place the Oil-Dri mixed with product into a large plastic garbage bag. Ensure the intact bag is properly sealed with duct tape to limit the escape of flammable vapors.

The Wisconsin DNR prohibits placing absorbed petroleum products in the regular garbage. If the spill occurred on public property, MFD companies should transport the sealed bag(s) in an exterior compartment to their battalion equipment and supply depot, use the supplied duct tape and sharpie marker to label the bag(s) as to the specific petroleum product
contained within, and place the bag inside the covered metal garbage can marked “absorbed petroleum products”.

Company officers assigned to the depot locations shall notify Shop supply personnel through the repairs supervisor via email at rgadza@milwaukee.gov each Wednesday to arrange for the pickup and proper disposal of the bag(s) at an approved recycling center.

According to Wisconsin statute 292.11 (Wisconsin Spill Law), any person who possesses or controls a hazardous substance or who causes the discharge of a hazardous substance has a legal obligation to report it to the Wisconsin Department of Natural Resources (DNR). Any hydrocarbon (oil-based product) spill greater than one (1) gallon and/or petroleum product (gasoline, diesel) spill greater than five (5) gallons must be reported to the DNR spill hotline (1-800-943-0003). The primary responsibility to report a spill is upon the spiller (if known). MFD personnel should advise the spiller of these reporting requirements and document the advisement in the incident report. If the spiller is unknown, the incident commander is to report the spill to the DNR spill hotline.

If the amount of Oil-Dri carried by the Engine Company is insufficient for the spill, a special call for another MFD Engine or Truck Company should be made. If calling for more Oil-Dri, advise Dispatch of the need for additional absorbent so the responding unit is advised and can bring extra. HazMat 2 has the capability to absorb, collect, and dispose of common petroleum products and can be requested for petroleum spills less than 25 gallons (if recoverable) or if product remains in a fuel tank that is still leaking. Officers must clearly transmit quantity and description of the product to dispatch so that HazMat 2 can bring the appropriate absorbent and recovery materials. For spills in excess of 25 gallons, request a Limited or Full HazMat Assignment.

**Emulsifier Application**

In selecting emulsifier application, several considerations must be made: temperature, gradient of the road, and location of sewer(s) or appropriate run-off area. An external eductor should be utilized to ensure the proper percentage of product is applied. Utilize barn brooms to agitate the emulsifier with the spilled product. Let it sit for several minutes and flush it from the roadway with copious amounts of water. Be sure to adequately flush all hose, nozzles, brooms, boots, and the eductor after use.

Ensure that there is a place to push the emulsified fluids with the hose stream. If an appropriate sewer or run-off area is not available, consider using Oil-Dri.

**Large spills**

A large petroleum spill will require more resources to effectively mitigate the situation, removing the fire danger and threat to the environment. Generally considered, a large petroleum spill encompasses:

- Spills greater than 25 gallons
- Spills of any size in or threatening a waterway
- Spills with inclement weather causing an issue
The goal is to begin containment and removal of the hazard from the atmosphere, if safely possible, after eliminating any possible ignition sources. Initial actions upon recognition of a large petroleum spill include:

- Special call for a *Limited or Full HazMat Assignment* as appropriate through Dispatch and follow the related written guidelines
- Prevent the further spread of product using damming, diking, and diverting techniques and trying to stop the spill at its source
- Stretch a precautionary foam capable hoseline and cover the area of the spill with *foam* to suppress flammable vapors
- Eliminate any possible ignition sources – this includes smoking, running engines, etc.
- Isolate the area to a safe distance according to the DOT Guidebook until the spill is controlled

The Milwaukee Fire Department is required to mitigate these hazards on all public property, such as roadways, city-owned parking lots, and the like. If a spill occurs on private property, it is the owner’s responsibility to clean up the spill; however, MFD should ensure the stabilization of the situation to avoid further contamination and to prevent future injury. Engine Company Officers must be cognizant of the risk involved in leaving the problem for the owners, considering the timeliness of their response, potential for further accidents, potential for fluids to enter sewers or waterways, and public perception. Inform the operator or on site personnel that the spill must be reported to the *Wisconsin DNR spill hotline* (1-800-943-0003) under Wisconsin statute 292.11 (Wisconsin Spill Law).

<table>
<thead>
<tr>
<th>ENGINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFFICER</td>
</tr>
<tr>
<td>Tools: Full PPE, portable radio, flashlight</td>
</tr>
<tr>
<td>Duties: Incident Command, direct cleanup operation</td>
</tr>
<tr>
<td>HEO</td>
</tr>
<tr>
<td>Tools: Full PPE, portable radio, eductor, emulsifier</td>
</tr>
<tr>
<td>Duties: Position apparatus, Engine and pump operations</td>
</tr>
<tr>
<td>NOZZLE</td>
</tr>
<tr>
<td>Tools: Full PPE, portable radio, Oil-Dri, shovel</td>
</tr>
<tr>
<td>Duties: Absorbent or nozzle operation as needed</td>
</tr>
<tr>
<td>BACKUP</td>
</tr>
<tr>
<td>Tools: Full PPE, portable radio, barn brooms</td>
</tr>
<tr>
<td>Duties: Oil-Dri agitation or hoseline control as needed</td>
</tr>
</tbody>
</table>

Upon arrival, the Engine Company Officer shall investigate to determine the exact nature and magnitude of the petroleum spill. The Engine Officer shall direct and supervise Engine Company members to ensure proper packaging and safe operations to efficiently mitigate the spill after eliminating any possible ignition sources. The Engine Company Officer should call for additional resources as needed (*HazMat*, MPD or MCS, DPW, additional Engine or Truck).

If the *PETROL* assignment is suspected to be the result of illegal dumping, the Engine Company Officer must special call for MPD and confer with the ranking law enforcement officer to ensure that the scene is secured.
Operational Guidelines
PETROL (Petroleum Spill)

The Engine Company HEO shall place the rig uphill and upwind of petroleum spills if able. The Engine HEO shall use the rig as a barrier to protect the working area and place traffic cones to alert vehicles to the change in the traffic pattern on a roadway. As needed, the Engine HEO will secure a hydrant and operate the pump to generate a hose stream and/or to educt emulsifier or foam.

The Nozzle FF and the Backup FF will work in concert to absorb, flush, or blanket the product as directed. Care should be taken to wear proper PPE, including gloves and safety glasses and to avoid over-spraying or splashing product toward or near other operating members.

If, during cleanup operations, a member’s bunker gear or clothing becomes contaminated, the gear and/or clothing shall be bagged and placed out-of-service until adequately cleaned at one of the industrial laundry machines made available to members.

An important point to remember is that petroleum vapors are heavier than air, which means that in the absence of strong wind, vapors may linger and collect in low-lying areas such as sewers or basements. These vapors can pose a significant flammability risk, endangering people in the area.
Units Dispatched: E

**GENERAL**

*POLEF (Pole Fire)* responses are dispatched when the caller reports flames, smoking, or sparking at the base or upper portions of an electrical utility pole, streetlight, or stoplight. These incidents can be extremely hazardous due to the electrical hazards present - complacency can prove fatal.

MFD companies shall special call and wait for We Energies-Electric (utility poles) or the City of Milwaukee Electrical Services (street light or stop light poles) to secure the power before initiating extinguishment if the fire was caused by, or is impinging upon, electrical components or wires. The integrity of these overhead electrical components and wires must be continuously monitored throughout the incident. Set up a safety perimeter (typically two full spans between poles in each direction) and protect nearby exposures until the power is confirmed secure by WE Energies personnel. Care, attentiveness, and patience are essential when dealing with electricity: if a transformer or wire is involved in fire, it is already damaged beyond repair and will need to be replaced by the proper authority.

In many cases, weather plays a role in causing the hazard. Companies operating at a pole fire must stay mindful of current and changing weather conditions (storms, wind direction, etc.) and pole stability, as these factors can directly affect firefighter safety and the success of the fire attack. Note the presence of lightning, prior to and during *POLEF* assignments. Lightning strikes and transformer failures can both be responsible for brief power surges that could endanger connected structures; in either of these situations, service panels inside surrounding properties should be examined for resultant fire or blown circuits.

The most effective extinguishing agent for a wooden pole fire is copious amounts of water from a hose line, once electricity is confirmed as de-energized and it has been determined
that the transformer is not leaking oil. The dense wood of the pole has a tendency to hold heat for a long period of time and may reignite if not sufficiently cooled.

Overhead transformers commonly contain 50 to 75 gallons of dielectric mineral oil, though some can still contain Polychlorinated Bi-Phenyls (PCBs) that were used in the past to keep electrical equipment cool. PCBs are known carcinogens and are treated as a hazardous material. If transformer oil is pouring out, all members shall be wearing full PPE with SCBA. Dike nearby sewers with Oil-Dri and call E33 for telephone resource assistance. If the leaking oil is ignited, it must be extinguished with a dry chemical extinguisher, as water and oil do not mix.

In all cases, and **ONLY IF IT IS SAFE TO APPROACH** to gather this information, gather the utility tag information from any impacted or related utility poles. The tag styles and what they represent are shown below:

This information, and similar information, may sometimes be gathered from light poles as well. We Energies' labeling system indicates the following:

There may also be a smaller tag containing a 3-digit number affixed below the larger tag.
Electrical poles in the City of Milwaukee are often placed to the rear of residential structures. Under fire conditions, the energized wires can fall onto trees, garages, automobiles, fences, or homes and create an extremely hazardous environment, including sparking an additional fire to the contacted object. Recognition and situational awareness, along with a cost versus benefit analysis, are the keys to safety. Follow the operational guidelines respective to the new fire situation, using great caution relative to the consideration that the building or vehicle may be energized. Update We Energies-Electric via dispatch of the need for an upgraded response.

If, after a thorough examination, it is determined that the fire is not electrical in origin, but instead involves only the base of the pole or ground vegetation surrounding the pole, the fire can be extinguished with a pressurized water extinguisher or hose line. If there is any doubt as to potential electrical current, a better alternative is to use quick bursts from the dry chemical extinguisher. Before initiating extinguishment, companies must again ensure that the fire is not a result of electrical current from a downed wire. A quick examination and mitigation strategy will prevent unexposed electrical components from becoming part of the equation.

An outstanding reference for all members to review is the WE Energies publication provided to all fire stations and published in the SOG’s, Electric and Gas Hazards and the First Responder.

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE, portable radio, flashlight, TIC, halligan tool</th>
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<tbody>
<tr>
<td></td>
<td>Duties: Incident Command, investigation, safety</td>
</tr>
<tr>
<td>HEO</td>
<td>Tools: Full PPE, portable radio, flashlight</td>
</tr>
<tr>
<td></td>
<td>Duties: As directed by Officer, Pump operations as needed</td>
</tr>
<tr>
<td>NOZZLE</td>
<td>Tools: Full PPE, portable radio, flashlight, pressurized water extinguisher</td>
</tr>
<tr>
<td></td>
<td>Duties: As directed by Officer</td>
</tr>
<tr>
<td>BACKUP</td>
<td>Tools: Full PPE, portable radio, multi-purpose dry chemical extinguisher, flathead axe</td>
</tr>
<tr>
<td></td>
<td>Duties: Investigate with Officer, Force entry as needed</td>
</tr>
</tbody>
</table>

Upon arrival, the Engine Officer should take command and immediately size-up the situation, reporting conditions and needs on the dispatch talk group. The Officer should set up a safety perimeter and examine for additional hazards to operating members and the public, including wires burning through and falling and the possible energizing of objects. If a nearby building or vehicle is already involved or becomes involved after arrival, follow the operational guidelines respective to the new fire situation, using great caution relative to the consideration that the building or vehicle may be energized. Update We Energies-Electric via dispatch of the need for an upgraded response.
The Engine Officer should ensure that the Engine HEO positions the rig to help establish the safety perimeter - parked well out of the way of any downed wires or electrical fire hazards. If on a roadway or in a parking lot, the Engine HEO shall use the rig as a barrier and place traffic cones to alert vehicles to the change in the traffic pattern or to shut down the roadway entirely. If the pole fire is in an alleyway, the apparatus can be positioned to block access into the alley, provided the location is outside the hazard zone. Special call for MPD or additional MFD units to assist in establishing the safety perimeter if needed.

The Engine HEO shall monitor the assigned incident talk group and act upon requests from the Engine Officer, which may include relocating the apparatus, assisting the Nozzle FF with the stretch of a proper length and size hose line for the situation, and/or operating the pump.

The Nozzle FF will initially assist in setting up the safety perimeter as directed by the Engine Officer. If indicated, the Nozzle FF may be directed to utilize the pressurized water extinguisher or to lay a hose line to extinguish the fire once the electrical pole has been confirmed as de-energized by the proper authority.

The Backup FF will investigate with the Engine Officer and will assist in setting up the safety perimeter as directed, potentially using caution tape. The Backup FF may be directed to extinguish ignited transformer oil, fire at the base of a pole, or resultant exposure fire with the dry chemical extinguisher. The Backup FF can also be directed to force entry, if necessary, into a connected or contacted structure for further examination.
RUBB (Rubbish Fire) responses are a common occurrence for MFD Engine companies, but must be recognized for the various types of scenarios that could be encountered upon arrival. The RUBB response is often assumed to mean an exterior household trash fire with no immediate exposure threats – a simple incident to handle. This assumption may lead responding personnel to “let their guard down”, leaving them unprepared for the situation or materials they may encounter. A rubbish fire could be called in for varied quantities and types of refuse interior or exterior, contained or loose. Engine companies should be prepared for just about anything, from a campfire in an open field to a pile of clothes or a storage unit fire inside an occupied residence to an elevator shaft fire in a high rise building.

The incident must be thoroughly investigated upon arrival and the appropriate strategy be taken based upon the findings. Hoseline or extinguisher use should be determined after the investigation. Foam and/or a continuous water supply should be considered based upon the size and location of the fire and the materials involved. If the fire is found to be impinging upon or inside a structure or automobile, a special call for more resources is indicated and the appropriate guidelines for the new incident type shall be followed. Access to the interior is indicated for proper investigation of fires impinging upon or inside a structure or automobile.

Due to the unknowns in location and types of material involved, the use of full PPE with SCBA is mandatory. The predominant hazards with refuse fires include potential inhalation and explosion hazards. Consideration must be given and cautious predictions made based on the occupancy type of the property on which the rubbish fire occurs. Many chemical compounds and metals are water-reactive and could intensify or explode upon application of water. Look for NFPA 704 markings on the occupancy and do not hesitate to call Engine 25 for resource assistance. There is also the ever present possibility of illegal dumping of hazardous materials, including chemicals, biological waste, explosives, asbestos, and plastics into a residential or public garbage container.

The first thought at any dumpster or trash fire should be that this is garbage; there is no value to the discarded items and no need to risk your life or health to save them. There is typically no life hazard, so the priorities should begin with protecting ourselves and preventing injury. The secondary priorities are to limit the size of the fire and to prevent extension to a structure. By using the reach and penetration of an appropriate fire stream and by remaining upwind and using tools such as drag forks and pike poles, firefighters will remain at a safe distance to avoid injury and contamination of gear.
A single Engine company should provide ample personnel and water to effectively extinguish a typical rubbish or dumpster fire. **Foam** can be utilized for a large uncontained pile of garbage, or in those instances when water supply is an issue. Large dumpsters may require a continuous water supply in order to sufficiently flood/fill the container or to effectively use the deck gun. Tall containers or huge piles of loose rubbish may require the use of an **aerial water tower** to effectively extinguish – be cognizant of overhead wires. Call for and use the resources necessary to mitigate the incident safely and efficiently.

After extinguishment and overhaul, ensure that the scene is left in a safe condition for the public. Determine whether the fire was caused by accident, negligence, or arson. If the fire was caused by obvious arson, call for MPD to investigate further. If the fire caused damage to a nearby structure or automobile, call for MPD to investigate and file a report.

For reporting purposes, the current value of City of Milwaukee residential garbage carts is $67.00 and the current value of recyclable carts is $89.00.

### ENGINE

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: <strong>Full PPE with SCBA</strong>, portable radio, flashlight, TIC, halligan tool</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Incident Command, size up and investigation</td>
</tr>
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<thead>
<tr>
<th>HEO</th>
<th>Tools: <strong>Full PPE</strong>, portable radio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Engine and pump operations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOZZLE</th>
<th>Tools: <strong>Full PPE with SCBA</strong>, portable radio, axe, door chocks, Pike pole</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Nozzle operation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BACKUP</th>
<th>Tools: <strong>Full PPE with SCBA</strong>, portable radio, pressurized water extinguisher, flathead axe, drag fork</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Investigate with Officer, begin extinguishment as directed</td>
</tr>
</tbody>
</table>

Upon arrival, the Engine Officer should take command and immediately size-up the nature and extent of the rubbish fire, reporting conditions and needs on the dispatch talk group. Evaluation of possible exposures, the optimal knockdown method, the safest and most effective attack point, the need for additional resources, and available water supply must occur quickly and be communicated to the Engine Company members. The Engine Officer should also examine for possible hazards to operating members, such as electrical wires, evidence of accelerants, and hazardous chemicals. If a nearby building or vehicle is already involved or becomes involved after arrival, follow the operating guidelines respective to the new fire situation. The Engine Officer should ensure that the Engine HEO positions the rig to support the safest and most effective firefighting operation.

If, based on fire conditions upon arrival, the Engine Officer anticipates needing over ½ of the 500 gallon onboard water tank, a special call should be made for an additional Engine Company, unless the Engine HEO has secured a hydrant. A special call for an aerial ladder may also be considered.
The Engine HEO should position the rig to support the operational plan of the Engine Officer. The Engine HEO should not drive the apparatus onto soft ground or operate from an alleyway, regardless of wind direction and direction of approach. If on a roadway or in a parking lot, the Engine HEO shall use the rig as a barrier to protect the working area and place traffic cones to alert vehicles to the change in the traffic pattern. As needed, the Engine HEO will secure a hydrant and operate the pump to generate a hose stream and/or to educt foam.

The Nozzle FF should begin a hose stretch as directed by the Engine Officer. In the event that a hose stretch is ordered, be sure to stretch enough hose to cover not only the existing rubbish fire, but also to cover the exposures and to reposition interior if needed. The Nozzle FF should wet down unburned flammable siding adjacent to the rubbish fire, as radiant heat or embers could prove problematic later.

The Backup FF will investigate with the Officer and will carry and use the pressurized water extinguisher to suppress the rubbish fire. If a hose stretch is necessary, the Backup FF will assist with the hose layout, and support the Nozzle FF throughout the operation. After knockdown, the Backup FF can employ the drag fork to assist in overhauling the rubbish.

Ensure members’ PPE and assigned tools are washed down prior to boarding the rig. If, during operations, a member’s bunker gear becomes contaminated, the gear shall be placed out-of-service until adequately cleaned at one of the industrial laundry machines made available to members.
25.0 – STCAR (Streetcar)

Units Dispatched: (2E, 2T, 1R, 2M, 2BC, C18, & C3)

THIS CALL-TYPE WILL BE DISPATCHED TO ANY REPORTED STREETCAR INCIDENTS INVOLVING STREETCAR vs. MOTOR VEHICLE ACCIDENTS, FIRE OR SMOKE CONDITIONS IN OR ON THE STREETCAR VEHICLE, OR ARCING/SPARKING IN OR ON THE STREETCAR VEHICLE, OR STREETCAR DERAILMENTS.

UNITS RESPONDING FOR OTHER CALL-TYPES ON OR NEAR THE STREETCAR ROUTE MAY NEED TO REQUEST ADDITIONAL RESOURCES AND FUNCTION ACCORDING TO THE PRINCIPLES WITHIN THIS SOG UPON ARRIVING AND ASSESSING THE SCENE.

GENERAL

When an incident occurs that involves any portion of the Milwaukee Streetcar (infrastructure, vehicles, Operations & Maintenance Facility, etc.), the guidelines contained herein will apply.

With the new and various components of the Milwaukee Streetcar come specific hazards. Taken in isolation, each of these components can be rendered much safer (and much more quickly) than many of our other modern operating environments. This guideline seeks to provide the necessary information and guidance for Milwaukee Fire Department members to operate safely and effectively in and around the streetcar vehicles, infrastructure, and in unified command with DPW and the Streetcar Operations and Maintenance Contractor (OMC), Transdev, and their personnel.

Critical to a successful outcome for any emergency within a system involving so many separate departments and agencies is early recognition, notification, and unification of command. A rapid notification system has been established to ensure that key DPW and Transdev personnel are immediately notified by MFD Dispatch once they receive information indicating that an incident involves streetcar vehicles or streetcar infrastructure or structures, or may be on or too near the tracks. MFD Incident Commanders are to make Dispatchers immediately aware of any of the following circumstances:

- ANY EMERGENCY within or directly involving the streetcar vehicle, the streetcar Operations & Maintenance Facility (OMF), the rails, the streetcar platforms, any of the streetcar overhead wires, or any of the poles that support the overhead wires

- ANY EMERGENCY on or very near to the streetcar tracks or streetcar overhead wires (within 5 feet of either rail or within 10 feet of the overhead contact wire)

- ANY on-scene MFD, MPD, private ambulance, or other responding agency vehicle or personnel is operating across or so near to the streetcar tracks as to impede streetcar travel

- ANY MFD Incident Commander requests streetcar personnel to scene

NOTE: These include all EMS, non-EMS, and fire-related emergencies.
Transdev's policy for its operators is to NOT enter any block with a streetcar vehicle if emergency vehicles or personnel are present and operating within its path. If the safe and successful handling of an emergency along the route is not dependent upon apparatus positioning, make every effort to leave the marked streetcar route area free and clear.

For context, the Milwaukee Streetcar System is run largely via the transmission of electricity from the overhead wires and on through the vehicles to create motion; however, there are substantial portions of the route which do not have overhead wires. While on these portions of the route, the vehicle will draw from its onboard batteries for the electricity needed to propel the vehicle. Some hazards will exist in all of the environments, and some hazards will exist only in the ‘on wire’ portions of the route. Early recognition of these factors will aid in evaluating the threat, and employing the appropriate protective measures.

Shown below is a general overview of the ‘off-wire’ and ‘on-wire’ portions of the route.

The Milwaukee Streetcar route is 3.91 miles roundtrip and has 17 stops, or platforms, for passenger loading and unloading. There are 6 switches throughout the entire route, allowing the streetcar vehicle to move to different sections of track. These are heated to allow for function in all weather.

Averaging between 10-15 minute wait times, the streetcar is slated to be operational from 0500-2400hrs (Monday-Friday), 0700-2400hrs (Saturday), and 0700-2200hrs (Sundays/Holidays).
THE STREETCAR VEHICLES

Among the more visually identifiable components of the streetcar system are the streetcar vehicles themselves, each capable of holding up to 150 passengers, both seated and standing. Milwaukee owns and operates 5 streetcar vehicles. Manufactured by Brookville, the Liberty-model streetcar vehicles weigh in at 88,000 pounds, and measure 66’ long and 8'-8” wide. This are the largest mass-transit vehicles that we regularly encounter on city streets. With a planned top speed of 30 miles per hour, requires over 5 seconds and nearly 100’ to bring the vehicle to a complete stop.

The Milwaukee streetcar is a modern articulated vehicle that has the ability to transition from overhead catenary wire, part of the overhead contact system (OCS), to an onboard energy storage system (OESS) to move people efficiently, reliably, and safely in downtown Milwaukee. The purpose of this document is to provide first responders with not only a basic understanding of the vehicle itself but also with a working knowledge of the car and its associated energy systems in an emergency scenario.

The streetcar is divided into three sections:

1. **A Car** – The end car with the pantograph attached to the top (has 1 set of trucks underneath)
2. **B Car** – The other end car WITHOUT the pantograph attached to the top (has 1 set of trucks underneath)
3. **C Car** – The middle car, free riding without trucks underneath, and includes the entry/exit doors for the entire vehicle (has NO trucks underneath)

An articulation joint separates each car.

The streetcar is powered by two Traction Control Units (TCU). They convert 750 DC contact line voltage, or the voltage from the onboard OESS to power the vehicle and propel it forward. Each streetcar is equipped with a 24-volt system to power the lighting, onboard temperature control, onboard and outboard security camera systems, and piloting controls. Additionally, the traffic signals specific to the streetcar are controlled via a GPS system with an Opticom backup system. Importantly, the Opticom backup system is secondary to the Milwaukee Fire Department’s Opticom system.
THE PANTOGRAPH

The Pantograph is used to collect the electrical current required to power the vehicle from the OCS. It is mounted to the roof of Car A and is electronically raised into position and held against the OCS with spring force. An electric motor is used to return the pantograph to the lowered position and restrain it. Emergency mechanisms exist to allow the pantograph to be lowered manually from inside the car in the event of a loss of power.

Pantograph in Lowered or Stored Position

Pantograph in Raised or Powered Position

Electronic Controls to Raise and Lower Pantograph, located in Operator’s Cabin in both Car A and Car B

Pantograph Manual-Lowering Crank, located in Operator’s Cabin ONLY in Car A
Inserting Pantograph Manual-Lowering Crank into Receiver (Located Behind Marked Panel in Passenger Area in Car A)

THE ONBOARD ENERGY STORAGE SYSTEM (OESS)

The OESS allows the vehicle to operate off wire by utilizing the onboard lithium ion batteries when the overhead catenary wire is unavailable. The vehicle has the ability to travel in areas without OCS for about 28 minutes or 6.4 miles round trip under normal driving conditions. Two battery enclosures mounted underneath Cars A & B (between the trucks and the operator’s cabin) contain 15 sub packs each, for a total of 30 batteries.

One (1) of Two (2) Battery Enclosures Shown Completely Removed from the Underside of the Streetcar Vehicle
Emergency OESS Shut-downs are positioned behind panels on the vehicle exterior. Shown below, the Emergency OESS Shut-downs are accessed with the same specialized key as other panels on the vehicle exterior. Pressing one (1) of the red plunger buttons will disconnect battery banks in BOTH Car A and Car B. There is no need to access and press both of the Emergency OESS Shut-downs.

While we can rely upon these methods to de-energize the normally operating electrical systems within the streetcar vehicle, there is still a tremendous amount of stored (or potential) energy within the two (2) OESS units. If the streetcar vehicle sustains a substantial automobile impact between the wheels and the operator's cabin (on either end), caution must be exercised. Cables that penetrate the solid housing of the OESS are not well protected underneath the thin fiberglass body (called the skirt). Shown below with the skirt removed, the multiple cables may be sheared, abraised, pinched, or otherwise damaged, resulting in the potential for a short-circuit if metal-on-metal contact that goes to ground is introduced either during or from the accident or during extrication operations. If a firefighter is included in that short-circuit to ground, results may be fatal.
VEHICLE BRAKING SYSTEMS

The streetcar is equipped with three different braking systems. The brakes are a combination of Dynamic, Friction, and an Emergency (or Maximum) Brake in collaboration with Track Brakes.

**DYNAMIC BRAKE**
The dynamic brake serves as the initial force used to slow the vehicle, working alone from the traveling speed down to 5 miles per hour. Dynamic braking is the result of using the traction motors as generators to slow the vehicle, similar in concept to the braking force produced by Telma Retarders on some MFD apparatus. During dynamic braking, the current produced by the traction motors is directed to the brake resistors, which in turn generates a load on the electrical system causing the traction motors to resist rotation and therefore slow the vehicle.

**FRICTION BRAKE**
The friction brake system provides spring-applied service, emergency, and parking brake application. During normal braking, once dynamic braking slows the vehicle to 5 miles per hour, friction braking will assist until the vehicle reaches 3 miles per hour, at which point it takes over braking completely. A more traditional vehicle braking system, when activated, the friction brake applies clamping force on pairs of calipers, through a set of brake pads, and onto friction discs mounted on the axles. The friction brakes are held in the applied position by springs as the default, until pressure is applied to release them.

Note: During an emergency in which the streetcar vehicle has been completely de-energized, manual interventions by Rescue Company personnel or Transdev personnel must occur to release the friction brake. If hydraulic fluid is noted leaking from the underside of the streetcar vehicle, ensure all emergency personnel are made aware as this may render the friction brakes inoperable.

**EMERGENCY (MAXIMUM) BRAKE**
The friction braking system is also incorporated into the emergency (or maximum) braking system. During an emergency braking maneuver, sand is forced onto the tracks to provide additional traction for the track brakes to grip to minimize stopping distance.

**TRACK BRAKE**
The track brake is an electromagnetic assembly activated with the emergency (maximum) brake. It is suspended between the axles on the outer edges of the truck assemblies, one on each side. Once activated, the electromagnetic coils are energized, creating a magnetic pull on the track to aid in slowing the vehicle.
The vehicle’s center section (Car C) is equipped with four bi-part doors, two on each side. In the event of an emergency or if the vehicle is without power, Car C is equipped with an emergency manual door override button (located to the right of the door button) that, when activated, allows first responders to open the doors manually. Specialized keys for accessing these panels will be provided to all downtown Engine, Truck, and Rescue Companies, Battalion Chiefs, and the Incident Safety Officer.

Once the panel is accessed and the pull-handle is pulled, the adjacent set of bi-part doors will shift apart by about an inch. The doors can then be manually (and easily) opened by placing both hands between the doors and spreading them apart.
**OVERHEAD CONTACT SYSTEM (OCS)**

The overhead contact system (OCS) is the entire system of energized catenary wire and its support structure (poles and non-energized support or guide wires). NOTE: This system remains energized at all times, even when the streetcars are not running.

It is widely understood in the trades (and is represented in MFD policy) that booms, cranes, or aerial ladders shall not be operated within ten (10) feet of energized electrical lines. With the expanse of the streetcar OCS in downtown Milwaukee, this places new limitations upon the placement and usage of the aerial device for rescue or suppression; however, they are no more than we experience in many other areas of the city with normal electrical grid power lines. One advantage we can utilize with this system is that we can very quickly de-energize the OCS in question, something we cannot do without first waiting on an outside agency throughout the rest of the city.

The OCS is held in position by guide wires that extend straight out or at angles from the OCS to either dedicated support poles, OR in some cases into the exterior walls of nearby buildings. This system holds the OCS around 18 feet above the rails. The placement and orientation of guide wires is far more cluttered at intersections where the streetcar route makes a turn. Even along a straight run section, if the guide wires are placed very close together, simply raising the aerial device out of the bed may prove impossible. Good initial Truck Company placement will be crucial.
The OCS carries an enormous amount of electricity to the streetcar and should be the first thing addressed when approaching the vehicle in an emergency response. During size-up, it is the responsibility of the first-in company to make sure the pantograph is in the lowered position, that none of the wires are in contact with the vehicle, and no wires are down in the general area of the vehicle. Lowering the pantograph effectively isolates the vehicle from the 750 DC running through the OCS. However, the vehicle is still running on the power stored in its Onboard Energy Storage System (OESS). The streetcar operator, if not incapacitated, can quickly lower the pantograph from the pilothouse.

If ALL electricity in and on the vehicle needs to be shut down after lowering the pantograph, the streetcar is equipped with two emergency disconnects. Shown earlier in this document, it trips the OESS circuit breakers and applies the emergency brake. The emergency disconnects are located just below the car body, centered above the trucks. These actions should occur only after communicating with the streetcar operator in the cab, if able. He or she may be able to conduct these shutdown operations at the control panel in the pilothouse.

It is important to know the difference between alternating current (AC) and direct current (DC) power. DC power is uni-directional, traveling in only one direction. A household battery is a small-scale version of stored DC power. When installed and the device is turned on, the electrons flow until the device is turned off or the battery is completely discharged. DC power is commonly used to power trains, buses, streetcars, and other transportation systems, using an overhead contact system (OCS) similar to ours.

The streetcar runs off of 750 volts DC. In turn, the entire OCS has 750 volts DC on it at all times, even when the streetcar is not running. With the influx of OCS wires placed throughout downtown, it is important to understand the dangers and unique nature of DC power.

We interact far more regularly with alternating current (AC). AC power is bi-directional, traveling in two directions, alternating back and forth at 60 times per second along the transmission line. AC is the power that provides electricity to Milwaukee homes, and is the power that we typically encounter on “wires down” runs.

Understanding the difference between AC and DC electricity at an emergency scene is critical in the streetcar environment. When a DC line touches the ground, the lines do not always necessarily fault or short out, opening the circuit and stopping the flow of current to the downed line. In rare cases, the system may interpret the ground contact as additional resistance (load), similar to the streetcar requiring more power to climb a hill. Thus, instead of ‘shorting out,’ the system may interpret the need for more power and send more electricity down the OCS. Be aware of the fact that both AC and DC power lines produce a significant number of hazards, and the Traction Power Substations present both AC and DC hazards.

Aside from lowering the pantograph, shutting down the Traction Power Substations, and activating an OESS Emergency Shut-down button on the affected vehicle, our next greatest means of protecting ourselves is in placing our apparatus appropriately.
The aerial ladder device presents the most potential for accidental electrical contact when operating near the OCS. Early in an incident, apparatus placement may allow for immediate aerial device usage while maintaining the required minimum distance of 10 feet from the energized OCS.

First, upon approach, the Truck Company HEO must ascertain if there is even enough clearance to raise the aerial device from its bed for use. Many times, the guide wires will be present in such dense configurations as to render the aerial device useless. If enough distance between guide wires is observed (at least the distance of the length of the aerial ladder apparatus), the Truck Company HEO must position only on the working side of the OCS, and then must maintain at least a 3-foot distance from the nearest streetcar track. While the streetcar footings and surface pavement are equally or more substantial than the surrounding pavement, avoid placing stabilizer pads directly on the metal rails.

This places the aerial ladder unusually close to the building and the length of the bed ladder may be more than the distance to the building. By stopping short of the objective, the bed ladder distance becomes less limiting and the ladder can be raised for rescue or fire suppression. Several images below show this:

Aerial Apparatus Parked Appropriately for Safe Usage (Assuming the “Working Side” is the HEO’s Side)  Aerial Apparatus Parked Near a Turn in the Route – Multiple Guide Wires Prevent Utilizing the Aerial Device
Electrical energy is received into the system and transmitted out onto the OCS via the traction power substations. There are 3 TPSS sites powering the 2 large areas of OCS within Milwaukee’s streetcar system. NOTE: This system remains energized at all times, even when the streetcars are not running.

The 3 TPSS sites are [SHOWN HIGHLIGHTED IN BRACKETS BELOW ARE DE-ENERGIZING COMPANY ASSIGNMENTS – UPON DISPATCH, UNITS ARE TO REPORT DIRECTLY TO THEIR ASSIGNED TPSS AND PREPARE TO DE-ENERGIZE UPON COMMAND’S ORDER]:

- TPSS-OMF – R/O Streetcar OMF (450 N. 5th St.) [2nd-Due Engine Company]
- TPSS-DPW – NE Corner of I/O E. Wells St. & N. Market St. [2nd-Due Truck Company]
- TPSS-OGDEN – NE Corner of I/O E. Knapp St. & N. Cass St. [2nd-Due Engine Company]

For any OCS requiring de-energizing for MFD emergency operations, the Incident Commander will need to determine which Traction Power Substation(s) will need to be shut down. Simply put, the run of OCS along E. Ogden Ave. will require only the 1 TPSS at E. Knapp St. and N. Cass St. to be de-energized. Any other area of OCS needing to be de-energized will require the 2 TPSSes at the rear of the OMF and at E. Wells St. and N. Market St. to be shut down.
The OCS line is charged with 750 volts DC and **MUST BE DE-ENERGIZED** if it is in any way impinging on emergency operations. This is accomplished via the TPSS or TPSSes associated with that section of OCS.

Each TPSS is fed with 480 volts AC electricity and converts it to 750 volts of DC to feed the overhead contact system (OCS). It is suspended by a large number of NON-energized insulated guide wires and suspension poles, which in turn may become energized in an emergency event requiring an emergency shutdown at the TPSS.

Each TPSS is equipped with 2 Emergency Power Breaker (EPB) switches, each of which is positioned inside of a bright red Knox Box on opposite ends of the TPSS so that it can be readily located from any direction of approach. Once at the correct TPSS, only 1 of the EPB Knox Boxes need to be accessed.

**TPSS with EPB Knox Box**  
**Blue Light ON Signaling TPSS has been De-Energized**

**Close-up of EPB Knox Box**  
**Knox Box Open Showing EPB Switch**
The EPB boxes are keyed to our standard Milwaukee Fire Department Knox keys. Once assigned to de-energize a TPSS, the company or member assigned will communicate with the requesting Command via that Command’s assigned Profile and Talkgroup to report the status of the assigned task. Actuation of this EPB switch will interrupt the incoming AC service breaker on the substation, de-energizing the entire substation.

Again, only 1 EPB Knox Box per TPSS needs to be opened and de-energized. Once the EPB switch is turned to the “OFF” or “Electrical Shutdown” position, the EPB Knox Box is to be closed and locked. Verify that the TPSS has been de-energized by observing that the blue light on top of that TPSS is illuminated. The company or member will standby until otherwise directed by Command.

Once an EPB is switched off at a TPSS by the MFD for an emergency situation, it will NOT be turned back on until such time as the emergency scene is clear of MFD personnel and Command coordinates closely with Transdev personnel to ensure they are ready for us to do so. NOTE: Even if the EPB Knox Box is re-opened and the switch is turned back to ON, the TPSS does not automatically re-energize. Rather, the switch in the OFF position functions as both a physical circuit breaker and an interlock that prevents manual re-energizing. Turning the switch back to ON simply clears the interlock mechanism, which allows Transdev personnel to access and manually re-energize the TPSS from the interior.

Each TPSS has been outfitted with a TPSS EPB Lockout Tag, which can be found INSIDE of each Knox Box. Each tag is specific to the TPSS where it is found. Upon arriving at a TPSS, simply opening one of the Knox Boxes at that location and following the directions on the Lockout Tag found inside will ensure that all critical steps are followed. Below is an example of a Lockout Tag:

---

**TPSS – OGDEN**

**EPB #1**

**ATTENTION**

**FIRE DEPARTMENT:**

1. FOLLOW THESE STEPS
2. TURN EPB SWITCH “OFF”
3. VERIFY BLUE LIGHT ON TOP OF TPSS IS ILLUMINATED
4. NOTIFY COMMAND ON FIREGROUND THAT “TPSS OGDEN” IS DE-ENERGIZED
5. WRITE DATE/TIME BELOW:
6. TAKE THIS TAG WITH YOU
7. LOCK THIS KNOX BOX
8. DELIVER TAG TO MFD IC
9. THIS TPSS MAY NOT BE RE-ENERGIZED UNTIL MFD IC, DPW SAFETY, AND TRANSDEV INITIAL BELOW

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MFD IC / DPW SAFETY / TRANSDEV

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Operational Guidelines

STCAR (Streetcar)
MISCELLANEOUS EMERGENCY RESPONSE CONSIDERATIONS

Calls placed to 911 may not paint the appropriate picture of the true hazards, nor if the streetcar or its related infrastructure will have an impact on, or be impacted by, our actions. What previously occurred as a completely unrelated response may turn into a streetcar response due to the emergency involving streetcar equipment only. Members must actively scan their environment to recognize a streetcar or streetcar-adjacent situation on unrelated incidents. Streetcar vehicles, lines, or equipment may impede our ability to mitigate a problem according to our standard SOGs.

Responsibilities of first-in Companies include:

- **Size-Up (Streetcar or Streetcar-adjacent?)**
  - Notify Dispatch of Streetcar Incident [Special Call a Streetcar Assignment if needed]
- In ANY case of fire, smoke, arcing, automobile vs. streetcar collision, derailment, or streetcar wires down, full de-energizing of the affected OCS and streetcar vehicle must occur very early in the operation
- Identify need for rescue or potential rescue
- Communicate with streetcar operator about vehicle condition/status
  - If not incapacitated, ask operator to lower pantograph (otherwise Rescue Company personnel can manually lower)
  - If not incapacitated, ask operator to completely shut down OESS (THEN, utilize OESS-shutdown button as redundant safety)
  - Observe the status of interior/exterior vehicle lighting and other onboard amenities (signage, A/C, cab computers, etc.)
    - Report findings to the IC
    - Rescue Company personnel can access and shut down the 24-volt systems that power these items; HOWEVER, the 24-volt system also maintains the vehicle float height, so for any undervehicle entrapments, care must be taken to properly crib to avoid the vehicle further settling onto the patient
      - NOTE: Once the 24-volt system is shut down, the float height will maintain itself for approximately 30 minutes
- Chock streetcar wheels to secure the vehicle
- Secure the area – call for MPD to reroute traffic and control bystanders
- Provide EMS to patients who can be accessed safely
- **ONCE ALL OF THE FOLLOWING ARE COMPLETED, UNIFIED COMMAND SHOULD VERBALLY REINFORCE ACROSS ALL COMMUNICATION PATHWAYS WITH EVERY 10-MINUTE PAR THAT “ALL COMPONENTS HAVE BEEN DE-ENERGIZED”:**
  - Pantograph lowered
  - OCS de-energized (if in an on-wire environment)
  - OESS shut down and/or OESS-shutdown button engaged
  - 24-volt system shut down

Operational Guidelines
STCAR (Streetcar)
STREETCAR DERAILMENT
The potential exists for the streetcar to derail partially or fully off the tracks. The first-in officer is to perform a proper scene size-up. NOTE: If the vehicle is completely derailed (meaning none of the streetcar wheels are in contact with the rail), lowering of the pantograph and complete OCS and vehicle de-energizing MUST OCCUR PRIOR TO APPROACHING VEHICLE.

Based on what the scene presents, it may be as simple as securing the scene and waiting for MPD or Transdev. If streetcar vehicle access is required in order to render patient care, do so only AFTER the pantograph is lowered and the OCS de-energized.

AUTO FIRE (AUTOF) – SOG 3.0
In the event of a fire involving the streetcar, it is important to note that other than small quantities of lubricating products, there is no major fire hazard from petroleum products. The major hazard is the high-voltage electricity running to and within the streetcar. Fires in or involving the streetcar vehicle require full OCS and vehicle de-energizing. Fires along the on-wire portion of the route near enough to impinge upon the OCS also require full OCS de-energizing.

AUTO EXTRICATION (AUTOX) – SOG 4.0
If the need for auto extrication involving the streetcar arises, de-energizing of the vehicle is mandatory. The OESS button must be pushed and the pantograph must be in the lowered position. If necessary, full OCS shutdown can be initiated if the lines are in any way impeding on the emergency scene. Do not forget, the nosecones on both CAR A and CAR B can be unlocked and lifted up utilizing the specialized keys provided by Transdev.

FULL and HIGHRISE (FULL) and (HIGHRISE1) – SOG 18.0
Given the large complement of apparatus responding for structure fires or high-rise fires that may occur in or near the streetcar route, operations must occur with respect for the new hazards within the streetcar environment. The use of water for firefighting, and ground or aerial ladders for rescue or ventilation, must occur with care. Any OCS must obviously be de-energized, but, the use of aerial ladders will still be limited by the geometry and spacing of the OCS and guide wires local to the emergency.

Working closely with Transdev management will be key in avoiding streetcar traffic into an area within which we are handling a structure fire.

PERSONAL PROTECTIVE EQUIPMENT (PPE)
All PPE and tool complements (by position and seat assignments) required for the original emergency types are required for streetcar emergencies, as the incident realities dictate.

ACCESS KEYS
Engine 1, Engine 2, Truck 2, Rescue 1, & Rescue 2 have all been outfitted with the square-head skirt panel access keys.
RESCUE COMPANY EQUIPMENT AND TRAINING
Rescue Companies 1 and 2 will be outfitted with additional specialized equipment for application during streetcar or streetcar-adjacent incidents. The application of this equipment will be considered a special operation’s function and will be done in accordance with the Incident Command structure in place at a given incident.

A summary of this equipment and its general use is listed below:

- **Streetcar Lift Adaptors (4/each)** – utilized in conjunction with built-in adaptor receivers on the streetcar vehicle for heavy lifting operations
- **Hotsticks (2/each)** – utilized as a triple-redundancy for firefighter protection during streetcar emergencies which present an electrical hazard from the OCS – these provide a path from the OCS to ground on the margins of the emergency incident, in effect isolating the working area if the OCS were ever inadvertently re-energized during emergency operations **(PENDING)**
- **Operator Cabin Skeleton Keys (1/each)** – utilized to access emergency panels in the operator’s cabin of streetcar vehicle to de-energize 24-volt onboard electrical system **(PENDING)**
- **Pantograph Manual-Lowering Rod** – NOTE: This is not carried on each Rescue Company but is accessed in CAR A Operator Cabin
- **Rail Chocks (2/each)** – utilized to provide roll protection redundancy during streetcar vehicle emergencies **(Rescue 1 ONLY at present)**

PERMIT REQUIREMENTS FOR WORKING IN THE STREETCAR GUIDEWAY
Entities conducting work within the streetcar right-of-way are required to obtain a permit, referred to as a Streetcar Alignment Access Request (SAAR), for such work. For the purposes of our emergency responses, we are covered under the ‘emergency’ clause of that permitting process, and our auto-notifications via Dispatch suffice.

If any MFD personnel must work within the streetcar right-of-way for NON-response purposes, such as for training or for community risk reduction details, a permit must be obtained. This is critical because we may be unaware of other work occurring in the same area. The permit process will ensure that we are made aware of any restrictions or hazards. Further, we must work collaboratively to ensure that our work does not create a hazard or unnecessary stoppage of streetcar travel.

To request a permit, contact Transdev Dispatch at 414-286-6217 or 414-286-6218 during normal business hours. For any assistance or questions, you can also contact DPW’s Safety Supervisor Brian Hinkle via email at bphinkl@milwaukee.gov.
A **DIVE** response will be dispatched when a report is received from a credible and reliable witness of a water-related emergency with one or more people in/on the water or ice. It is the responsibility of dispatch to gain as much accurate information as possible related to the exact location and nature of the incident.

Dive Rescue Team members, apparatus, and equipment are assigned to **Station 2**.

The first arriving unit shall initiate Command and work to investigate the nature of the alarm and to gain credible information from witnesses, relaying pertinent information over the assigned incident talk group. Responsibilities of the first arriving units include, but are not limited to:

- All personnel operating on or near the water or ice shall be wearing, at all times, a properly fitting Personal flotation device (PFD)
- Primary size up (exact nature of the incident)
- Identify the need for a “rescue” or “potential rescue”
- Special call for a **DIVE** response (if not already dispatched)
- Gather pertinent information from witnesses and retain the witness
  - Find out what happened (events leading up to the emergency)
  - Account for victims (number/location/condition)
  - Determine last reported location of the victim
- Relay updated information over the incident talk group
- Provide EMS to patients accessed safely
- Confer with Dive Officer on their arrival
- Pass Command to Battalion Chief on arrival
- Assist **Dive Team** as needed

Upon arrival of the **Dive Team**, the ranking Dive Officer will confer with the Incident Commander, develop a plan of action, and initiate or complete the rescue/recovery of the victim(s).

The Dive Officer may request additional Marine Operations (Dive and/or Fireboat/SONAR) personnel and equipment as needed through the incident commander.

Special considerations by incident type include the following:
Open Water Rescue

- Identify and secure a launch site for the inflatable raft if applicable
- Ensure proper safety equipment is being used
  - Personal flotation devices (PFD's), rope throw bags
- Reach/Throw/No Go

Thin Ice Rescue

- Follow instructions on laminated cards in the water rescue kit on the Trucks
- Ensure proper safety equipment is being used
  - Personal flotation devices (PFD's), rope throw bags, Mustang suit (1 per Truck)
- Reach/Throw/Go (only if victim’s status warrants it)
  - Pike pole / Throw bag / FF in Mustang suit properly secured with a rope

Jumper Incidents

Incidents involving a report of a threatened or actual suicide attempt via jumping from a bridge or structure located over, or adjacent to, water.

- First Engine company to the top of the bridge (if applicable)
  - Act as a communication liaison with law enforcement
  - Identify and report suspected location of the jumper
- All other companies to stage in an appropriate location
  - Hoan Bridge jumpers – staging area is Henry Maier Festival parking lot

Maier Festival Park

Congestion on the access road is a concern and must be managed to have a successful operation at this location. Companies responding are to stage at Art Museum Dr. and E. Michigan Ave. Road access is limited and a proper sequence of apparatus arrival is necessary to prevent gridlock. Refer to map following this section.

Actual entrance to the grounds will be made at Gate 1 located south of the staging area. The gate is electrically operated. Dispatch will remind Summerfest security to open the gate upon receipt of the alarm. On scene companies are to call direct (414-270-6433) via company assigned cellular phone or request dispatch to call if the gate is found closed.

- Note: CAD defaults Summerfest response location to Gate 5. Disregard this location if a Dive Response is dispatched and proceed to the defined staging area.
- Optimal response sequence from staging will be:
  - Dive 2 enters Gate 1 with Dive Command and proceeds to the last reported position of the victim
  - Rescue 3 and Engine 1 proceed south to the boat dock and prepare to launch the inflatable boat(s)
  - First Truck company proceeds to the boat dock to assist Rescue 3/Engine 1
  - Med Unit backs down to the dock location and prepares to receive the victim
  - All other units remain in staging until given further orders from Command

Operational Guidelines
DIVE (Dive Assignment)
Operational Guidelines
DIVE (Dive Assignment)
**Vehicle in Water**

Upon notification of a vehicle in the water, the Dive officer is to determine whether all occupants have been removed from the vehicle.

- Once the status of the occupant(s) is confirmed, the Dive officer can prepare the vehicle, at MPD discretion, for removal by a towing company from the waterway. Once the vehicle and site are secure, or once MPD formally receives Command, the MFD can leave the site in the custody of MPD. Any MFD property left at the scene is to be returned either by the towing company or by MPD, or arrangements can be made through Dispatch for pickup by Marine Operations.

**Fireboat Response**

The crew of Engine 1, whether on the Trident or land based, will also assist the MFD Dive Rescue Team at incidents where a diving platform or inflatable raft transport/support for underwater operations is needed, and will provide SONAR scanning for underwater target(s) as needed and requested.
Swiftwater rescue is a subset of technical rescue dealing in whitewater river conditions. Due to the added pressure of moving water, swiftwater rescue involves the use of specially trained personnel, ropes and mechanical advantage systems that are often much more robust than those used in standard rope rescue. The main goal is to use or deflect the water’s power to assist in the rescue of the endangered person(s), as in most situations there is no easy way to overcome the power of the water.

Surface water and swiftwater rescue is covered under National Fire Protection Association (NFPA) 1006 Standard for Technical Rescuer Professional Qualifications.

Local swiftwater conditions can occur on the Kinnickinnic River up to 24 hours after a storm. Conditions upstream can make for treacherous river conditions at locations downstream. Swift water rescue boundaries are South 16th Street at the KK River downstream to South 1st Street / Chase Avenue at the KK River.

Rescuers are 4 times more likely to die initiating swiftwater rescue than in structural firefighting. MFD members in the vicinity of deep or moving water shall not wear their firefighting PPE. Only those members wearing personal flotation devices (PFDs) are allowed to perform river rescue/recovery attempts on the riverbank. Always secure good footing when working near the river. If the area appears dangerous, slippery, covered with water, or inaccessible, inform the Incident Commander and move to a safer area.

The first arriving unit to the victim’s last reported location (typically E12) shall initiate Command and investigate the nature of the alarm, gaining credible information from witnesses and relaying that pertinent information over the assigned incident talk group. Responsibilities of the first arriving unit to the victim’s last reported location include, but are not limited to:

- Primary size up (exact nature of the incident)
- Identify the need for a “rescue” or “potential rescue”
- Special call for a Swiftwater Dive response (if not already dispatched)
- Talk to and retain any witnesses
  - Determine the last reported location of the victim and mark with an orange cone
- Relay updated information over the incident talk group
- Ensure proper safety equipment and tactics
  - No firefighting gear
  - Personal flotation devices (PFD’s), rope throw bags
  - Beware of slippery embankments – ensure good footing
Operational Guidelines

RIVERK (KK River Swiftwater Rescue Assignment)

- Reach/Throw/No Go
  - Throw bag slightly ahead of the traveling victim – coordinate to line up multiple bags downstream
- Pass Command to Battalion Chief on arrival (typically B4)

Upon arrival of the Dive Team, the ranking Dive Officer will confer with the Incident Commander, develop a plan of action, and supplement or complete the rescue/recovery of the victim(s).

The Dive Officer may request additional Dive personnel as needed through the incident commander.

Follow these guidelines in order to effectively stage responding companies to an incident involving swift water rescue on the Kinnickinnic River.

**Company Placement**

<table>
<thead>
<tr>
<th>Bn 4</th>
<th>(or 1st Chief on scene) Victim’s last reported location as identified by the caller</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bn 3</td>
<td>(or 2nd Chief) Southwest corner of S. Chase Ave. / W. Rosedale Ave.</td>
</tr>
<tr>
<td>E2</td>
<td>S. 1st St./W. Lincoln Ave</td>
</tr>
<tr>
<td>E7</td>
<td>S. 5th St. / W. Rosedale Ave. – South side of river</td>
</tr>
<tr>
<td>E23</td>
<td>East side of S. Chase Ave- West side of river</td>
</tr>
<tr>
<td>E12</td>
<td>Victim’s last reported location as identified by the caller</td>
</tr>
<tr>
<td>E11</td>
<td>East side of S. Chase Ave- East side of river</td>
</tr>
<tr>
<td>T1</td>
<td>S. 6th Street South of River</td>
</tr>
<tr>
<td>RESC</td>
<td>Stage on the bridge near S. 1st St./W. Lincoln Ave</td>
</tr>
<tr>
<td>MED</td>
<td>Southwest corner of S. Chase Ave. / W. Rosedale Ave.</td>
</tr>
<tr>
<td>ISO</td>
<td>Southwest corner of S. Chase Ave. / W. Rosedale Ave.</td>
</tr>
</tbody>
</table>

* If the normally assigned companies are not available, Dispatch will assign other available units and it will be the incident commander’s responsibility to assign locations for responding companies
Units Dispatched: E26 + E35 + E32 + E33 + E2 + E23+ T9 + T16 (RESC1) or (RESC2) + B2 + B3 + M + CAR18 + [T2os + RESC3 + DIVE2]

GENERAL

Swiftwater rescue is a subset of technical rescue dealing in whitewater river conditions. Due to the added pressure of moving water, swiftwater rescue involves the use of specially trained personnel, ropes and mechanical advantage systems that are often much more robust than those used in standard rope rescue. The main goal is to use or deflect the water’s power to assist in the rescue of the endangered person(s), as in most situations there is no easy way to overcome the power of the water.

Surface water and swiftwater rescue is covered under National Fire Protection Association (NFPA) 1006 Standard for Technical Rescuer Professional Qualifications.

Local swiftwater conditions can occur on the Menomonee River up to 24 hours after a storm. Conditions upstream can make for treacherous river conditions at locations downstream. Swift water rescue boundaries are North 46th Street Street at West State Street downstream to the 27th Street viaduct.

Rescuers are 4 times more likely to die initiating swiftwater rescue than in structural firefighting. MFD members in the vicinity of deep or moving water shall not wear their firefighting PPE. Only those members wearing personal flotation devices (PFDs) are allowed to perform river rescue/recovery attempts on the riverbank. Always secure good footing when working near the river. If the area appears dangerous, slippery, covered with water, or inaccessible, inform the Incident Commander and move to a safer area.

The first arriving unit to the victim’s last reported location (typically E32) shall initiate Command and investigate the nature of the alarm, gaining credible information from witnesses and relaying that pertinent information over the assigned incident talk group. Responsibilities of the first arriving unit to the victim’s last reported location include, but are not limited to:

- Primary size up (exact nature of the incident)
- Identify the need for a “rescue” or “potential rescue”
- Special call for a Swiftwater Dive response (if not already dispatched)
- Talk to and retain any witnesses
  - Determine the last reported location of the victim and mark with an orange cone
- Relay updated information over the incident talk group
- Ensure proper safety equipment and tactics
  - No firefighting gear
  - Personal flotation devices (PFD’s), rope throw bags
  - Beware of slippery embankments – ensure good footing
Operational Guidelines

RIVERM (Menomonee River Swiftwater Rescue Assignment)

- Reach/Throw/No Go
  - Throw bag slightly ahead of the traveling victim – coordinate to line up multiple bags downstream
  - Pass Command to Battalion Chief on arrival (typically B3)

Upon arrival of the Dive Team, the ranking Dive Officer will confer with the Incident Commander, develop a plan of action, and supplement or complete the rescue/recovery of the victim(s).

The Dive Officer may request additional Dive personnel as needed through the incident commander.

Follow these guidelines in order to effectively stage responding companies to an incident involving swift water rescue on the Menomonee River.

**Company Placement**

**Bn 3** (or 1st Chief) Victim’s last reported location as identified by the caller
**Bn 2** (or 2nd Chief) Miller Park Complex Uecker Lot
**E32** S. 42nd St. / W. Mt. Vernon Ave. at the railroad trestle (last seen point)
**E2** East side of the river- Enter behind the Domes- cross Hank Aaron Trail foot bridge
**E35** East side of the river- North of Canal Street
**E33** Behind Palermo’s on N 33rd Court- cross foot bridge
**RESC** Behind Palermo’s on N 33rd Court- cross foot bridge
**E26** South side of the river- enter near Urban Ecology Center (N. 37th St./ W. Pierce St.)
**E23** East side of the river- Enter behind Domes- cross Hank Aaron Trail foot bridge
**T16** West side of the river behind National Salvage- enter from 44th Court
**T9** North side of Selig Drive- East side of river
**MED** Stage in Miller Park Uecker parking lot- East
**ISO** Miller Park Complex Uecker lot

* If the normally assigned companies are not available, Dispatch will assign other available units and it will be the incident commander’s responsibility to assign locations for responding companies
The Milwaukee Fire Department is charged with the responsibility of providing protection of life and property in and around the Greater Milwaukee Area. Milwaukee is one of two Wisconsin communities on the southwestern shore of Lake Michigan to have a marine based firefighting vessel. The Fire Boat Trident, is a 39 foot jet driven boat that is docked at Discovery World Harbor. The other vessel is staffed by the South Milwaukee Fire Department and is docked at the South Milwaukee Yacht Club.

**Fireboat 1**, “The Trident”, provides fire protection to waterfront properties and marine vessels along Lake Michigan and its tributaries. Additionally, the Trident provides immediate, on-water emergency medical services to the boating and marine public. Boat Pilot Team members, apparatus, and equipment are assigned to Station 1.

The crew of Engine 1, whether on the Trident or land based, will also assist the MFD Dive Rescue Team at incidents where a diving platform or inflatable raft transport/support for underwater operations is needed, and will provide SONAR scanning for underwater target(s) as needed and requested.

Finally, **Fireboat 1** will be dispatched, along with the closest Engine, **Rescue 3** and **Dive 2**, and the Coast Guard to investigate a report of a barrel in Lake Michigan or one of its tributaries.

### Marine Communications

On dispatched marine responses, the designated incident channel will typically be Profile 7/Talk Group 2. In addition, the MFD hand held radio has the pre-programmed ability to broadcast on certain marine radio frequencies. Marine Radio Channel 16 will allow the user to hail the Fireboat Trident, US Coast Guard, MPD Patrol Boat, or any other vessel in the area. Depending on who you hail, they may give you a “working channel” for further communications on Channel 21, 81 alpha, or 23 alpha.

<table>
<thead>
<tr>
<th>MFD Profile and Talk-group</th>
<th>Marine Radio Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profile 7, talk group 11</td>
<td>16</td>
</tr>
<tr>
<td>Profile 7, talk group 12</td>
<td>21a</td>
</tr>
<tr>
<td>Profile 7, talk group 13</td>
<td>81a</td>
</tr>
<tr>
<td>Profile 7, talk group 14</td>
<td>23a</td>
</tr>
</tbody>
</table>
ACCOUNTABILITY

The Fire Boat Trident will have a pre-determined crew leader who will hold ultimate command and accountability of the crew, equipment, and vessel while underway, both in emergent and non-emergent situations. He/she has the authority to abort or modify a mission depending on factors relating to the GAR score (a USCG approved method for evaluating scene safety). The boat director and/or assistants will hold this position by default on a daily basis.

OPERATIONAL TIME PERIODS

Numerous research studies state that time spent on the water can be physically and mentally taxing on an individual. The greatest effect from this time spent underway is fatigue. Therefore, it is recommended that the crew leader and Incident Commander recognize this factor and adhere to the following recommendations:
  o Limit the amount of time underway on a mission to 4 hours.
  o Consider and begin the process for recall of other boat members at the 2 hour mark
  o Understand that environmental conditions may decrease/increase this timeframe (cold, sun, wind, waves).

MARINE FIRE FIGHTING

Considerations vital to the safe extinguishment of any fire on or near the water:
  o Marina supplied hoses tend to be unused, cracked, and leaky. Therefore secondary use is recommended.
  o A lead line should be considered for use by land based companies in a marina fire.
  o All firefighters, while on a dock above water should wear a PFD under their turnout gear during active firefighting operations.
  o Falls are the number one hazard to firefighters in the marine environment.
  o Protection of exposures during a vessel fire is of utmost importance; often limited fire damage to a vessel will cause it to be “totaled” by insurance companies
  o The Fire Boat Trident should be assigned to the remote side of the vessel to limit fire exposure and to rescue any trapped occupants.
  o The tightly closed nature of vessels makes back-drafts possible: coordinated ventilation is mandatory before boarding. Use extreme caution and have a charged hose line ready.
  o Prevent dock lines from burning through. If a boat drifts away from the dock or is pushed away by hose streams, there is limited control and it is now a danger to other exposures. Do not cut dock lines unless ordered by the Incident Commander.
  o If a vessel is taking on water, start the de-watering process as soon as the fire is controlled.
  o Cut off battery power as soon as the battery switches can be found. Batteries can usually survive fires and large battery banks can deliver 400 amps at 12 volts.
RIVER FRONT FIRES

The Trident is an extremely useful tool in the event of a riverfront fire, with an endless supply of water. The only limitation of its effectiveness is fuel and the imagination of the crew. The biggest advantage is its ability to access (most often) the Charlie Side area of the building. The Trident can either supply a land based heavy apparatus or they can utilize their monitors to help extinguish the fire.

SONAR OPERATIONS

The Boat Team is capable of utilizing sonar equipment to aid in the location and recovery of people or objects in the water. This labor intensive activity requires numerous skill sets. The ability to locate items is not only dependent on the mastery of the equipment but also uncontrollable variables such as water temperature, wave action, wind, and composition of the lake/river bed. The complexity of this equipment has led to the creation of a sub team under the direction of the Boat Team. This sub team will be referred to as the “sonar team.” It will be comprised of specialty trained members from the MFD Dive Team and Boat Team. These individuals will be assigned to set up and interpret the sonar equipment. The Boat Team currently has three sonar systems utilized for locating people/objects.

1. The first system is the Humminbird side scan sonar with down scan imagery; it is permanently mounted to the navigation station on the Trident. The main benefit to this system is the ease of deployment and use in smaller areas (the river system). The main limitation while attached to the Trident is the propeller wash from the jet drives interferes with the picture. The Boat team also has a portable Humminbird Side Scan Sonar which can be attached to a Zodiac Boat. This system reduces propeller wash and often gives clearer pictures. The main limitation to this set-up is the size of the zodiac (16 feet) and weather conditions which makes picture interpretation more difficult.

2. The second system is the tow fish side scan sonar system; in order to deploy this system the unit must be placed into the water and runs behind the Trident at various depths (150 feet of cable max). The ideal depth for the best sonar return is to have the tow fish transducer 10% above the depth of the water. The biggest advantage to this system is a higher quality picture and the ability to utilize GPS to form grid patterns. The main limitations of this system include set-up time and the need for large open areas to properly make turns.

3. The third system is the Kronsberg Sector Scan Sonar. Unlike the other two systems which require boat movement the sector scan needs to be stationary. It can be used to verify targets given by the side scan and/or guide divers to potential targets. It is important to understand that this equipment has a smaller range and thus is for verification of targets.
The Hazardous Materials Response Team operates under an emergency response plan and standard operating guidelines to control, eliminate, or otherwise minimize the hazards to life, property, and the environment, from a released hazardous material. HazMat team members, vehicles, and equipment are assigned to the quarters of Engine 33.

Although major events involving a hazardous material may be rare, minor incidents can quickly escalate into disasters if first-due companies handle them incorrectly. These “disasters” can include not only physical injury or death, but also unnecessary environmental exposure, excessive financial obligations, and legal liabilities. Remain mindful of situational awareness regarding a potential act of terrorism – refer to IR Guideline for further guidance.

When a fire department unit is on the scene of an incident involving suspected hazardous materials, not indicated by the original call, the Incident Commander can request:

- Telephone resource assistance from Station 33. Call HazMat via your company assigned cellular phone for further information/assistance.
- *HazMat 2 Response* for petroleum spills less than 25 gallons – refer to PETROL Guideline for further guidance.
- *Limited HazMat Response* when the incident is minor and controlled, or when the on-scene unit requires further HazMat resource information – refer to LHAZMAT Guideline for further guidance.
- *Full HazMat Response* when there is potential for an immediate threat to life safety or the environment.

The first arriving unit shall initiate Command and work to investigate the nature of the alarm and to gain credible information from witnesses and/or on-site personnel, relaying pertinent information over the assigned incident talk group. Responsibilities of early arriving units and the incident commander include, but are not limited to:

- Protect yourself and your crew – resist rushing in
  - Approach from upwind and uphill, maintaining an initial safe distance of > 300’
  - Back apparatus in to give yourself an escape route and to provide easy access to larger diameter hoselines and foam capable hoselines
  - HEO to secure a continuous water supply for firefighting (foam) or decontamination efforts
- Ensure full **PPE use with SCBA**
- Primary size up (exact nature of the incident)
  - Consider the affect of wind / weather conditions (data given by dispatch)
- Consider the future actions of the product in question (Is it heading toward water? Populated area? Exposed to flame?)
  - Special call for a Full HazMat response (if necessary)
  - Consider a special call for Decon trailer(s) located at E33, E35 and E38
    - These trailers are meant to be utilized for decontaminating large numbers of victims from any chemical, biological, radiological, nuclear, or explosive (CBRNE) event
  - Gather pertinent information from and retain witnesses
    - Find out what happened (events leading up to the emergency)
    - Account for victims (number/location/condition)
    - If evacuation has occurred, ensure accountability for ALL people, including employees, private contractors, and visitors to the facility
  - Attempt to identify the chemical or material and its associated hazards
    - Knowledgeable person onsite, placards, shipping papers, container labels, and/or material safety data sheets (MSDS)
    - Consult DOT Guidebook to assist in identification, isolation distances, and initial protective actions
    - Consider the possibility of product interaction with other chemicals or incompatible products
    - Avoid or minimize direct contact with the product and emitting vapors, especially if no immediate life safety hazard exists
  - Relay updated information over the incident talk group
  - Secure the area – without entering the immediate hazard area, isolate the area and assure the safety of responders, civilians, and the environment
    - Call for MPD to reroute traffic and secure a perimeter all around the incident
    - Set up a staging area for incoming MFD units (upwind & > 300’ away)
    - Have Med unit set up a triage/treatment/transport area
    - Consider a special call for Compressed Air 1
  - Evacuate civilians or protect in place as conditions dictate
    - Make announcement over the rig PA system (if equipped) to control and direct the “walking wounded” upwind toward a decontamination area
  - Provide EMS to patients accessed safely (Meds)
    - Special call for additional EMS units if needed – contaminated patients shall not be placed inside a transport unit until proper decontamination
    - Use SALT Triage procedures (EMS SOG G3.7)
  - If necessary, evacuate structure(s) downwind – call for additional companies
  - Confer with E33/T16 Officer on their arrival
  - Pass Command to Battalion Chief on arrival
  - Assist HazMat Team as needed
    - Decontamination efforts
    - Dressing of personnel
    - Ventilation
    - Patient/evacuee accountability
    - EMS

Upon arrival of the HazMat Team, the Officer(s) from Engine 33 and/or T16 are to “size up” the emergency, confer with the Incident Commander, develop a plan of action, and initiate HazMat operations.

Operational Guidelines
HAZMAT (Full HazMat Assignment)
The HazMat Officer may request additional HazMat personnel and equipment as needed through the incident commander.

* Department members are to direct any HazMat questions or inquiries to the Deputy Chief of the Special Operations Division at x8943, or the on-duty officer at Station 33.
27.2 – LHAZMAT (Limited HazMat Assignment)

Units Dispatched: E + (or T) + B + CAR18 + [E33 aos + HM1 + HM2+ T16]

GENERAL

The Hazardous Materials Response Team operates under an emergency response plan and standard operating guidelines to control, eliminate, or otherwise minimize the hazards to life, property, and the environment, from a released hazardous material. HazMat team members, vehicles, and equipment are assigned to Station 33.

A LHAZMAT should be requested for abandoned barrels/containers, hazardous materials in which the product has been identified and is not posing an immediate threat to life or the environment, and any incident involving a drug or meth lab.

Minor incidents can quickly escalate into disasters if first due companies handle them incorrectly. These “disasters” can include not only physical injury or death, but also unnecessary environmental exposure, excessive financial obligations, and legal liabilities. Remain mindful of situational awareness regarding a potential act of terrorism – refer to IR Guideline for further guidance.

The first arriving unit shall initiate Command and work to investigate the nature of the alarm and to gain credible information from witnesses and/or on-site personnel, relaying pertinent information over the assigned incident talk group. Responsibilities of the first arriving unit and the incident commander include, but are not limited to:

- Protect yourself and your crew – resist rushing in
  - Approach from upwind and uphill, maintaining an initial safe distance of > 300’
  - Back apparatus in to give yourself an escape route and to provide easy access to larger diameter hoselines and foam capable hoselines
  - HEO to secure a continuous water supply for firefighting (foam) or decontamination efforts
- Ensure full PPE use with SCBA
- Primary size up (exact nature of the incident)
  - Consider the affect of wind / weather conditions (data given by dispatch)
  - Consider the future actions of the product in question (Is it heading toward water? Populated area? Exposed to flame?)
- Special call for a Limited HazMat response (if necessary)
- Gather pertinent information from and retain witnesses
  - Find out what happened (events leading up to the emergency)
  - Account for victims (number/location/condition)
  - If evacuation has occurred, ensure accountability for ALL people, including employees, private contractors, and visitors to the facility
Operational Guidelines

LHAZMAT (Limited HazMat Assignment)

- Attempt to identify the chemical or material and its associated hazards
  - Knowledgeable person onsite, placards, shipping papers, or container labels, material safety data sheets (MSDS)
  - Consult DOT Guidebook to assist in identification, isolation distances, and initial protective actions
  - Consider the possibility of product interaction with other chemicals or incompatible products
  - Avoid or minimize direct contact with the product and emitting vapors, especially if no immediate life safety hazard exists

- Relay updated information over the incident talk group
- Special call for a Full HazMat Response if an immediate threat is discovered
  - Follow HAZMAT Guidelines
- Secure the area – without entering the immediate hazard area, isolate the area and assure the safety of responders, civilians, and the environment
- Evacuate civilians or protect in place as conditions dictate
- Provide EMS to patients accessed safely (Med unit)
  - Special call for additional EMS units if needed – contaminated patients shall not be placed inside a transport unit until proper decontamination
  - Use SALT Triage procedures (EMS SOG G3.7)
- Confer with HazMat Officer on their arrival
- Pass Command to Battalion Chief on arrival
- Assist HazMat Team as needed
  - Decontamination efforts
  - Dressing of personnel
  - Ventilation
  - Patient/evacuee accountability
  - EMS

Upon arrival of the HazMat Team, the Officer from Engine 33 and/or T16 is to “size up” the emergency, confer with the Incident Commander, develop a plan of action, and initiate HazMat operations.

The HazMat Officer may request additional HazMat personnel and equipment as needed, or upgrade to a Full HazMat Response as indicated through the incident commander.

Special considerations by incident type include the following:

**Leaking Barrels / Containers**

In the event that a leaking barrel or other container is encountered, the incident commander is to request a Limited HazMat Response to mitigate. If the product is identified or suspected to pose an immediate threat to life safety or the environment, a Full HazMat Response should be considered.

**Non-Leaking Barrels / Containers**

The IC is to utilize warning labels, markings, occupancy location, and all other available information in an attempt to identify the product contained within. Make note of this information and contact Station 33 for telephone resource assistance. If the product is
identified or suspected to pose an **immediate** threat to life safety or the environment, a *Full HazMat Response* should be considered.

- **Private property**
  - The owner is legally responsible for proper removal and disposal of the barrel or container. The IC is to notify Station 33 with the details, so that HazMat personnel can notify the appropriate agencies.
- **Public property (parks, public streets, walkways, etc.)**
  - MFD accepts responsibility. The IC is to request a *Limited HazMat Response* and provide the details to HazMat on their arrival.

**Drug or Meth Lab**

Whenever a report of a drug or meth lab is received, a *Limited HazMat Response* will be dispatched. Any time a company is on-scene and a drug or meth lab is suspected, an immediate call for a *Limited HazMat Response* and MPD should be made by the IC and an evacuation of the affected premises should be considered.

* Department members are to direct any HazMat questions or inquiries to the Deputy Chief of the Special Operations Division at x8943, or the on-duty officer at Station 33.
Units Dispatched: E + T + M + B + CAR18 + [E12 + RESC1 + RESC4] + [E24 + RESC2]

**GENERAL**

The **Heavy Urban Rescue Team** is equipped and trained to perform technical rescue procedures in a safe and efficient manner. **Heavy Urban Rescue Team** members, apparatus, and equipment are assigned to the quarters of Engine 12 and Engine 24. A HURT response will be dispatched when a report is received from a credible and reliable witness of a person needing rescue from any of the following situations.

All **HURT** response runs should initially be treated as defensive operations for the first responders. The first arriving unit shall initiate Command and work with the second arriving unit to investigate the nature of the alarm and to gain credible information from witnesses and onsite personnel, relaying pertinent information over the assigned dispatch talk group. Responsibilities of these first two arriving units include, but are not limited to:

- Primary size up (exact nature of the incident)
- Identify the need for a “rescue” or “potential rescue”
- Special call for a **HURT** response (if not already dispatched) and for We Energies
- Secure the area (specific perimeters listed below) – call for MPD to reroute traffic and to control bystanders
- Set up a staging area for incoming MFD apparatus > 150’ away (consider shutting down all apparatus to minimize vibrations)
- Have initial arriving Med unit set up an EMS triage and treatment area outside of the “hot” zone
- Gather pertinent information from witnesses/knowledgeable person onsite
  - Find out what happened (events leading up to the emergency)
  - Account for victims (number/location/condition)
  - Identify hazards or hazardous materials
- Provide EMS to patients accessed safely
- Relay updated information over the incident talk group
- Secure utilities (if safely able)
- Confer with HURT Officer on their arrival
- Assist **HURT Team** as needed

Upon arrival of the **Heavy Urban Rescue Team**, the ranking **HURT** Officer will confer with the Incident Commander, develop a plan of action, and initiate or complete the rescue/recovery of the victim(s).

Special considerations by incident type include the following:
High Angle Rope Rescue

High angle rescue is an incident where the slope is greater than a 40 degree angle. High-angle rescue operations come in many forms. One that occurs often involves workers on the outside of a structure, typically on scaffolding, in need of rescue after an accident or medical emergency.

- Clear the area and set up a hazard zone below the rescue site
- Non-HURT personnel shall not approach the edge until and unless HURT provides the proper equipment and assistance
- All HURT personnel operating within close proximity of any edge during a steep or high angle rescue will be secured to a suitable anchor for fall protection.

Low Angle Rope Rescue

Low angle rescue is classified as any type of terrain that is too steep to walk up under one’s own power, but less than a 40 degree angle, such as a hillside or embankment.

- All personnel operating within close proximity of any edge during a low angle rescue will be secured to a suitable anchor for fall protection.

Structural Collapse Rescue

Structural collapse incidents can comprise unstable or collapsed structures in an unsafe position. Usually collapse incidents leave voids inside the debris that can result in numerous casualties trapped under large amounts of very heavy and often unstable debris.

- Park apparatus > 150’ away and shut down apparatus to minimize vibrations
- Minimum safety perimeter for personnel = height + 1/3 of the building
- Beware of secondary collapse
- Consider a special call for one or both Tower Ladders (T1 and/or T2) to provide a safe, stable, and reach-extending platform for Rescue personnel operations.

Confined Space Rescue

A confined space is defined by OSHA 29 CFR 1910.146 as:

- A space large enough for personnel to physically enter
- A space not designed for continuous occupancy by the employee
- A space with limited or restricted means of entry and exit

Responsibilities of first arriving companies:

- DO NOT ENTER THE CONFINED SPACE
- Secure any witnesses or competent bystanders
- Secure entry permit if available
- Identify any immediate hazards
- Secure a safe perimeter to keep bystanders out of the immediate area
Trench Rescue

A trench is defined by OSHA as an excavation which is deeper than it is wide and is less than 15 feet wide. Cave-ins and collapses generally occur because of unstable soil conditions combined with improper or inadequate shoring. The potential for additional collapse must always be considered as a primary hazard, and personnel must be aware that any action may disrupt the temporary stability and cause an additional collapse. The temporary stability, at any point in an operation, may be disturbed by removing soil or debris, by adding weight near the edge of an open cut, by vibration (such as vehicle movement), by rain, or simply by the passage of time.

- Minimum safety perimeter of > 20’ - keep bystanders out of the immediate area
- **Beware of secondary collapse** – a collapsed trench has greater than 50% chance of collapsing again – never enter an un-shored trench
- Approach of the trench should only be made by QUALIFIED personnel from the ends (provide ladders and oxygen for victims if safely able)
SUSP (Suspicious Call) assignments are dispatched when a fire is reported, but the caller has given incomplete, erroneous, or highly suspect information, or had lost contact with dispatch during the reporting of the incident. Suspicious calls for fire may occur maliciously or by well-intentioned adults or children, and must be investigated diligently by an MFD Engine or Truck company.

These responses present a unique hazard since limited reliable information was initially provided. Dispatchers are very good about providing responding units with updated information as available. When dispatched on a SUSP response, the Company Officer may call dispatch while enroute in an attempt to gather updated or additional details.

All such responses should be regarded as potential working fire incidents, with full firefighting PPE and SCBA donned on arrival at the reported address/intersection and until a thorough investigation proves otherwise. Care should be taken to size up conditions on the exterior of the reported address and to place the apparatus appropriately. A full interior and exterior investigation should be completed, including seeking out the caller and/or bystanders for additional information if the nature of the incident is not obvious. In cases where no keyholder is available and the reported building is secured, attempts should be made to locate a KnoxBox to access the interior (check the run sheet for KnoxBox information). If visual access cannot be gained to all areas of the building, forcible entry is indicated.

Once the appropriate call type is identified, the Incident Commander shall special call for the appropriate resources and operate under the recommended guidelines for the identified call type, beginning mitigation procedures as safely able. Before determining a situation to be a false alarm, the Incident Commander shall request any updated information from dispatch and fully survey the immediate and surrounding areas of the address or intersection given. To declare a false alarm without a complete investigation places the Officer, the Department, and the City at great potential liability.
On arrival at SUSP assignments, the Engine Officer will initiate Command and report on conditions and needs via the dispatch talk group. Care must be taken to size up conditions in the area and on the exterior of the reported address and to place the apparatus appropriately. Look for the caller and/or bystanders to provide further information. If no caller is found and no obvious indicators of fire are found, the Engine Officer should request further information through dispatch.

Take the time to thoroughly observe conditions along the roofline, through windows and doors, and interior of the reported location. Use of the TIC on the exterior will often indicate areas of heat buildup that may not otherwise be evident from the exterior. The Engine Officer will attempt to gain a view of the rear of the structure to complete the 360° survey of the structure. The Engine Officer and Backup FF, with assigned equipment, should then conduct an interior investigation, if warranted based on further information received or based on a lack of credible information. Consider a request for additional MFD companies if the building is large or as needed based upon findings.

The Engine HEO shall place the apparatus in a flexible location, based upon directives from the Officer. The Engine HEO shall monitor the assigned incident talk group and act upon requests from the Engine Officer, which may include relocating the apparatus, assisting the Nozzle FF with the stretch of a proper length and size hoseline for the situation, and/or operating the pump.

The Nozzle FF will standby with the Engine HEO during the investigation phase ready to initiate a hose stretch or bring extra equipment as ordered by the Engine Officer.

The Backup FF will travel with the Engine Officer to investigate the presence or absence of smoke and/or fire, utilizing forcible entry techniques only as ordered by the Engine Officer. The Backup FF will utilize the pressurized water extinguisher to confine or extinguish any fire found upon the investigation.

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**NOZZLE**

**Tools:** Full PPE with SCBA, portable radio, axe, door chocks  
**Duties:** Standby with HEO ready to lay hoseline if needed

**BACKUP**

**Tools:** Full PPE with SCBA, portable radio, water extinguisher, flathead axe, door chocks, CO detector  
**Duties:** Investigate with Officer

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**TRUCK OFFICER**

**Tools:** Full PPE with SCBA, portable radio, flashlight, TIC, halligan tool, tagline  
**Duties:** Initiate Command, direct apparatus placement, begin investigation

**HEO**

**Tools:** Full PPE with SCBA, portable radio, axe, door chocks, tagline  
**Duties:** Aerial operations/Ladder placement or as assigned by Officer

Operational Guidelines  
SUSP (Suspicious Call)
### SUSP (Suspicious Call)

**VENT**
- **Tools:** Full PPE with SCBA, portable radio, axe, pike pole, door chocks, tagline
- **Duties:** Ventilation or as assigned by Officer

**FORCE**
- **Tools:** Full PPE with SCBA, portable radio, water extinguisher, flathead axe, door chocks, tagline
- **Duties:** Investigate with Officer

On arrival at SUSP assignments, the Truck Officer will initiate Command and report on conditions and needs via the dispatch talk group. Care must be taken to size up conditions in the area and on the exterior of the reported address and to place the apparatus appropriately. Look for the caller and/or bystanders to provide further information. If no caller is found and no obvious indicators of fire are found, the Truck Officer should request further information through dispatch.

Take the time to thoroughly observe conditions along the roofline, through windows and doors, and interior of the reported location. Use of the TIC on the exterior will often indicate areas of heat buildup that may not otherwise be evident from the exterior. The Truck Officer will attempt to gain a view of the rear of the structure to complete the 360° survey of the structure. The Truck Officer and Force FF, with assigned equipment, should then conduct an interior investigation, if warranted based on further information received or based on a lack of credible information. Consider a request for additional MFD companies if the building is large or as needed based on findings.

The Truck HEO shall place the apparatus in a flexible location, based upon directives from the Officer. The Truck HEO shall monitor the assigned incident talk group and act upon requests from the Truck Officer, which may include relocating the apparatus, ventilation, and/or ladder placement.

The Vent FF will operate as assigned by the Truck Officer. Assignments may include elevator control at high-rise facilities, tool and equipment delivery, ladder placement and/or ventilation.

The Force FF will travel with the Truck Officer to investigate the presence or absence of smoke and/or fire, utilizing forcible entry techniques only as ordered by the Truck Officer. The Force FF will utilize the pressurized water extinguisher to confine or extinguish any fire found upon the investigation.
GENERAL

TEN54 responses are sent upon request as an immediate police response when fire department personnel feel that they are in imminent danger and cannot get to a safe position or flee the threat of danger. This police response is supplemented by the simultaneous deployment of the closest Truck or Engine Company and a Battalion Chief.

The Milwaukee Police Department has a tiered priority system that categorizes a particular response based on the nature of the call. This system differentiates between calls requiring immediate dispatch and those in which the timeliness of response is perceived to be non-essential to the solvability or quality of service provided. It is the responsibility of the fire department on-scene incident commander to continually evaluate the situation and notify dispatch of the need for a police response or an upgrade to the police response.

The goal in any fire department response, and in particular those responses perceived as “potentially dangerous situations”, is to accurately determine the potential threat to responder safety based on experience, information, and observation. If the first arriving officer questions the safety of the scene for viable reason, the unit is to stage in a safe area in the vicinity of the alarm, but out of the line of sight of potential harmful subjects. The staging status and location are to be reported over the assigned dispatch talk group and further relayed to other responding units over the assigned incident talk group.

<table>
<thead>
<tr>
<th>MFD CALL SIGNALS FOR POLICE ASSISTANCE</th>
<th>Report police arrival to the MFD dispatcher</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-53 (State Reason)</td>
<td>Request for police; provide reason for need (i.e., auto accident, traffic control, battery to citizen, etc.)</td>
</tr>
<tr>
<td>10-53 (Alpha)</td>
<td>Unable to provide details. Will call dispatch shortly with a reason. <strong>Only to be used in compromised or sensitive situations.</strong> i.e. (Suspected Child Abuse, Assailant is on scene, etc...)</td>
</tr>
<tr>
<td>10-53 (Provide Security)</td>
<td>Request for police assistance when encountering a patient with a non-life-threatening illness/injury, and bystanders prevent personnel from attending to the patient. This request represents an upgrade to a higher priority MPD response. A Battalion Chief will also be dispatched for this request.</td>
</tr>
<tr>
<td>10-54</td>
<td>Request for immediate police assistance. To be used after defensive actions have been taken (i.e., not entering the scene, leaving the scene, etc.), and MFD personnel are in imminent danger. Personnel are not to put themselves in a position that could lead to injury. <strong>Do not take aggressive actions except in self-defense.</strong> A Battalion Chief and the closest truck or engine company will be dispatched for this request.</td>
</tr>
</tbody>
</table>
There are times when a company finds itself in a situation that was initially deemed as safe, but evolves for various reasons into a dangerous environment. In these cases, all possible defensive actions should be taken (i.e. trying to defuse the hostile subject(s), leaving the scene, or barricading personnel in another room) and a “10-54” transmission for an immediate police response is indicated. The safety of our personnel is always the primary concern. Do not provoke or confront – remind all that your obligation is to help the sick or injured. Aggressive actions may have to be taken, but only as a last resort and only in self-defense.

After the “10-54” request is transmitted, the company officer should continue to make every attempt to remove MFD personnel from the threat, or the threat from personnel. If possible, the company officer shall relay the company's location and the specific threat via radio, so dispatch can give this information to responding MPD units. Only after MPD has arrived and secured the scene appropriately will additional MFD units be allowed to provide EMS or other supplementary services.

Any potentially dangerous situations must be recorded and submitted, during the same work shift, on the electronic F-211: Reporting of Potentially Dangerous Situations in order to collect accurate and useful information.

### TRUCK

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE, portable radio, flashlight, halligan tool, EMS Tablet</th>
<th>Duties: Support services as needed, V-Tac</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEO</td>
<td>Tools: Full PPE, portable radio, axe</td>
<td>Duties: As assigned by Officer</td>
</tr>
<tr>
<td>VENT</td>
<td>Tools: Full PPE, portable radio, axe, 6' pike pole, defibrillator, Oxygen kit</td>
<td>Duties: As assigned by Officer</td>
</tr>
<tr>
<td>FORCE</td>
<td>Tools: Full PPE, portable radio, flathead axe, EMS bag</td>
<td>Duties: As assigned by Officer</td>
</tr>
</tbody>
</table>

The closest Truck Company may be dispatched to assist MFD personnel requesting a “10-54 response”. The Truck Officer should approach cautiously with a visual of the scene and relay the status of MPD (on-scene or not on-scene). If MPD is not yet on-scene, the Truck Officer shall have the Truck HEO stage the apparatus in a position of safety and resist the urge to enter an uncontrolled atmosphere and putting more MFD members at risk. The Officer should attempt to communicate with the endangered MFD Company via the incident scene talk group.

If MPD is on-site and has secured the scene, the Truck Officer can proceed into the scene and speak with MPD personnel to determine the actions underway and how MFD personnel can be of assistance. The Officer should attempt to communicate with the endangered MFD Company via the incident scene talk group to determine if any MFD
personnel or civilians require EMS. The Truck company should be prepared (and get themselves prepared through building size up on arrival) to facilitate trapped member(s) evacuation via ground or aerial ladder if MFD members are barricaded in an exterior room of a structure.

The Truck HEO shall position the apparatus at the Officer’s discretion in a safe location and then assist with patient care or other duties as assigned by the Truck Officer.

The Vent FF shall assist with patient care or other duties as assigned by the Truck Officer.

The Force FF shall assist with patient care or other duties as assigned by the Truck Officer.

### ENGINE

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE, portable radio, flashlight, halligan tool, EMS Tablet</th>
<th>Duties: Support services as needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEO</td>
<td>Tools: Full PPE, portable radio, axe</td>
<td>Duties: As assigned by Officer</td>
</tr>
<tr>
<td>NOZZLE</td>
<td>Tools: Full PPE, portable radio, axe, 6’ pike pole, defibrillator, Oxygen kit</td>
<td>Duties: As assigned by Officer</td>
</tr>
<tr>
<td>BACKUP</td>
<td>Tools: Full PPE, portable radio, flathead axe, EMS bag</td>
<td>Duties: As assigned by Officer</td>
</tr>
</tbody>
</table>

The closest Engine Company may be dispatched to assist MFD personnel requesting a “10-54 response”. The Engine Officer should approach cautiously with a visual of the scene and relay the status of MPD (on-scene or not on-scene). If MPD is not yet on-scene, the Engine Officer shall have the Engine HEO stage the apparatus in a position of safety and resist the urge to enter an uncontrolled atmosphere and putting more MFD members at risk. The Officer should attempt to communicate with the endangered MFD Company via the incident scene talk group.

If MPD is on-site and has secured the scene, the Engine Officer can proceed into the scene and speak with MPD personnel to determine the actions underway and how MFD personnel can be of assistance. The Officer should attempt to communicate with the endangered MFD Company via the incident scene talk group to determine if any MFD personnel or civilians require EMS. The Engine company should be prepared (and get themselves prepared through building size up on arrival) to facilitate trapped member(s) evacuation via ground ladder if MFD members are barricaded in an exterior room of a structure.

The Engine HEO shall position the apparatus at the Officer’s discretion in a safe location and then assist with patient care or other duties as assigned by the Engine Officer.
The Nozzle FF shall assist with patient care or other duties as assigned by the Engine Officer.

The Backup FF shall assist with patient care or other duties as assigned by the Engine Officer.

BATTALION CHIEF

The Battalion Chief shall assume Command through dispatch on arrival and attempt to communicate with the endangered MFD Company via the incident scene talk group. The Battalion Chief should then speak with the supervisory MPD officer to determine the actions underway and how MFD personnel can be of assistance. Additional suppression and/or EMS units should be requested as needed and staged appropriately until the scene is deemed safe. Car 3 should be notified of the circumstances when safely able and professional services (Peer Support, EAP) should be considered.
31.0 – TREF (Tree Fire)

Units Dispatched: E

**GENERAL**

*TREEF (Tree Fire)* responses are dispatched when the caller reports a smoke or fire condition at the base or upper portions of a tree. Tree fires can occur any time of year but occur primarily during the spring, summer, and early fall. Weather conditions conducive to tree fires include warm temperatures, low humidity, dry conditions, and strong winds. Companies operating at a tree fire must always be mindful of current and changing weather conditions (storms, wind direction, etc.) and tree stability, as these factors can directly affect firefighter safety and the success of the fire attack.

MFD engine companies must be diligent with their size-up to determine that the tree fire was not caused by electrical current from a downed power line. In this case, call for WE Energies-Electric to secure the power before initiating extinguishment and set up a safe perimeter, protecting nearby exposures, until the power is confirmed secure by WE Energies personnel.

If not electrical in origin, most tree fires tend to start from burning rubbish or embers, either by incendiary or accidental means, including carelessness with ignition materials, flying embers from a barbecue or campfire, or in rare cases a lightning strike. If the fire is actively spreading to, or a result of, ground vegetation, follow the *GRASS (Grass Fire)* guidelines.

The most effective extinguishing agent for a tree fire is copious amounts of water from a hose line, once electricity is confirmed as a non-issue. The dense wood involved has a tendency to hold heat for a long period of time and may reignite if not sufficiently cooled.

**ENGINE**

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE with SCBA, portable radio, flashlight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Incident Command</td>
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<table>
<thead>
<tr>
<th>HEO</th>
<th>Tools: Full PPE, portable radio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Engine and pump operations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOZZLE</th>
<th>Tools: Full PPE with SCBA, portable radio, axe, hoseline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Nozzle and hoseline operations as needed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BACKUP</th>
<th>Tools: Full PPE with SCBA, portable radio, pressurized water extinguisher, drag forks and shovels as needed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duties: Hose control, extinguisher operation as needed</td>
</tr>
</tbody>
</table>
Upon arrival, the Engine Officer should take command and immediately size-up the nature and extent of the tree fire. Evaluation of possible exposures, the optimal knockdown method, the safest and most effective initial attack point, possible refuge points, the need for additional resources, and available water supply must occur quickly and be communicated to the Engine Company members. The Engine Officer should also examine for possible causes that might pose a hazard to operating members, such as electrical wires, evidence of accelerants, and tree instability. If a nearby building or vehicle is already involved or becomes involved after arrival, follow the operating guidelines respective to the new fire situation: FULL (Structure Fire) or AUTO (Auto Fire). The Engine Officer should ensure that the Engine HEO positions the rig to support the safest and most effective firefighting operation.

If, based on fire conditions upon arrival, the Engine Officer anticipates needing over ½ of the 500 gallon onboard water tank, a special call should be made for an additional Engine Company, unless the Engine HEO has secured a hydrant. A special call for an aerial or tower ladder may also be considered.

The Engine HEO should position the rig to support the operational plan of the Engine Officer. If possible, the Engine HEO should position to connect to a hydrant. The Engine HEO should not drive the apparatus out onto soft ground, regardless of wind direction and direction of approach. If the wind shifts, the apparatus could become an exposure as well as bogging down in mud from runoff firefighting water.

The Nozzle FF should begin a hose stretch as directed by the Engine Officer. In the event that a hose stretch is ordered, be sure to stretch enough hose to cover not only the burning tree, but as much of the surrounding grass or brush area as possible. The Nozzle FF should wet down unburned areas adjacent to the burned-out area, as embers that have not yet sparked a visible fire may have traveled to those areas on the convective currents.

The Backup FF is responsible for completing the hose layout, dressing the hose for use in the operating area, and supporting the Nozzle FF throughout the operation. For very small, localized grass fires at the base of a tree, the Backup FF can carry and use the pressurized water extinguisher to suppress the fire. After knockdown, the Backup FF can employ the pressurized water extinguisher, shovel(s), and/or drag forks to assist in overhauling the area.

If tree stability is a concern after fire extinguishment has occurred, notify the Forestry Department via dispatch to cut down the tree.
**MILWAUKEE FIRE DEPARTMENT**  
Operational Guidelines  

Approved by: Chief Mark Rohlfing  

2012  

**32.0 – WATER (Water Leak)**  

Units Dispatched: *(T or R) or E*  

### GENERAL  

**WATER (Water Leak)** assignments are dispatched any time a caller reports what they feel to be a damaging water leak impinging on or inside their place of business or residence. Water leaks can occur for a variety of reasons affecting numerous water appliances within a structure. These incidents have the potential to create loss of property use due to structural damage and/or health concerns (mold, mildew, bacteria), resulting in temporary or permanent displacement of occupants and the shutdown of business operations. Electrical components and wires being exposed to water can create a fire hazard, as well as an electrocution hazard. Shorted electrical circuits can cause sparks that can easily set fire to insulation, wood, and drywall. As soon as the leak has been found, the power should be shut off to the affected portion of the structure to reduce the risk of fire and electrocution.

Water leaks typically require a thorough investigation to pin down the source of the leak. This investigation may be simple or extremely difficult, based on the size and occupancy of the building and the information obtained. The first piece of the on scene investigation is to figure out if the leak is originating from an interior pipe/appliance or if water is entering the structure via the exterior (roof/foundation). Water entering from the exterior can be the result of rainfall, flooding, clogged gutters, an operating residential hose, a swimming pool leak, underground pipe corrosion/failure, or any other condition. The goal for personnel is to try to figure out the cause and mitigate the emergent situation as able and then refer the owner/occupant to a “proper authority” for repair.

Water leaks originating from the interior can be difficult to pinpoint without valid owner/occupant information. Blocked drains, icemakers, water heaters, humidifiers, faucets, toilets, washing machines, dishwashers, and plumbing pipes (cracked, deteriorated, or frozen) are all potential points of consideration. Again, the goal for personnel is to try to figure out the cause and mitigate the emergent situation as able and then refer the owner/occupant to a “proper authority” for repair.

The quickest and most effective initial mitigation technique with a substantial water leak of unknown origin inside an occupancy is to simply shut down the main water supply to the structure and safely secure the electrical to the affected area(s) of the structure. The main water supply will usually have a shutoff valve *(hand wheel)* near the water meter and be located in the basement on the street side of the building. It is essential to fully open at least one cold water discharge as low as possible within the structure (such as a utility sink) after shutting down the main water supply. This action will relieve the pressure from the water lines and fully drain any stagnant water still in the lines, stopping the damaging loss of water at the leak site.

A better and more professional alternative, if quickly able, is to locate the cause of the leak and shut down the isolation valve (if equipped) to the leaking pipe/appliance. It is a safe
practice to first isolate and shut down any electrical (circuit breaker) and/or gas feed to the leaking appliance. Work with knowledgeable owners/occupants or business maintenance staff to expedite this process.

The shutoff valves in multiple dwelling and commercial buildings can be found in unpredictable locations, often requiring the assistance of building maintenance or management staff. MFD companies should not indiscriminately shut down valves in these larger structures. The source pipe or affected occupancy needs to be located to limit disruption to other occupants and/or commercial processes. MFD companies should practice good salvage operations, including capture or diversion of water flow, until the situation is controlled in order to limit the damage.

If an exterior sprinkler system alarm gong is activated, forcible entry is indicated. This indicates a positive waterflow somewhere in the system, the most serious cause of which would be a sprinkler head activated due to a fire. As you are investigating, listen and feel sprinkler risers as you pass them; often, you can hear a humming sound and feel a vibration if the riser is flowing water. This will help you locate and isolate the location of the activated sprinkler(s). Although you can certainly shut down the flow of water from a sprinkler head, using door chocks or sprinkler tongs, never shut down the building’s sprinkler system in full.

The company officer shall make the determination if the structure is safe to reoccupy once the situation has been mitigated. WE Energies Electric and/or Gas must be notified if any power is shut down. If there is a question regarding the structural integrity of a building due to the added weight of the water, the Department of Neighborhood Services (DNS) should be notified. Similarly, the Milwaukee Health Department must be notified anytime water has leaked onto food or beverage items meant for resale. If it is determined that a malicious release of water has occurred resulting in damage to property or commercial processes, request the Milwaukee Police Department (MPD) to investigate further. Finally, if the source of water cannot be located or shut down by MFD personnel, request a response from Milwaukee Water Works.

**TRUCK**

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE, portable radio, flashlight, halligan tool</th>
<th>Duties: Assume Command and investigate, water flow diversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEO</td>
<td>Tools: Full PPE, portable radio, axe, 6’ pike pole, squeegee</td>
<td>Duties: Investigation, Water shut off, Electrical shut off</td>
</tr>
<tr>
<td>VENT</td>
<td>Tools: Full PPE, portable radio, axe, sprinkler kit, 10’ pike pole</td>
<td>Duties: Investigation, Water shut off</td>
</tr>
<tr>
<td>FORCE</td>
<td>Tools: Full PPE, portable radio, toolbox, flathead axe, salvage cover</td>
<td>Duties: Investigate with officer, Force entry as needed, water flow diversion</td>
</tr>
</tbody>
</table>

Operational Guidelines
WATER (Water Leak)
The Truck Officer will assume Command and report conditions and needs on the dispatch talk group. The Officer shall attempt to make contact with the caller or maintenance staff regarding the nature and location of the water leak and to gain access into the structure. In cases where no keyholder is available and the building is secured, attempts should be made to locate a KnoxBox to access the interior (check the run sheet for KnoxBox information). If no keyholder is available or the structure is vacant, and water can be heard or seen flowing into or within a structure, forcible entry is indicated. Any time access to a building is obtained via forcible entry, request “10-53 for forcible entry” via MFD Dispatch, so that the Milwaukee Police Department can secure the building upon our departure. Further, if on arrival, evidence of a break-in is found, use caution and request 10-53 for investigation.

The Truck Officer will investigate with the Force FF to find the source of the leak and, if able, shut down the isolation valve to the source pipe/appliance. The Officer will communicate with the Truck HEO via the incident scene talk group if more specialized tools are required or if the main water supply needs to be secured. The Officer should not hesitate to special call for additional MFD companies as needed to assist in the investigation, mitigation, or property conservation of larger buildings.

The Truck HEO will operate as directed by the Truck Officer. The HEO may be tasked with securing the electric and finding the main water supply shutoff (usually in the basement on the street side of the building), communicating with the Officer to determine whether to secure the main water supply. The Truck HEO may also be sent with the Vent FF to investigate the leak/damage on the floor(s) below the source location and to begin salvage operations, including capture or diversion of water flow.

The Vent FF will operate as directed by the Truck Officer. The Vent FF may be assigned to travel with the HEO to find (and secure?) the main water supply shutoff or for investigation and salvage operations on the floor(s) below the source location. The Vent FF could also be assigned to stop a flowing sprinkler head utilizing sprinkler tongs and wedges.

The Force FF will operate as directed by the Truck Officer. The Force FF will usually be assigned to investigate with the Officer for the leak source and mitigate as able. The Force FF may be directed to shut down the isolation valve to the source and/or salvage operations, including capture or diversion of water flow and protection of personal belongings (moving or covering).

Once the water leak is controlled, overhaul operations may be indicated to determine the extent of and to prevent further damage.

<table>
<thead>
<tr>
<th>ENGINE</th>
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<tr>
<th>OFFICER</th>
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</thead>
<tbody>
<tr>
<td><strong>Tools:</strong> Full PPE, portable radio, flashlight, halligan tool</td>
</tr>
<tr>
<td><strong>Duties:</strong> Assume Command and investigate, water flow diversion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tools:</strong> Full PPE, portable radio, axe, 6’ pike pole, squeegee</td>
</tr>
<tr>
<td><strong>Duties:</strong> Investigation, Water shut off, Electrical shut off</td>
</tr>
</tbody>
</table>

Operational Guidelines
WATER (Water Leak)
The Engine Officer will assume Command and report conditions and needs on the dispatch talk group. The Officer shall attempt to make contact with the caller or maintenance staff regarding the nature and location of the water leak and to gain access into the structure. In cases where no keyholder is available and the building is secured, attempts should be made to locate a KnoxBox to access the interior (check the run sheet for KnoxBox information). If no keyholder is available or the structure is vacant, and water can be heard or seen flowing into or within a structure, forcible entry is indicated. Any time access to a building is obtained via forcible entry, request “10-53 for forcible entry” via MFD Dispatch, so that the Milwaukee Police Department can secure the building upon our departure. Further, if on arrival, evidence of a break-in is found, use caution and request 10-53 for investigation.

The Engine Officer will investigate with the Backup FF to find the source of the leak and, if able, shut down the isolation valve to the source pipe/appliance. The Officer will communicate with the Engine HEO via the incident scene talk group if more specialized tools are required or if the main water supply needs to be secured. The Officer should not hesitate to special call for an MFD Truck as needed to address forcible entry issues or to assist in the investigation, mitigation, or property conservation of larger buildings.

The Engine HEO will operate as directed by the Engine Officer. The HEO may be tasked with securing the electric and finding the main water supply shutoff (usually in the basement on the street side of the building), communicating with the Officer to determine whether to secure the main water supply. The Engine HEO may also be sent with the Nozzle FF to investigate the leak/damage on the floor(s) below the source location and to begin salvage operations, including capture or diversion of water flow.

The Nozzle FF will operate as directed by the Engine Officer. The Nozzle FF may be assigned to travel with the HEO to find (and secure?) the main water supply shutoff or for investigation and salvage operations on the floor(s) below the source location. The Nozzle FF could also be assigned to stop a flowing sprinkler head utilizing wedges.

The Backup FF will operate as directed by the Engine Officer. The Backup FF will usually be assigned to investigate with the Officer for the leak source and mitigate as able. The Backup FF may be directed to shut down the isolation valve to the source and/or salvage operations, including capture or diversion of water flow and protection of personal belongings (moving or covering).

Once the water leak is controlled, overhaul operations may be indicated to determine the extent of and to prevent further damage.
Units Dispatched: *(T or R)* or E

**GENERAL**

*Wires (Wires Down)* assignments are dispatched when a caller observes wires down or detached from a pole. These downed wires may be reported by the caller as seemingly stable, sparking, arcing, or smoking. The *Wires* assignment will also be dispatched if the caller reports that a tree has fallen on or is impinging upon overhead utility wires.

The potential safety impact upon civilians and responders should be emphasized at this type of response. These incidents are extremely hazardous due to the electrical hazards present. Complacency can prove fatal. It is important to treat all downed wires as energized until proven otherwise by WE Energies-Electric personnel.

It is acknowledged that not all wires affixed to utility poles are electrical wires. There are several utility services that utilize these poles for their service wires, including cable, telephone, and internet. It is generally accepted that the higher a wire is placed on the pole, the higher the “juice”; however it is nearly impossible to determine with great certainty if a seemingly harmless wire is touching an electrical wire somewhere down the line.

The preferred tactic is to stay away from any downed wire and assume it is energized. Keep the scene safe and set up an appropriate perimeter to keep other personnel and the public away. Power lines tend to have “reel memory” and may curl back or roll on itself unexpectedly when down. A proper safety perimeter is typically two full spans between poles. Early notification of WE Energies-Electric (utility poles) or the City of Milwaukee Electrical Services (street light or stop light poles), if not already responding, is a must. A cable TV wire can be charged if a higher voltage wire is in contact with it down the line. A wire in contact with a fence can charge the entire fence. Just because you cannot see a live wire touching a cable wire or a metal fence does not mean that contact is not being made at a location that is out of your view.
Electricity always seeks the path to lowest level or “ground”. It will travel any path that it can as it seeks this ground. A direct path to ground is made when an energized wire makes contact with a portion of your body. An indirect path to ground occurs when you are holding something or touching an object that is in contact with an energized wire. This could include tools or other equipment you may be holding or when touching a fence, vehicle, or any other object that is in contact with something that is energized.

Another consideration is “step potential”. A high voltage wire in contact with the ground, especially in wet conditions, can energize the ground with a current that is proportional to the distance from the wire. The voltage will lessen as the distance from the downed wire increases. If your feet are in areas where there is a voltage difference, you could complete the circuit and become the source to ground, resulting in electrocution.

A storm with high winds or heavy snow can result in a number of wires down in an area or throughout the community. Snow conditions tend to mask the presence and scope of the downed wire problem. Continue to be vigilant toward safety with each of these responses, setting up a proper perimeter with the assistance of additional MFD units, if needed, or MPD personnel. Practice patience with utility company response time in these events, as there may be multiple similar incidents taking place.

Electrical overhead lines in the City of Milwaukee are often placed to the rear of residential structures. These energized wires can fall onto trees, garages, automobiles, fences, or homes and create an extremely hazardous environment, including sparking a fire to the contacted object. Recognition and situational awareness are the keys to safety. Follow the operational guidelines respective to the new fire situation, using great caution relative to the consideration that the building or vehicle may be energized. Update WE Energies-Electric via dispatch of the need for an upgraded response.

If upon investigation, a transformer or utility pole is found to be on fire, follow the POLEF (Pole Fire) operational guidelines.

In all cases, and **ONLY IF IT IS SAFE TO APPROACH** to gather this information, gather the utility tag information from any impacted or related utility poles. The tag styles and what they represent are shown below:

![TAG STYLE for WOODEN POLES](image1)

![TAG STYLE for NON-WOODYEN POLES](image2)
This information, and similar information, may sometimes be gathered from light poles as well. We Energies' labeling system indicates the following:

![POLE LABELING SYSTEM]

There may also be a smaller tag containing a 3-digit number affixed below the larger tag.

![POLE DIMENSIONS]

**TRUCK**

<table>
<thead>
<tr>
<th>OFFICER</th>
<th>Tools: Full PPE, portable radio, flashlight, TIC, halligan tool</th>
<th>Duties: Incident Command, investigation, safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEO</td>
<td>Tools: Full PPE, portable radio, flashlight</td>
<td>Duties: As directed by Officer</td>
</tr>
<tr>
<td>VENT</td>
<td>Tools: Full PPE, portable radio, flashlight, 6' pike pole</td>
<td>Duties: As directed by Officer</td>
</tr>
<tr>
<td>FORCE</td>
<td>Tools: Full PPE, portable radio, multi-purpose dry chemical extinguisher, flathead axe</td>
<td>Duties: Investigate with Officer, Force entry as needed</td>
</tr>
</tbody>
</table>

Upon arrival, the Truck Officer should take command and immediately size-up the situation, reporting conditions and needs on the dispatch talk group. The Officer should set up a safety perimeter of two utility poles in each direction and examine for additional hazards to operating members and the public, including fire and/or the possible energizing of objects. If a nearby building, vehicle, or transformer is already involved or becomes involved after arrival, follow the operational guidelines respective to the new fire situation. Use great caution relative to the consideration that the building or vehicle may be energized and update We Energies-Electric via dispatch of the need for an upgraded response.

The Truck Officer should ensure that the Truck HEO positions the rig to help establish the safety perimeter - parked well out of the way of any downed wires or electrical fire hazards. If on a roadway or in a parking lot, the Truck HEO shall use the rig as a barrier and place...
traffic cones to alert vehicles to the change in the traffic pattern or to shut down the roadway entirely. If the downed wire is in an alleyway, the apparatus can be positioned to block access into the alley, provided the location is outside the hazard zone. Special call for MPD or additional MFD units to assist in establishing the safety perimeter if needed.

The Vent FF will assist in setting up the safety perimeter as directed by the Truck Officer. If indicated, the Vent FF may be directed to check contacted objects or structures for fire using great caution relative to the consideration that the building or object(s) may be energized.

The Force FF will investigate with the Truck Officer and will assist in setting up the safety perimeter as directed, potentially using caution tape. The Force FF may be directed to extinguish resultant exposure fire with the dry chemical extinguisher or to force entry, if necessary, into a contacted structure.

In the event a power line has fallen onto an occupied automobile, have the occupant stay fully inside the vehicle. If the occupant(s) must leave the vehicle, due to fire or other immediate threat to life, instruct them to open the door and jump free of the vehicle without touching the vehicle and the ground at the same time. **Department personnel shall never move, touch, or cut wires down.**

<table>
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<tr>
<th>OFFICER</th>
<th>Tools: Full PPE, portable radio, flashlight, TIC, halligan tool</th>
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<tr>
<td></td>
<td>Duties: Incident Command, investigation, safety</td>
</tr>
<tr>
<td>HEO</td>
<td>Tools: Full PPE, portable radio, flashlight</td>
</tr>
<tr>
<td></td>
<td>Duties: As directed by Officer, Pump operations as needed</td>
</tr>
<tr>
<td>NOZZLE</td>
<td>Tools: Full PPE, portable radio, flashlight, 6’ pike pole</td>
</tr>
<tr>
<td></td>
<td>Duties: As directed by Officer</td>
</tr>
<tr>
<td>BACKUP</td>
<td>Tools: Full PPE, portable radio, multi-purpose dry chemical extinguisher, flathead axe</td>
</tr>
<tr>
<td></td>
<td>Duties: Investigate with Officer, Force entry as needed</td>
</tr>
</tbody>
</table>

Upon arrival, the Engine Officer should take command and immediately size-up the situation, reporting conditions and needs on the dispatch talk group. The Officer should set up a safety perimeter of two utility poles in each direction and examine for additional hazards to operating members and the public, including fire and/or the possible energizing of objects. If the transformer, or a nearby building or vehicle, is already involved or becomes involved after arrival, follow the operational guidelines respective to the new fire situation. Use great caution relative to the consideration that the building or vehicle may be energized and update WE Energies-Electric via dispatch of the need for an upgraded response.

Operational Guidelines
WIRES (Wire Down)
The Engine Officer should ensure that the Engine HEO positions the rig to help establish the safety perimeter. Special call for MPD or additional MFD units to assist in establishing the safety perimeter if needed.

The Engine HEO should position the apparatus to begin establishment of a safety perimeter, parked well out of the way of any downed wires. If on a roadway or in a parking lot, the Engine HEO shall use the rig as a barrier and place traffic cones to alert vehicles to the change in the traffic pattern or to shut down the roadway entirely. If the downed wire is in an alleyway, the apparatus can be positioned to block access into the alley, provided the location is outside the hazard zone.

The Nozzle FF will assist in setting up the safety perimeter as directed by the Engine Officer. If indicated, the Nozzle FF may be directed to lay a hose line to extinguish fire once an object has been confirmed as de-energized.

The Backup FF will investigate with the Engine Officer and will assist in setting up the safety perimeter as directed, potentially using caution tape. The Backup FF may be directed to extinguish resultant exposure fire with the dry chemical extinguisher or to force entry, if necessary, into a contacted structure.

In the event a power line has fallen onto an occupied automobile, have the occupant stay fully inside the vehicle. If the occupant(s) must leave the vehicle, due to fire or other immediate threat to life, instruct them to open the door and jump free of the vehicle without touching the vehicle and the ground at the same time. Department personnel should never move, touch, or cut wires down.
GENERAL

The Milwaukee Fire Department has an agreement with surrounding suburban fire departments to mutually provide an efficient and excellent level of emergency protection based on the belief that emergency responses should receive the closest, most appropriate resources regardless of jurisdictional boundaries.

COMMUNICATIONS

Through rigorous testing and radio system analysis, a Shared Services Communication plan was created. This plan allows for incorporation of all the other participating department’s radios with ours. The plan (see attachment 34.1) has MFD units utilizing each suburban jurisdiction’s dispatch center (within Profile 15) and 8TACRED (selector B or C-channel 1) for communication on out of city responses. Suburban units coming into Milwaukee will communicate directly with the Incident Commander on the assigned MFD fire ground talk group through the ISSI gateway. Patching to MCFIRE2B through MCFIRE5B (formerly FireComs 2-5) will only be utilized as requested by the IC.

- MFD P1/TG2, P2/TG2, P3/TG2, P4/TG2, and P13/TGs2-6 are pre-programmed on the County OASIS radios.

All MFD units are to utilize their xMobile as appropriate – enroute, arrived, returning, etc. Also announce on the host jurisdiction’s dispatch frequency (within Profile 15) that you are responding and when you arrive on scene.

Example on P15/TG8:

“North Shore Dispatch from Milwaukee Engine 37, we are enroute”
“North Shore Dispatch from Milwaukee Engine 37, we are on scene”

As you approach the incident scene, turn your radio to 8TACRED (selector B or C-channel 1) and announce to the IC that you are on scene awaiting assignment.

COMMAND

The agreement states that Milwaukee Fire Department units will respond as requested to contiguous jurisdictions for emergency calls for service. Participating agencies will also send units into Milwaukee as requested. Additional or specialized equipment and resources will be shared and available on special request.

Upon arrival at an incident in another municipality, the Company Officer will report to the incident commander for assignment. The Milwaukee unit Officer or Battalion Chief will meet face to face with the incident commander (when possible) and assist as needed or requested. Those companies coming into Milwaukee will do the same.
If a Milwaukee apparatus is first on scene in another jurisdiction, the Officer is to establish command and give an initial size-up report on the host jurisdiction’s dispatch frequency (within Profile 15). The Milwaukee Officer will develop the strategy and assign tasks as appropriate using MFD protocols and following the appropriate MFD SOG. Upon arrival of the host jurisdiction’s Chief Officer, the MFD Officer will transfer command, same as you would when a Milwaukee Chief Officer arrives in our city. After assuming command, the IC will support your existing Incident Action Plan, unless the plan is proving ineffective or unsafe, in which case the IC will redirect you into a position of safety before changing the strategy.

The host agency, having legal responsibility within its jurisdiction, will have full command authority upon their assumption of command. Assisting agencies will function under the direction of the Incident Commander appointed by the authority having jurisdiction (AHJ). The initial incident commander shall remain in command until command is transferred or the incident is stabilized and command is terminated. All incoming units and command officers will report to the IC for assignment and carry out the given assignment as directed.

Attachment 34.2 contains terminology to be utilized in size-up reports, follow up reports and C.A.N. (Conditions, Actions, Needs) reports. This terminology is consistent with local MABAS and federal NIMS guidelines.

**SAFETY**

The safety and accountability of all personnel operating at any emergency scene is the paramount responsibility and concern for the incident management team, regardless of jurisdiction. All working fire incidents will include a National Fire Academy certified Incident Safety Officer and a dedicated Rapid Intervention Team for the safety of operating personnel. Attachment 34.3 shows the ISO Operational Checklist.

A Command/Accountability Board (see attachment 34.4) was developed, and will be utilized by all Shared Services communities to ensure consistency in command priorities and accountability in tracking of personnel. Rigid Command Boards of various sizes are placed in all Battalion Chief vehicles, as well as in Car 3, Car 2C, Car 18, the Incident Command Post, and all BC staff vehicles.

Rehab, EMS, and Staging procedures will be in accordance with the host jurisdiction’s protocols.
Example Shared Service request outbound from Milwaukee to St. Francis

| Responding:       | P15/TG9 | "St Francis Dispatch from Milwaukee Engine; Milwaukee Engine 7 responding to the City of St Francis"
|                  |         | “St Francis Dispatch from Milwaukee Engine 7 requesting incident update”
| Arriving on scene: | P15/TG9 | "St Francis Command, Milwaukee Engine 7 on scene"
|                  | TACRED  | Monitor assigned Fire ground channel for further assignment - 8TACRED
| Operating on scene: | TACRED | Operational crews - operate on TACRED
|                  |         | Driver/HEO - portable on TACRED
|                  |         | - Rig Radio – OCFDDIS1 (P15/TG9)
|                  |         | Command Staff - operations on TACRED
|                  |         | - Monitor OCFDDIS1 (P15/TG9) for staging |
The Incident Command System (ICS) is a set of personnel, policies, procedures, facilities, and equipment integrated into a common organizational structure and designed to improve emergency response operations of all types and complexities. ICS is designed to be used or applied from the time an incident occurs until the need for operational management no longer exists.

The ICS basic goals of clear communication, accountability, and efficient use of resources are important, not only to incident and emergency management, but also to routine daily operations.

The ICS is designed on the premise that the authority of the agency having jurisdiction (AHJ) will not be compromised. Assisting agencies will function under the direction of the Incident Commander (IC) appointed by the AHJ.

The ICS is designed to expand and contract organizationally based upon the needs of the incident and according to span-of-control recommendations.

The principles and framework of ICS should be used at both incidents and events.

- **Incidents** are defined within ICS as unplanned situations necessitating a response.
- **Events** are defined within ICS as planned situations, such as concerts, parades, ceremonies, fairs and other gatherings, dignitary visits, and training exercises.

The Milwaukee Fire Department Incident Management Plan is NIMS compliant and is compatible with the operational and communications plans of MABAS Division 107.

This Incident Management Plan is based on the eight functions of command, which define standard activities performed by the Incident Commander to achieve standard tactical priorities:

1) Organization
2) Scene Size up (Situation Evaluation)
3) Strategy and Incident Action Plan
4) Establishing Command
5) Communications
6) Transfer of Command
7) Deployment
8) Review, Evaluation, and Revision
Types of Incident Command

Single Incident Commander

Most incidents involve a single IC, meaning that one individual commands the incident response, manages overall strategy, establishes tactical objectives, and serves as the final decision-making authority. The implementation of operational control becomes the responsibility of a single individual (Operations Section Chief) who reports directly to the Incident Commander.

Unified Command

Unified Command involves two or more individuals sharing the authority of Command. A Unified Command typically includes a command representative from multiple involved agencies and/or jurisdictions who act as a single entity within a single Incident Command Post (ICP) and according to a single Incident Action Plan (IAP). Under Unified Command, a single Operations Section Chief will be appointed and will report directly to Command.

Area Command

During multiple-incident events that involve a large geographic area (i.e. tornado, civil disturbance, etc.), an Area Command may be established to provide for Incident Commanders at separate locations, all of whom report to a single Area Commander in an Emergency Operations Center.

Key Concepts of ICS:

Unity of Command: Each individual participating in the operation reports to only one supervisor. This eliminates the potential for individuals to receive conflicting orders from a variety of supervisors, thus increasing accountability, preventing freelancing, improving communications, and enhancing operational safety.

Common terminology: The use of common terminology is an essential element to cohesion and effective communications, both internally and with other responding organizations.

Management by Objective: Incidents are managed by aiming toward specific objectives, which are ranked by priority. Objectives are accomplished by first outlining the strategy (plan of action), and then selecting appropriate tactics (how the strategy will be executed).

Flexible and modular organization: Incident Command structure is organized in such a way as to expand and contract as necessary based on the incident scope, available resources and hazards encountered. Command is established beginning with the first arriving unit.

Only required positions should be established. In most cases, only a few positions within the command structure will need to be activated/delegated. During large or complex operations the incident command structure will expand until, potentially, the full ICS organization is staffed. Conversely, as an incident scales down, roles will be merged to contract the incident command structure until only the IC position remains.
Comprehensive resource management: All assets and personnel involved in an event must be tracked and accounted for at all times.

Span of Control: It is necessary to monitor carefully the number of resources that report to any one supervisor. The accepted span of control is 3-7 individuals reporting to a single supervisor, with the optimum number being 5.

Safety

The safety and accountability of all personnel operating at an emergency scene is the paramount responsibility and concern of the incident management team.

RIT - Rapid Intervention Team (RIT) personnel must be provided and dedicated to the rescue of members operating within the hazard zone at emergency incidents. RIT must remain available as long as members are operating within a hazardous or potentially hazardous environment. In the rare event that the RIT Company is reassigned to another fireground task, it must be immediately replaced.

ISO - A National Fire Academy (NFA) certified Incident Safety Officer must be assigned early in the incident. The Incident Safety Officer, who serves as a tactical safety advisor to the IC and to the Operations Section Chief must continually monitor incident conditions and evaluate tactical operations to ensure the safety of operating personnel.

ALS - An Advanced Life Support Unit (Paramedic unit) will be deployed with a principal dedication to the triage and treatment of emergency responders.

- Considered part of the RIT Task Force.

Command/Accountability Board - A Command/Accountability board will be utilized to ensure consistency in command priorities and in tracking of personnel – see Appendix B Command Board.
The ICS organization builds from the top down, with the management of all major functions initially being the responsibility of one person (IC) with functional units deployed to handle the most critical incident activities. As the incident grows in size/complexity, functional management is assigned to additional individuals in order to maintain a reasonable span of control and maintain efficiency. Additional radio talk groups may be assigned as necessary to further control communications.

Well managed incidents = Well organized incidents = Safer and effective operations.

The basic configuration of ICS includes three organizational levels:

- **Strategic Level** - Provides for overall direction of the incident
  - Incident Commander
  - Deputy Incident Commander (aide)

- **Tactical Level** - Facilitates accomplishment of operational objectives
  - Operations Section Chief
  - Branch Directors
  - Division/Group Supervisors

- **Task Level** - Accomplishes specific tactical functions
  - Company Officers
  - Crew Leaders

The strategic and tactical levels of the organization exist to support the task level - Task level activities will always be safer and more effective when managed with the proper degree of strategic and tactical level supervision.

**General Staff**

As incident operations escalate in time, size, and complexity, strategic-level responsibilities can rapidly overwhelm the Incident Commander. To avoid this overload, the incident organization may be quickly expanded by assigning section-level positions, referred to as Section Chiefs. Any responsibilities not delegated to a Section Chief will be held by the Incident Commander.

- **Operations Section** – Responsible for the direct management of all incident tactical activities, tactical priorities, and the overall safety of personnel working within the hazard zone – “Operations”.
  - Usually the first General Staff position to be established – early in the incident
  - Assigns resources to tactical level areas based on the tactical objectives and priorities
  - Coordinates tactical activities with the IC (when separate) and keeps the IC informed of the incident’s tactical progress
  - Builds an effective tactical organizational structure while monitoring the span of control. Branches, Divisions, and/or Groups may be added to help manage the span of control. For example, an EMS Branch Director may be appointed to oversee Triage, Treatment, and Transport Groups
• **Branches** are used when the number of established Divisions or Groups exceeds the Operations Section Chief's span of control and may be either geographical or functional (i.e. Law Enforcement Branch, Fire Branch, Medical Branch). Each branch will be managed by a Branch Director who reports to Operations on the incident scene talk group. Communications will preferably take place on a separately assigned and dedicated radio talk group for each branch.

  - **Divisions** are used to divide an incident geographically. Any time three or more units are assigned to a geographical location, creation of a division is recommended. Headed by a Division Supervisor who reports to the Branch Director (if established) or to Operations.
    - Interior divisions: Usually indicated by floor number (Division 6 = 6th floor)
    - Exterior divisions: Usually indicated by alpha letter identifiers, starting at the address side of the building and progressing clockwise (Alpha, Bravo, Charlie, Delta)
    - Roof division

  - **Groups** are used to describe functional operations. Any time three or more units are assigned to a function, creation of a group is recommended. Headed by a Group Supervisor who reports to the Branch Director (if established) or to Operations. Groups may operate across divisional boundaries.

By establishing effective Divisions/Groups, the Operations Section Chief retains the ability to concentrate on tactical objectives. The Operations Section Chief assigns these tactical objectives, along with appropriate resources to the Divisions/Groups. Each Division/Group Supervisor becomes responsible for the tactical deployment and accountability of their assigned resources in order to complete the assigned tactical objectives.

- **Strike Team**: A team comprised of same resources in order to carry out a specific function (i.e. four ambulances). Headed by a Strike Team Leader who reports to the Division/Group Supervisor

- **Task Force**: A team comprised of mixed resources that are assigned to carry out a specific function (i.e. Engine, Truck, MED Unit, Police car). Headed by a Task Force Leader who reports to the Division/Group Supervisor

**Industrial/Commercial Buildings** – Each exterior division should contain hazard zone workers and on deck crew(s). Additional RIT Team(s) and/or Safety Officer(s) should be considered.

- **Planning Section** – Responsible for gathering, analyzing, and processing incident information for the IC, primarily regarding the status of all resources and overall status of the incident. Particularly helpful during extended or complex incidents.
- Maintains resource status and personnel accountability
- Evaluates incident organization and span-of-control
- Anticipates and prepares for future resource requirements
- Plans for incident demobilization
- Maintains incident records

The Planning Section may be further subdivided into four Units:

- Resources Unit
- Situation Unit
- Documentation Unit
- Demobilization Unit

**Logistics Section** – Responsible for providing resources, services, and support required for the incident. Typically only established during a major incident or event; this section is developed to support on scene and future resources.

- Provides for medical evaluation and aid for incident personnel (Rehab)
- Provides for needed supplies or specialized equipment as requested by the IC (DPW, private contractors/services, other governmental resources); works with the Planning Section Chief to forecast and obtain future resource needs
- Provides communication planning and resources
- Provides fuel and needed repairs for on scene equipment
- Provides for food/drink and associated supplies
- Secures fixed and/or portable facilities as necessary

The Logistics Section may be further subdivided into two Branches and six Units:

- Service Branch: Communication Unit, Medical Unit, Food Unit
- Support Branch: Supply Unit, Facilities Unit, Ground Support Unit

**Finance/Administration** – Responsible for tracking incident costs, personnel records, and requisitions. Administers procurement contracts as required by Logistics.

- Documents all financial costs of the incident, as well as potential cost recovery options for supplies and services rendered – operational costs during a “natural disaster” may be covered under state or federal disaster declarations with proper documentation
- Documents injury claims and other financial compensation
- Reimburses external agencies for the cost of resources used
- Analyzes and manages the legal risk for the incident (i.e. hazardous material clean up) and performs an associated cost analysis
The Finance/Administration Section may be further subdivided into four Units:

- Procurement Unit
- Time Unit
- Cost Unit
- Compensation/Claims Unit

Command Staff

The IC uses support positions to delegate functional responsibilities, allowing the IC and command team to focus solely on managing resources in the hazard zone. These command staff officers assume responsibility for key functions and report directly to the Incident Commander.

- **Safety Officer** – Assesses and monitors tactical safety and identifies potential hazardous conditions, developing measures to enhance personnel safety. Staffed at predetermined emergencies and via IC discretion by an NFA-Certified ISO. Responsibilities of the Safety Officer include:
  - Serves as the tactical safety advisor to the Operations Section Chief and the IC - see Appendix A ISO Operational Checklist
  - Maintains hazard-zone personnel accountability (duplication)
  - Conducts face-to-face PARs whenever a change in strategy occurs or as directed by the IC/Operations Section Chief

- **Public Information Officer (PIO)** – Serves as the conduit of information to and from the media or other organizations seeking information directly related to the incident or event. Also responsible for informing the incident command staff as to what is being said or reported about an incident, which allows questions to be addressed and rumors to be managed, ensuring public relations issues are not overlooked.

- **Liaison Officer** – Serves as the primary contact for representatives of external agencies that are assisting at an incident.
Scene size up is a systematic process consisting of a rapid consideration of critical incident factors, which leads to the development of an Incident Action Plan. Current conditions must be evaluated and future conditions anticipated. A 360° evaluation and interaction with knowledgeable person(s) onsite are useful, if not essential, tools in the size up process.

Questions to ask at every fire incident:
- What is the potential or probable life hazard?
- What type of construction is the building?
- Where is the location of the fire?
- Is it a contents or structure fire?

Critical size up considerations:
- **Building** - Construction type, hazards, voids, layout
- **Extent and Location of fire** - Fire and smoke conditions (location & extent, smoke color, where is the fire going?)
- **Life Hazards** - Civilians and firefighters (forcible entry, search, ventilation, ladder)
- **Occupancy** - Type, hazards
- **Water supply** - Supply, hoseline size, hoseline positioning
- **Manpower** (Personnel) available
- **Equipment** available

Primary concerns by type of construction:
- **Type I** Fire Resistive: Contents
- **Type II** Non-Combustible: Unprotected steel, light-weight roof / floor assemblies, contents
- **Type III** Ordinary: (Masonry exterior, wood interior) - Void spaces, collapse of un-reinforced masonry walls
- **Type IV** Heavy Timber: (Masonry exterior, heavy timber roof / floor assembly) - Fire load, radiant heat, collapse of un-reinforced masonry walls
- **Type V** Wood Frame: (Small dimensional lumber) - Fire travel through combustible voids, exterior exposures
  - Includes newer construction – Lightweight trusses, wooden I-beams

Reading the smoke conditions:
- Volume – relative to the structure
- Velocity (pressure / speed) – Is it turbulent?
- Density
- Color
STRATEGY & INCIDENT ACTION PLAN

The Incident Command System is dependent on the IC’s ability to evaluate the situation using a risk versus benefit analysis. The IC must forecast conditions in order to produce an overall incident strategy, which becomes the basis for the Incident Action Plan (IAP).

- The IC must ask “Should we…?” instead of “Can we…?”

The IAP is the overall plan that will be used to achieve strategic goals. Strategic goals are broad in nature and are achieved by the completion of tactical objectives:

1. Provision for the safety, accountability, and welfare of operating personnel; this priority objective is ongoing throughout the incident
2. Removal of endangered occupants and treatment of the injured (All Clear)
3. Stabilization of the incident and provision for civilian life safety (Under Control)
4. Conservation of property (Loss Stopped)

Offensive Strategy: Incident conditions, based on a situation evaluation, will allow responders to make an interior attack inside the hazard zone. In structural fire situations, hand lines are extended into the fire area to support primary search and to control the fire. This is accomplished in coordination with entry and ventilation.

Offensive Strategy IAP:
- Firefighter safety
- Fire Control (under control)
- Rescue – savable, endangered occupants (all clear)
- Property conservation efforts (loss stopped)

Defensive Strategy: Incident conditions, based on a situation evaluation, indicate a hazard level that exceeds our interior operational safety capability. During defensive fire operations, large exterior fire streams are used to control the fire spread outside of an accepted perimeter. The IC concedes some property to the fire and decides where the cutoff will take place. Defensive operations must be conducted with consideration of the collapse zone.

Defensive Strategy IAP
- Firefighter safety
- Define the hazard zone
- Establish cut off points (protect exposures)
- Search exposures

Do not let personnel operate in offensive positions under defensive conditions.

- The Incident Action Plan must be continuously and critically re-evaluated
- Studies show that most serious injuries and LODDs occur approximately 12-15 minutes into the incident
ESTABLISHING COMMAND

Initial IC

ICS may be defined as a “first-on-scene” command structure. The supervisor of the first unit on scene performs a size up and initiates and announces Command, declaring an operational strategy. This initial Incident Commander shall remain in command until command is officially transferred or the incident is stabilized and terminated. The first arriving IC must accomplish the following tasks:

Perform a situation evaluation that includes a risk assessment, correctly identifying critical fireground factors. The initial IC is responsible for accomplishing a 360° investigation, either by performing the 360° personally or assigning this task to a later arriving resource.

Determine the appropriate mode of operation as dictated by the fireground factors and information received – Indecision is the worst decision. Typical modes of operation are:

- Investigative – “Stand by”
  - Light smoke showing, Nothing showing
  - 3rd Engine, 3rd Truck, Rescue, 2nd BC to hold at their point of entry into the block/area

- Offensive
  - Working Fire
  - Transitional Attack – Initial hand line attack from the exterior through a door/window in order to quickly confine the fire; followed immediately by an interior attack for final extinguishment / search and rescue.

- Defensive
  - Defensive fire conditions

Initiate, maintain, and control incident communications - transmit a brief, but effective initial radio report and assume street name command (designated by dispatch) in either a mobile or fixed (stationary) position (see Communications section for guidelines and example initial report).

- Mobile Command (Investigative, Offensive or transitional attack)
  - Applies to situations that may be stabilized by the immediate, offensive actions of the initial arriving companies, thus requiring the Company Officer IC’s direct involvement in tactical operations
  - Utilization of the portable radio will permit the Company Officer to be involved in tactical operations without neglecting initial Incident Command responsibilities
  - Transfer of Command is accomplished via radio

Operational Guidelines
INCIDENT MANAGEMENT PLAN
- Fixed Command (Defensive attack)
  - Applies to situations that require immediate command and coordination due to the size, complexity, or potential for rapid expansion of the incident.
  - Company Officer IC will assume an exterior, fixed command position and maintain that position until the arrival of a Command Officer (BC or Car 18).
    - Company members may be assigned exterior tactical functions (large diameter hose, deck/deluge gun, water tower setup, etc.).
    - Transfer of command is accomplished via face-to-face communication.

Manage the initial deployment in regards to position and function to support your IAP. Clearly communicate as “Operations” to arriving units, giving each a task, location, and objective.

Make an initial resource determination and call for additional resources if needed (see Communications section for guidelines and an example follow up report).

Continuously monitor your IAP, critically weighing its merit against changing incident conditions and further information received – this may dictate that the Company Officer IC make an unpopular decision to enhance the safety of operating personnel.

Communicate critical information in the LCAN format to a fixed, exterior Incident Commander to effectively transfer command at the earliest opportunity during the incident – to the 1st arriving Truck or Rescue Officer.
COMMUNICATIONS

One of the most common system failures at any emergency incident is the communication system.

It is essential that message recipients paraphrase messages received via radio to ensure understanding.

The IC/Operations Section Chief must initiate and maintain communications using common terminology - see Definitions.

The IC/Operations Section Chief is only effective to the extent that he/she can transmit clear, simple, and understandable objectives and receive the critical information necessary to enhance his/her decision-making ability.

- Communications with Dispatch – Should only come from “Command”
- Incident Scene Communications - Should focus on locations, assignments, completion (or non-completion) of tactical objectives, and firefighter safety

**First-in report guidelines:**

1) Announce arrival on scene and assume street name Command as assigned by dispatch

2) Give a description of the problem – with location if known
   - Nothing showing…
   - Smoke showing…
   - Working fire…
   - Defensive fire conditions…

3) Give a description of the building/area
   - Height in stories
   - Occupancy – single family dwelling, duplex dwelling, apartment building/complex, commercial, industrial, etc.
     - Add descriptor if known (“Panera Bread”, “Middle School”)
   - Type of construction – additionally communicate exposed trusses or modern, lightweight construction

4) Action being taken – Initial IAP (Task, Location, Objective)

5) Declaration of the strategic mode (Investigative, Offensive, Defensive)

6) Resource determination (need for additional resources or de-escalation)

**Offensive:**

- “*Engine 13 on scene as Main Street Command. We have a working fire on the first floor of a two story occupied wood frame dwelling; we are utilizing a tank operation and stretching an 1 ¾” handline to the Delta side for an offensive fire attack on the first floor.*”
Defensive:
- “Engine 13 on scene as Main Street Command. We have defensive fire conditions in a well involved single story warehouse with exposures to the Delta side. Engine 13 has self-supplied and will be attacking the fire with a deck gun.”

Single Company incident:
- “Engine 13 on scene as Main Street Command. We have a dumpster fire in a middle school parking lot with no exposures. Engine 13 can handle.”

Follow-up report:
Used as necessary to provide additional information not included in the initial report:
1) Results of the 360° or inability to complete a 360°
2) Main problem location (if different from the initial report)
3) Changes to the initially communicated IAP
4) Immediate safety concerns
5) Number of stories from the rear (if different)
6) Basement checked and type if atypical (walk out / exposed)
7) Observed rescue needs / credible report of person(s) trapped

Example:
- “Main Street Command to Dispatch with a follow-up report”
- “360° complete. Confirmed 1st floor fire with no basement involvement. Resident reports all occupants are out and accounted for. Engine 13 will be mobile command.”

Progress Reports:
LCAN Reports (Location, Conditions, Actions, Needs) allow the Operations Section Chief to continually track the position, function, and needs of operating companies.

The LCAN Report format should be used to communicate key benchmarks (i.e. water on the fire, knockdown complete, primary search all clear, ventilation complete, etc.) and/or the inability to complete tactical objectives. Benefits of the LCAN Report format include:
- Provides information about what is happening in one part of the incident to all other units and to the Operations Section Chief, giving all personnel on scene a comprehensive representation of the scene
- Formulating the report assists the person giving the report to develop a complete awareness of their situation and what they need to accomplish their task
- Allows the Operations Section Chief and the IC an accurate representation of conditions so that “Operations” can determine if the incident is expanding or contracting, and if additional resources will be required
• Assists the Operations Section Chief and the IC with accountability of resources working within the hazard zone

Emergency Traffic:

Phrase used by anyone on the fireground with an essential radio transmission in order to communicate a potential or imminent threat to life safety. All other radio traffic must cease while the reporting member transmits his/her emergency message. This phrase will also be used by “Operations” to communicate the following directives:

• Withdraw from the building: Phrase used when hazard zone workers are believed to be in EVENTUAL danger if a strategic change is not made soon. The Operations Section Chief will coordinate the backing out of lines and equipment using a systematic top-down approach to provide protection for evacuating crews until the evacuation is complete
  ➢ Change in strategy
  ➢ Safety Officer to conduct and report PARs

• Abandon the building: Phrase used when hazard zone workers are believed to be in IMMINENT DANGER. Interior operating crews are to get out of the building in any way necessary and as quickly as possible
  ➢ Activation of air horns in short blasts for 30 seconds
  ➢ Safety Officer to conduct and report PARs

Mayday:

Phrase used only when firefighters find themselves or other firefighters lost, trapped, disoriented, missing or otherwise in imminent danger and in need of assistance during hazard zone operations. A Mayday transmission will serve to clear the fire ground talk group so that the Operations Section Chief or Incident Commander can communicate solely with the member(s) in distress or reporting a Mayday. Mayday messages should contain the following information:

• “Mayday, Mayday, Mayday” and unit identification
• Location
• Problem
• Actions being taken

In a Mayday situation, the affected member shall activate the orange Emergency button on their radio (or microphone) to ensure the Mayday message takes communication priority.
TRANSFER OF COMMAND

Command is transferred during an incident due to the need for a more qualified and/or better positioned IC to control the incident as it expands in complexity and resource commitment. The reverse is also true: As the scope of an incident contracts, command should be transferred back down to free up specialized resources for other tasks or incidents.

Command shall be transferred whenever doing so will improve the quality of the ICS organization. The goal is to have an IC in a fixed, exterior position at the earliest opportunity during the incident.

The initial IC should transfer command to a later arriving company officer prior to the arrival of a command officer when such action will transfer command from a mobile to a fixed, exterior position.

**Standard procedure:** An initial IC (Engine CO) operating as mobile command (Investigative mode, Offensive mode) shall transfer command upon the arrival of the first due Truck or Rescue Company. The mobile IC will brief the fixed IC via radio using the LCAN format to effectively transfer command. The transfer of command between company officers shall occur only once before command is assumed by a command officer.

- The Truck or Rescue Officer assuming command will maintain a fixed, exterior position and will manage the tactical activities of the initial deployment until the arrival of a Command Officer (Chief Officer or Car 18). The Truck or Rescue Company Officer may deploy the rest of their crew at their discretion based upon conditions and needs. Every effort must be made to utilize the paper form of the Incident Command Board – see Appendix B Command Board

- If based on a particular incident’s requirements the initial IC (Engine, Truck, or Rescue) determines that the 1st Truck or Rescue Officer will not be the ideal fixed, exterior IC, the mobile IC may transfer command to a later arriving unit as soon as possible (Rescue/1st Truck, 2nd Truck, 2nd Engine). This deviation from standard procedure must be clearly communicated via radio.

**Example:** Truck or Rescue arrives as first unit on scene with a credible report of an immediate and verified rescue need that requires not only the crew’s, but also the Officer’s involvement due to the number and location of trapped occupants and a compressed time frame for potential occupant survival. Truck operates as mobile command and will transfer command upon the arrival of the 2nd Truck or Rescue.
1st arriving Chief Officer

Assumption of Command will take place upon the arrival of the first Chief Officer. This first arriving Chief Officer shall be communicated to as “Operations” by companies operating within the hazard zone.

- Communicate with the current IC (company officer) for critical information: Locations, Conditions, Actions, Needs, and safety considerations.

- Announce the assumption and location (in an effective command position) of fixed command on the dispatch and incident scene talk group.

- Provide a follow-up report to dispatch, including current mode of operation, current activities, and assumed duration of the incident.

Make a resource determination and request additional resources if needed.

Manage the tactical activities and positions of the available resources, maintaining a tactical reserve (on-deck crews).

- Utilize the Command Board or Command Worksheet for tracking completion of the tactical objectives and the positions / functions of operating personnel – see Appendix B Command Board.

- Assign available resources in a way that supports the IAP with clearly communicated tasks, positions, and objectives; or redirect the strategy as indicated by current and anticipated conditions.

- Consider the use of divisions and/or groups to maintain span of control and effectively coordinate incident communications.

Continuously monitor your IAP, critically weighing its merit against changing incident conditions and further information received.

- In order to be effective, the IC/Operations Section Chief must be willing to make an unpopular decision.

- In the event that there is no noticeable improvement in conditions by the 20 minute PAR, a change of strategy must be considered.

2nd arriving Chief Officer

On arrival, the 2nd arriving Chief Officer will communicate with the IC/Operations Section Chief to announce his/her presence and to receive an assignment.

Examples of assignments given to the 2nd arriving chief officer will include:

1) Assumption of IC duties (preferred) from a fixed and easily identifiable exterior command position (command vehicle) – will be referred to as “Command”

- 2nd arriving chief officer gathers critical information from the IC via LCAN briefing, preferably face-to-face, and performs a 360° if possible before assuming and announcing Command in a fixed command post. The 2nd arriving chief officer may utilize the 1st arriving chief’s vehicle as the command post if it is positioned appropriately
- Provide ongoing review of the overall incident. Evaluate the organizational structure and expand or contract as necessary to meet the incident needs
- Document completion of the command priorities and the locations and functions of assigned personnel – see Appendix B Command Board
- Communicate with those units, supervisors, and agencies not assigned to Operations
- Become (or establish) the liaison with other agencies and officials, property owners, and/or tenants
- Communicate with Dispatch
  - 10 minute “PAR” updates
  - Coordinate and request additional resources or outside agency response (WE Gas/Electric, Red Cross, FIU, law enforcement)

  - 1st arriving chief officer continues to function as the Operations Section Chief (continues to be referred to as “Operations”)

2) Assumption of Operations Section Chief responsibilities (“Operations”)

  - 2nd arriving chief officer is assigned the role of Operations Section Chief (referred to as “Operations”)

  - 1st arriving chief officer continues to function as the IC (“Command”) and moves to a fixed and easily identifiable exterior command position (command vehicle) after a face-to-face operational briefing with the newly assigned Operations Section Chief

3) Assumption of Division or Group supervisor responsibilities

  - This should be a rare occurrence, involving an expansive or rapidly escalating incident

  - A command level IC must be on scene or enroute to assume the fixed and easily identifiable exterior command position (command post vehicle)

Later arriving Chief Officers

The arrival of additional Command Officers on the incident scene can strengthen the overall ICS organization. These additional Command Officers should report directly to the established Command Post. As the incident escalates, the IC shall use these Command Officers to fill various roles as needed. Such roles may /typically include:

  - Deputy IC (aide) – Support functions for the IC
  - Accountability
  - Branch Director
  - Division/Group Supervisor
  - RIT Task Force Leader
  - NIMS compliant General Staff function (Section Chief)
Assumption of Command is discretionary for senior Chief Officers (Deputy Chief, Assistant Chief, and Chief)

The individual being relieved of command will be reassigned by the higher ranking authority assuming command.

These higher ranking Chief Officers may elect to fill in an advisement capacity (“Senior Advisor”) to the IC or the Operations Section Chief.

- Senior Advisor - Mentoring role to assist in ensuring the strategy and tactics are accomplishing their desired goals.

**Incident Command Post (ICP)**

The ICP is the location from which the fixed Incident Commander operates. There is only one ICP for each incident/event, although it may change locations during an incident/event.

The ICP shall be positioned outside of the present and potential hazard zone.

The ICP shall be designated by the name of the incident (i.e. “Main Street ICP”).

A dedicated Incident Command Post staffed by specially trained and qualified personnel may be requested to the scene at the discretion of the IC – automatically sent at the 2nd Alarm fire level.

The main functions of dedicated ICP members are to assist the IC with personnel accountability, information gathering, and communications.
DEPLOYMENT

Incident conditions drive the strategy, the IAP, and the risk-management plan. The ICS must support tactical assignments by coordinating and commanding resources effectively on the front end (position and function).

When assigning units, clearly state:

- Task (Fire attack, Primary search, Ventilation)
- Location (Floor, Division)
- Tactical objective (Fire control, Rescue)

Provide a steady, adequate stream of appropriate resources in order to enhance tactical discipline; forecast incident progression and request additional resources early.

A four-deep deployment model is ideal for larger events:

- Hazard Zone – Actively working
- On Deck (including Recycle) – Ready for an assignment
- Staging – In reserve
- Rehab – Temporarily Out of Service

Establishing fire control (under control benchmark) and completing the primary search (all clear benchmark) are of primary importance.

Personnel have a 15-20 minute window for offensive operations – On deck companies will allow for rotation of personnel while maintaining the operational continuum.

Staging Group

Staging personnel and apparatus near the incident scene helps to provide accountability of personnel and resources, allowing the IC to monitor available resources and determine if the incident should be expanded further, maintained, or scaled down.

The staging area location should be near the incident scene, where available tactical reserve units are separated by type as they await assignment. In large area incidents, there may be more than one staging area.

1st unit to arrive at the staging location – Officer of this unit assumes and retains the role of Staging Group Supervisor, unless otherwise assigned by the Incident Commander. The Staging Group Supervisor will provide control and accountability of Staging Group resources and personnel, communicating directly with Command the number and type of resources in staging.

Resources assigned to staging shall maintain discipline by remaining with their apparatus and available for immediate assignment.

A Base Staging area may be established by order of the Incident Commander at unusually large or complex incidents (i.e. tornado, chemical facility incident, high rise fire incident) to place possibly needed resources within 5-10 minutes of the incident scene. The Base Staging area may also provide eating, resting, and sleeping facilities if needed.
See numbered notice *Incident Scene Management – Incident Rehabilitation (REHAB); Personnel and Apparatus Staging* for further details regarding Staging Group procedures.

**Rehab Group**

Rehab is a long term break in the work cycle after two (2) SCBA cylinders have been expended.

Per NFPA 1561, the IC shall consider the circumstances of each incident and make suitable provisions for rest and rehabilitation of all members operating at the scene. These provisions should include medical evaluation and treatment, food and fluid replacement, and relief from extreme climate, per the circumstances of the incident.

First MED unit to arrive at the rehab location (shall not be the initially sent MED unit on the full assignment, who is considered part of the RIT Task Force) – Paramedic Officer assumes and retains the role of Rehab Group Supervisor, unless otherwise assigned by the Incident Commander. The Rehab Group Supervisor will provide control and accountability of those personnel assigned to the Rehab Group, communicating directly with Command the need for additional assistance. Car 15 will assume the duties of Rehab Group Supervisor on the 3rd Alarm level.

Personnel assigned to rehab will report directly to the Rehab Group Supervisor as a complete company.

The Rehab Group Supervisor has the authority to hold personnel from returning to service if medical condition warrants restriction of activity.

See numbered notice *Incident Scene Management – Incident Rehabilitation (REHAB); Personnel and Apparatus Staging* for further details regarding Rehab Group procedures.
The IC must continually balance responder risk against the possible benefit of current operations and ensure that the Incident Action Plan is consistent with current conditions.

Quality information, in the form of LCAN and completion reports, along with visual cues, serve as the foundation for ongoing incident and risk evaluation. Based on this information, the Operations Section Chief will decide to continue to support current operations, provide additional backup resources, or change the strategic mode of operation entirely.

Company Officers operating interior must be trusted to monitor and evaluate conditions inside the structure and share these observations honestly with the Operations Section Chief through LCAN and completion reports.

The IC and the Operations Section Chief must maintain an overall view of the entire incident site to allow for accurate evaluation of the IAP’s effectiveness.

“PAR” Notifications - Personnel Accountability Report (PAR) notifications will be initiated by dispatch at 10 minute intervals per NFPA 1500. These “repeating clock” notifications should prompt incident scene updates from the IC (“Command”) to dispatch.

- 10 minute interval PAR notification: Dispatch→Command→Operations
- Operations Section Chief re-evaluates his/her knowledge of the operating positions of all companies
- Company Officers verify the positions of their firefighters

Incident scene updates that are provided by Command to dispatch in response to PAR notifications must be functional, meaningful, and include an update on strategic mode of operation and tactical progress.

Example:

- “Dispatch, Main Street Command. We are still in the offensive strategy with 2 lines working on a second floor fire. Primary search all clear in the basement and 1st floor. Primary search in progress on the 2nd floor and attic.”

The IC or Operations Section Chief may request (PARs) and/or progress (LCAN) reports from hazard zone companies at his/her discretion and in response to the following situations/events:

- Company exiting the hot zone
- Strategic change (Offensive to Defensive)
- Post MAYDAY
- Post sudden hazard event

The Operations Section Chief should begin preparing for the replacement of interior companies by the 10 minute PAR notification and consider executing the replacement of interior companies by the 20 minute PAR notification (air management).
After Action

The Milwaukee Fire Department has established requirements and procedures for a standardized post incident critique (After Action) of significant incidents or those that involved significant injury or death to members.

Tailboard Talk

An operational post incident critique may be conducted on any incident / event as determined by the IC or Operations Section Chief.

Fire Watch

A temporary measure intended to ensure continuous and systematic surveillance of a building or portion thereof by one or more qualified individuals for the purposes of identifying early signs of unwanted fire and controlling fire hazards.

At the discretion of the Incident Commander and under circumstances in which appropriate overhaul cannot be completed in order to satisfy the Incident Commander’s requirements in regard to checking hidden spaces for fire extension, a fire watch assignment may be indicated.

On most building fire responses, this role is fulfilled by the fire investigator (FIU) on scene. However, in situations under which it is deemed unsafe for personnel to enter or re-enter a structure after extinguishment, or fires involving large piles of material, brush fires, etc. the Incident Commander has the authority to initiate a fire watch with a suggested two hour timeframe.

When initiated, the Incident Commander will special call for a minimum of (1) Engine Company to standby in an advantageous position in order to ensure that there is no hidden fire that allows a “flare-up” to occur. The IC shall remain on scene until the arrival of the fire watch assigned Engine Company and shall brief the Engine Company regarding fire location, areas of primary concern, and expected duration.

If a flare-up is detected, the Incident Commander (now the Engine Company Officer) will make a determination and request additional suppression/support units as needed to mitigate the fire. If the primary two hour timeframe has passed with no signs of unwanted fire, the Incident Commander (now the Engine Company Officer) will make the determination to special call a replacement fire watch assigned Engine Company or to terminate the fire watch.
**DEFINITIONS**

*Abandon the Building* – Phrase used when hazard zone workers are believed to be in IMMINENT DANGER. Interior operating crews need to get out of the building any way necessary and as quickly as possible.

*All Clear* – Phrase used to refer to the results of a search operation – not to be used to communicate fire conditions in a particular area or on a particular floor.

*Alpha letter identifiers* – Used to name the sides of a building. Alpha, Bravo, Charlie, Delta – clockwise around the building.

*Agency Representative* - Individual assigned to an incident from an assisting or cooperating agency that has been delegated full authority to make decisions on all matters affecting that agency’s participation at the incident. Agency Representatives report to the Liaison Officer.

*Allocated Resources* – Resources dispatched to an incident that have not yet checked in with the Incident Commander (In transit).

*Assigned Resources* – Resources checked in and assigned work tasks on an incident scene (Operations).

*Assisting Agency* – An agency directly contributing suppression, rescue, support, or service resources to another agency.

*Available Resources* – Resources assigned to an incident and available for assignment (Staging).

*Branch* – That organizational level having functional/geographic responsibility for major segments of incident operations. The Branch level exists organizationally between the Section and Division/Group levels of the command structure.

*Command Post (ICP)* – That location at which primary incident command functions are executed.

*Command Staff* – The Command Staff consists of the Public Information Officer, Safety Officer and Liaison Officer, all of whom report directly to the Incident Commander.

*Command* – The act of directing, ordering, and/or controlling resources by virtue of explicit legal, agency, or delegated authority.

*Company* – A ground vehicle providing specified equipment capability and personnel (Engine Company, Truck Company, Rescue Company, etc.).

*Cooperating Agency* – An agency supplying assistance other than direct suppression, rescue, support, or service functions to the incident control effort (Red Cross, law enforcement agency, etc.).

*Director* – ICS title for individuals responsible for command of a Branch.

*Division* – That organization level having responsibility for operations within a defined geographic area. The Division level is organizational between Single Resources, Task Force, or the Strike Team and the Branch.
Emergency Traffic – Phrase used by anyone on the fireground with an essential radio transmission needed to communicate a potential or imminent threat to life safety

Exposures – Named for the side of the fire building where located – if there is more than one involved exposure, a number will follow (i.e. Bravo exposure or Delta 2 exposure [the exposure immediately beyond the Delta exposure])

Fire Under Control – Phrase used when the forward progress of the fire has been stopped and conditions are stabilized

Fire Watch - A temporary measure intended to ensure continuous and systematic surveillance of a building or portion thereof by one or more qualified individuals for the purposes of identifying early signs of unwanted fire and controlling fire hazards.

General Staff – The group of incident management personnel comprised of the Operations Section Chief, Planning Section Chief, Logistics Section Chief, and Finance/Administration Section Chief

Group – That organizational level having responsibility for a specified functional assignment at an incident (ventilation, salvage, water supply, etc.)

Incident Action Plan (IAP) – The strategic goals, tactical objectives, and support requirements for the incident. All incidents require an action plan. For simpler incidents, the action plan is not usually in written form. Large or complex incidents will require that the action plan be documented in writing for each operational period

Incident Command System – An Incident Management System with a common organizational structure with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident

Incident Commander (IC) – The individual responsible for the management of all incident operations

Leader – The individual responsible for command of a Task Force, Strike Team, or Functional Unit

Liaison Officer – The point of contact for assisting or coordinating agencies. Member of the Command Staff

Logistics Section – Responsible for providing facilities, services, and materials for the incident. Includes the Communication Unit, Medical Unit, and Food Unit within the Service Branch and the Supply Unit, Facilities Unit, and Ground Support Unit within the Support Branch

Mayday – Phrase used only when firefighters find themselves or other firefighters in a life-threatening position, or are lost, trapped, disoriented, or missing during hazard zone operations. Designed as an alert to clear fire ground radio talk group so the Operations Chief or Incident Commander can communicate solely with the person calling the Mayday

No Extension – Phrase used to describe conditions in an area or on a floor remote from the seat of the fire when the fire has not presented into that area/floor

Officer – The Command Staff positions of Safety, Liaison, and Public Information
On Deck – Forward staging position located just outside of the immediate hazard zone as directed by the Operations Chief. Used for RIT, crew relief, to reinforce a tactical position, or any other task as assigned by the Operations Chief

Operational Period – The period of time scheduled for execution of a given set of operational activities as specified in the Incident Action Plan

Operations Section – Responsible for all tactical operations at the incident. Includes up to 5 Branches, 25 Divisions/Groups, and 125 Single Resources, Task Forces, or Strike Teams

Out-of Service Resources – Resources assigned to an incident but unable to respond for mechanical, rest, or personnel reasons

PAR – Personnel Accountability Report given upon completion of a tactical objective or when requested by Operations (i.e. change in strategy or fire conditions)

Planning Section – Responsible for the collection, evaluation, dissemination, and use of information about the development of the incident and the status of resources. Includes the situation, Resource, Documentation, and Demobilization Units as well as Technical Specialists

Progress Report – LCAN Reports (Location, Conditions, Actions, Needs) – continually keep track of the position, function, and needs of operating companies/crews. Used to communicate progress, completion of a tactical objective, and as requested by Operations

Public Information Officer – Responsible for interface with the media or other appropriate agencies requiring information directly from the incident scene. Member of the Command Staff

Rapid Intervention Team (RIT) – Firefighting personnel assembled, equipped, and ready to rescue emergency personnel operating at an emergency incident

Recycle – A quick break in the work cycle to exchange SCBA cylinders and be reassigned by Operations

Rehab – That function and location that shall include medical evaluation and treatment, food and fluid replenishment, and relief from extreme climatic conditions for emergency responders, according to the circumstances of the incident. A long term break in the work cycle after two (2) SCBA cylinders have been expended

Resources – All personnel and major items of equipment available, or potentially available, for assignment to incident tasks on which status is maintained

Safety Officer – Responsible for monitoring and assessing safety hazards, unsafe situations, and developing measures for ensuring personnel safety. Member of the Command Staff

Section – That organizational level having functional responsibility for primary segments of incident operations, such as: Operations, Planning, Logistics, and Finance/Administration. The Section level is organizationally between Branch and Incident Commander

Section Chiefs – Title that refers to a member of the General Staff (Planning Section Chief, Operations Section Chief, Finance/Administration Section Chief, Logistics Section Chief)
Operational Guidelines
INCIDENT MANAGEMENT PLAN

Senior Advisor – Mentoring role to the IC or Operations Section Chief to assist in ensuring the strategy and tactics are accomplishing their desired goals.

Single Resource – An individual Company or Crew

Staging Area – That location where incident personnel and equipment are assigned on an immediately available status

Strategic Goals – The overall plan that will be used to control the incident. Strategic goals are broad in nature and are achieved by the completion of tactical objectives

Strike Team – Up to five (5) of the same type of resources with common communications and a leader

Supervisor – Individuals responsible for Command of a Division or Group

Tactical Objectives – The specific operations that must be accomplished to achieve strategic goals. Tactical objectives must be specific and measurable. Tactical level officers are Division/Group

Task Force – Up to five (5) of any type and kind of resources with common communications and a leader assembled for a specific mission

Technical Specialists – Personnel with special skills who are activated only when needed. Technical Specialists may be needed in the areas of fire behavior, water resources, environmental concerns, resource use, and training. Technical Specialists report initially to the Planning Section but may be assigned anywhere within the ICS organizational structure as needed

Transitional Attack - Initial handline attack from the exterior through a door/window in order to quickly confine the fire; followed immediately by an interior attack for final extinguishment / search and rescue

Unit – That organization element having functional responsibility for a specific incident’s Planning, Logistics, or Finance/Administration activity

Water Tender – Any ground vehicle capable of transporting specified quantities of water, typically above 750 gallons

Withdraw from the Building – Phrase used when hazard zone workers are believed to be in EVENTUAL danger if a strategic change is not made soon. The Operations Chief will coordinate the backing out of lines and equipment using a systematic top-down approach to provide protection for evacuating crews until the evacuation is complete
<table>
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<td>□ 360° size-up</td>
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<td>□ Risk / Benefit Analysis (Occupied vs. Unoccupied dwelling)</td>
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<td>□ Amount of fire involvement (Occupant survivability?)</td>
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<td>□ Smoke conditions</td>
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<td>□ Structural stability of construction (potential of collapse in new / trusses)</td>
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<td>□ Evidence of structural reinforcement?</td>
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<td>□ Scene security / Crowd control (PD needed?)</td>
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<td>□ Traffic control</td>
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<tr>
<td>□ Weather conditions (Hot, Cold, Icy) – Salt?</td>
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<tr>
<td>□ High winds (wires, ladder instability, affect on fire)</td>
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<tr>
<td>□ Time (Reevaluate progress every 10 minutes)</td>
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<td>□ Operational zones (Hot, Warm, Cold zones)</td>
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<tr>
<td>□ RIT (proactive) available – Who?</td>
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<tr>
<td>□ Effective and clear communications</td>
<td></td>
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<tr>
<td>□ Electrical hazards (inside / outside) – Wires down?</td>
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<tr>
<td>□ Safe operations (PPE, SCBA, Glasses, etc...)</td>
<td></td>
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<tr>
<td>□ Accountability – Document and update locations of all companies</td>
<td></td>
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<tr>
<td>□ Ventilation (adequate and coordinated with attack)</td>
<td></td>
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<tr>
<td>□ Egress (Doors opened; Ladders to all upper floors companies are operating on)</td>
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<td>□ Utilities</td>
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<td>□ Dead loads / live loads on roof</td>
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<td>□ Water weight in structure (prolonged incident)</td>
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<td>□ On-deck and/or staged companies</td>
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<td>□ Relief / rotation of personnel</td>
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<td>□ Rehab (Rest, food, fluids, EMS eval? Busses?)</td>
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<td>□ Hazmat (DOT Guidebook / NIOSH Handbook)</td>
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**ADVISE IC OF POTENTIAL HAZARDS**
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| PRIMARY | | |
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| SECONDARY | | |
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| UTILITIES | | |
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| GAS: | | |
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| ELECTRIC: | | |
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| 360° | | |

| ON DECK | | | | | |
|---------| | | | | |

| RECYCLE | | | | | |
|---------| | | | | |

| UNASSIGNED | | | | | |

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Use Permanent Marker, Grease Pencil or Dry Erase pen Only
Clean with Isopropyl Alcohol
### STRUCTURE FIRES, GREATER ALARMS, AND HIGH-RISE DISPATCHING

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<th>Alarm Level</th>
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| 1<sup>st</sup> Alarm Full Assignment | 4 Engines  
2 Trucks  
1 MED  
1 Rescue  
2 Battalion Chiefs (minimum 1 MFD BC)  
Car 18 (or 3<sup>rd</sup> BC if Car 18 is unavailable) |
| 2<sup>nd</sup> Alarm Structure Fire | 4 Engines  
2 Trucks  
1 MED  
Incident Command Post (ICP)  
CAIR1  
Car 3 |
| 3<sup>rd</sup> Alarm Structure Fire | 3 Engines  
1 Rescue  
1 Battalion Chief  
**RECALL-1** Deputy Chief (C3A)  
2 Battalion Chiefs (B30, B31) |
| 4<sup>th</sup> Alarm Structure Fire | 3 Engines |
| 5<sup>th</sup> Alarm Structure Fire | 3 Engines |

The following high-rise and target hazard dispatching protocols are also in effect.

| High-rise 1 | 4 Engines  
4 Trucks  
2 MEDs  
1 Rescue  
ICP + CAIR1  
4 Command Officers (Battalion Chiefs, Car 18, Car 3) |
|-------------|---------------------------------------------------------|
| High-rise 2 | 4 Engines  
4 Trucks  
2 MEDs  
1 Rescue  
4 Command Officers |
| High-rise 3 | 4 Engines  
4 Trucks  
2 MEDs  
2 Command Officers |
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PURPOSE

The Milwaukee Fire Department Respiratory Protection Program (RPP) provides protective equipment, procedures, and protocols designed to prevent employee exposure and/or respiratory contact with products of combustion, super-heated gases, hazardous atmospheric contaminants or toxins and oxygen-deficient atmospheres, which are potentially harmful to health. This document will provide assistance to members in the use, care, policies and procedures for respiratory protection. For the purpose of this document, the term respirator includes any regulatory agency approved respiratory protection device appropriate for use in a given hazardous atmosphere such as Self Contained Breathing Apparatus, Air-Purifying Respirators, etc.

SCOPE

All sworn and qualified personnel or any employee whose work may place them at risk for exposure to unknown varieties or quantities of toxic materials or hazardous breathing atmospheres are included in the RPP.

PHILOSOPHY

The Milwaukee Fire Department is responsible to provide approved personal protective equipment (PPE), training for its use, and uniform enforcement of well-communicated policies for its use to all personnel. A critical component of complete PPE is respiratory protection, as it is the first line of defense against respiratory hazards. Respirator usage is mandated, regulated, and/or recommended by numerous standards-bearing agencies, occupational safety and administrative codes, and the Milwaukee Fire Department when members are engaged in firefighting or other hazardous activities requiring respiratory protection.

Modern construction exposes us to many more dangerous substances today than there used to be (see Common Products of Combustion). NIOSH studies demonstrate cancer is the second leading cause of deaths among firefighters today. Unfortunately, the fire service is just beginning to understand the horrific magnitude of the problem, the challenges involved and the changes required in education, training, operations, medical screenings and personal accountability to effectively address cancer in the fire service. The proper use of PPE, including SCBA, is the number one way we can limit our exposure risk. It is for this reason, the MFD Respiratory Protection Policy is in place.
Common Products of Combustion*:

- **Carbon Monoxide** – produced by the incomplete combustion of common materials, including wood & paper. Other modern sources are foam rubber, rubberized flooring, vinyl wallpaper, and pipes and other installations made with polyvinyl chloride (PVC).

- **Hydrogen Cyanide** – produced by burning rubber, paper, and products used in carpeting such as wool, nylon, and acrilan. Also produced by materials used in upholstery such as polyurethane foam.

- **Acrolein** – produced by fires involving plastics, petroleum, acrylic light diffusers, or from the burning of acrilan in carpeting.

- **Hydrogen Chloride** – produced by fires involving plastics containing chlorine (PVC), rubberized flooring, vinyl wallpaper, and piping containing PVC.

- **Phosgene** – produced by fires involving rubberized flooring, vinyl wallpaper, PVC cable installations and pipes.

- **Nitrogen Oxides** – produced by burning wallpaper and lacquered wall coverings.

- **Formaldehyde** – produced by burning wallpaper and lacquered wall coverings.

- **Acetaldehyde** – produced by burning wallpaper and lacquered wall coverings.

- **Asbestos** – may be present with or without burning in older buildings’ insulation, acoustical tiles, adhesives, jointing compounds, floor tiles, etc.

- **Chlorinated Organics** – carcinogens that can be released during fires involving degreasing agents, solvents, refrigerants, and wood that contains certain preservatives. May be found at service stations, auto dealers, printing companies, dry cleaning establishments, etc.

- **Pesticides** – many are carcinogenic, and may be found in garden shops, hardware stores, sheds, and garages.

- **Benzene** – generally thought to cause aplastic anemia and then leukemia, it is produced at fires where solvents and other products containing benzene are used or stored, including gas stations and hardware stores. Also, benzene is produced from burning PVC products and epoxy resins.

*Reprinted from 2016 FDNY Probationary Training Manual*
ROLES & RESPONSIBILITIES

FIRE CHIEF

The Fire Chief of the Milwaukee Fire Department retains:

1. Overall responsibility to ensure the safety, health, and wellness of each member in the course of their work for the department
2. Overall responsibility for the development and provision of a proper RPP, including all related policies, rules, and regulations
3. Overall responsibility to budget for program sustainability
4. Appointment of Respiratory Protection Program Administrator
5. Overall responsibility for management, implementation, and accountability for the uniform enforcement of the RPP

PROGRAM ADMINISTRATOR

The Chief of the Milwaukee Fire Department has deemed the Assistant Chief of EMS, Training and Education shall serve as the RPP Administrator. Duties shall include but are not limited to:

1. Establishing and maintaining RPP based on applicable codes and standards.
2. Determining need for respiratory protection.
3. Identifying work areas, processes or tasks that require members to wear respirators.
4. Providing all employees in the program with respirators appropriate for the intended purpose.
5. Selecting a physician or licensed health care professional to administer the medical evaluation program, as well as coordinating the medical evaluation program.
6. Fit testing members.
7. Ensure SCBA air quality standards are meet.
8. Responsible for the information requirements of this program and ensuring members are trained in the care and maintenance of the respirator.
9. Ensuring that proper cleaning and disinfecting solutions and materials are readily available at all fire stations or other permanent work sites, such as at the Construction & Maintenance Division and the Fire Academy.
10. Ensuring that members are trained in the respirator manufacturer’s standards for repair and maintenance.
11. Responsible for the record keeping requirements of this program.
12. May designate and coordinate with other members to carry out specific functions (ie. specifying and purchasing approved equipment, training members, testing members, conducting medical evaluations, field observations and compliance, etc.)
CHIEF OFFICERS

Chief Officers are responsible for ensuring that Companies in their command are trained on and comply with the policies set forth in the RPP and properly utilize and maintain SCBAs during emergency operations, training, and during regular upkeep. Once a Chief Officer assumes Incident Command, he/she retains full responsibility for deviations from the RPP at an incident.

COMPANY OFFICERS

Company Officers are responsible for ensuring members in their command are trained on and comply with the policies set forth in the RPP and properly utilize and maintain SCBAs during emergency operations, training, and during regular upkeep. Company Officers will retain full responsibility for any company deviations from the RPP at an incident.

FIRE DEPARTMENT MEMBERS

All Milwaukee Fire Department members who have been trained, tested, and certified in the care, use, and maintenance of respirators as per the RPP shall:

1. Wear the appropriate assigned respirator when and where required by the RPP and in the manner in which they have been trained
2. Care for, maintain and clean their respirators following MFD and manufacturer's procedures including storing them in a clean and sanitary location
3. Inform their Company Officer if the respirator no longer fits well or has been damaged, and request a new one that fits properly or request repairs for any damage
4. Inform their Company Officer if any respiratory hazards exist in the workplace that have not been addressed in the workplace and of any other concerns regarding the RPP
5. Each member is responsible for the cleanliness and operational readiness of their issued face pieces
6. Members shall ensure that the air cylinder installed in their SCBA is charged to at least 90% of its rated capacity (4050 psi), up to full (4500 psi), when stored on the apparatus for frontline use, or prior to entering an IDLH atmosphere
7. Chief Officers, Company Officers, and individual members shall be held responsible for ensuring that the RPP’s standards for respirator usage are followed
SELECTION OF RESPIRATORS

Members who respond to and function in toxic atmospheres shall be equipped with a certified and approved Self-Contained Breathing Apparatus (SCBA) and trained in its proper use and care. These respirators have been selected and shall be used in accordance with the manufacturer’s recommendations and appropriate governing performance testing guidelines. The Milwaukee Fire Department currently provides the **MSA FireHawk® M7 Air Mask** for use by all sworn personnel expected to operate in atmospheres that may contain or produce respiratory hazards. These are 30- minute positive-pressure, pressure-demand SCBA.

This SCBA offers the following beneficial characteristics:

- Low-profile harness and cylinder
- Integrated Heads-Up-Display (I-HUD) for continuous remaining air monitoring
- NIOSH-designated as Chemical, Biological, Radiological, and Nuclear (CBRN) Agent Approved
- Quick-Fill® Universal Rescue Connection (URC) in order to facilitate RIT RescueAire® pack application and to maintain interoperability with Shared Services and MABAS fire departments’ RIT operations
- ExtendAire™ Emergency Breathing System for buddy breathing
- Approved for use down to -25° F (*ambient temperature*)

Members specifically trained and approved by the Special Operations or Construction and Maintenance Divisions in the use of alternate respiratory protection devices particular to their defined environments shall function according to the specific standards for that specialized equipment. Examples include, but may not be limited to:

- Hazardous Materials Team – extended duration SCBA or SCBA within Level 1 entry suits
  - NOTE: Air-Purifying Respirators (APRs), specifically the MSA Millennium CBRN Gas Mask, are stocked on the MFD’s Decon Trailers
- Dive Rescue Team – SCUBA and self-rescue systems
- Heavy Urban Rescue Team – supplied-air respirators and self-rescue systems
- Tactical Emergency Medical Services – gas masks as may be used around tear- gas
- Construction and Maintenance Division – painting respirators, SCUBA, etc.
SCBA COMPONENTS

Common understanding of the purpose and functions of SCBA sub-components provides users a greater margin of safety in the event of a malfunction or other emergency situation. The MSA FireHawk® M7 Air Mask contains eight (8) major sub-components. Members will be expected to maintain the knowledge and expertise in use of all SCBAs components in accordance with the MFD training manual found on the MFD homepage under Training/training manual/scba.

<table>
<thead>
<tr>
<th>PR14™ First Stage Regulator</th>
<th>FireHawk™ M7 Carrier and Harness Assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>FireHawk™ Second Stage Regulator</td>
<td>Ultra Elite® Facepiece</td>
</tr>
<tr>
<td>Cylinder &amp; Valve Assembly</td>
<td>FireHawk™ HUD, Control (PASS) &amp; Power Modules</td>
</tr>
<tr>
<td>Audi-Larm™ Audible Alarm and URC (Quick-Fill) Assembly</td>
<td>ExtendAire™ System</td>
</tr>
</tbody>
</table>

A simple schematic, shown below, will aid in locating these components:
REQUIREMENTS FOR USE

SCBA USAGE DEFINED

SCBA Usage shall be defined as: after conducting a pre-use seal check, wearer has face piece with fully-functioning I-HUD in place, mask-mounted regulator securely affixed to the face piece, with the wearer breathing air from the cylinder.

SCBA usage shall occur as part of a comprehensive personal protective ensemble, as required in the current Numbered Notice entitled STRUCTURAL FIREFIGHTING ENSEMBLE POLICY AND PROCEDURES.

GENERAL USE REQUIREMENTS & RESTRICTIONS

1. Every firefighter is required to use protective clothing and protective equipment whenever they are exposed to hazards or potential hazards.
2. Every firefighter has been provided self-contained breathing apparatus and is required to use the apparatus in any area where the atmosphere is hazardous, is suspected of being hazardous or may become hazardous.
3. Department members, sworn and non-sworn, will use their respirators under conditions specified by this program, and in accordance with training and the respirator manufacturer’s recommendations they receive on the use of each particular model. Additionally, the respirator shall not be used in a manner not certified by NIOSH or its manufacturer.
4. The Milwaukee Fire Department (“department”) does not permit self-contained breathing apparatuses with tight-fitting facepieces to be worn by members who have facial hair that comes between the seal of the facepiece and the member’s face or that interferes with valve function.
   a. Any accommodations to the above-stated policy will be at the discretion of the Chief of the department.
   b. Any member seeking an accommodation to the above-stated policy must meet the following requirements:
      i. Member must submit documentation from his/her primary care physician verifying a medical condition. The documentation must explain the member’s condition and inability to maintain a cleanly shaven face. The documentation must be submitted to the department physician
      ii. Medical documentation must be updated on an annual basis and submitted to the department physician
      iii. Member must maintain as closely shaven appearance as possible given his/her medical condition
      iv. Member must demonstrate a ‘PASS’ on his/her annual mask fit test
5. All members shall conduct user seal checks each time that they wear their respirator. Members shall use either the positive or negative pressure check as specified by the manufacturer or as listed in Appendix B-1 of the OSHA Respiratory Protection Standard.

6. If a firefighter wears eyeglasses, the firefighter shall use frames that do not pass through the seal area of the face piece. Contact lenses may be worn with SCBA.

7. Members are not permitted to wear headphones, jewelry, glasses, or other articles that may interfere with the face piece-to-face seal. Radio earpieces may be used if issued by the department (i.e. special teams applications).

8. Both the Incident Commander and Company Officer retain responsibility and authority where compliance with safety equipment usage mandates are concerned. The officer in command of an emergency operation is responsible for the overall safety of all fire fighters and activities occurring at the scene of the operation.

ATMOSPHERIC REQUIREMENTS FOR SCBA USAGE

Existing nomenclature across agencies and organizations is inconsistent and in some cases contradictory. To eliminate any confusion during emergencies, the Milwaukee Fire Department shall exercise the greatest level of precaution and err on the side of SCBA usage when any respiratory hazard or potential for respiratory hazard exists. Members shall be responsible to protect themselves from (existing OR potential) respiratory contact with products of combustion, super-heated gases, and any IDLH, toxic, hazardous, or otherwise contaminated atmospheres. Where an atmosphere has potential to become IDLH it shall be entered under the assumption that it is ALREADY IDLH.

As such, full SCBA usage is required for any member operating in any of the following:

- Known IDLH or otherwise contaminated atmosphere
- Oxygen-deficient atmosphere
- Any atmosphere that may become unexpectedly IDLH or otherwise contaminated or oxygen-deficient

The IC shall be ultimately responsible for determining exact area of the hot zone which may extend beyond the fire building due to smoke and other hazards. As the IC, you may need to redefine the hot zone as the incident progresses. The hot zone is defined, at minimum, as:

- **IN, ON, or IMMEDIATELY ADJACENT TO any STRUCTURE FIRE**

- **IN** means past the threshold of any door, window, or other opening that may provide access to any attached portion of the involved structure

- **ON** means atop any portion of the structure
• **IMMEDIATELY ADJACENT TO** means 360° around the entire perimeter of attached portions of the involved structure, any area that may put a member at risk for inhaling smoke or other hazardous material or product of combustion
  
  o The following shall be regarded as IMMEDIATELY ADJACENT TO:
    
    ▪ While applying (or while traveling close enough to begin applying) any hand or power tools to the structure or its components for any of a variety of firefighting functions, including but not limited to forcible entry, ventilation, rescue, or while climbing ground or roof ladders
    
  o If the Operations Chief, ISO, or other support or Command Staff member will be operating in these areas, they too shall be wearing and fully utilizing their SCBA.
    
  o Given wind direction, humidity, and a variety of other factors, the area immediately adjacent to may be deemed by the Incident Commander to be larger on some sides of the structure than others.

**INCIDENT / ACTIVITY SPECIFIC REQUIREMENTS FOR SCBA USAGE**

**STRUCTURE FIRE**

• means any building or structure to which Milwaukee Fire Department units are assigned or arrive to begin suppression efforts which has any smoke emanating from any portion of it, OR, upon investigation, is found to have smoke inside

**HIGH-RISE FIRE**

• given the vertical height (at least 7 stories or higher) and relatively large footprint of such structures, dictates the following clarification to the minimum hot zone requirements:
  
  • full SCBA usage shall not be required at the floor level designated FORWARD OPS (the second floor below the known fire location) and BELOW so long as those floors have been and continue to be monitored for the absence of (or acceptable levels of) CO, HCN, O2, and LEL by the ISO or Battalion Chief

**OTHER FIRE BASED RESPONSE**

• The following MFD Fire Response Guidelines provide additional incident-specific requirements for SCBA usage:
  
  o 2.0 – APPL – Appliance Fire
- 3.0 – AUTOF – Auto Fire
- 5.0 – CARBON – Carbon Monoxide
- 14.0 – GARAGE – Garage Fire
- 15.0 – GAS – Natural Gas
- 17.0 – HEAT – Furnace Trouble
- 23.0 – POLEF – Pole Fire
- 24.0 – RUBBISH – Rubbish Fire
- 27.1 – HAZMAT – Hazardous Materials
- 27.2 – LHAZMAT – Limited Hazardous Materials
- 29.0 – SUSP – Suspicious Call

- While involved in the extinguishment of other fires, to include vehicle fires, dumpster fires, rubbish fires, or any other fire which is producing smoke or other products of combustion that are visible in the atmosphere
- At ANY time so ordered by the Incident Commander, Chief Officer operating as part of the Incident Management Plan structure, Incident Safety Officer, or Company Officer
- Where there is a potential for explosion or fire including gas leaks and fuel spills
- Where invisible products of combustion are suspected to be present (Carbon Monoxide, Hydrogen Cyanide or any product off-gassing during overhaul)
- Where toxins or toxic products are present, suspected to be present, or may be released without warning
- In any confined space (for the purposes of HURT or Hazardous Material responses) which has not been tested to establish respiratory safety
- Any incident that may cause exposure to respiratory hazards
- In all cases where members will operate in an environment, typically in a training situation, where oil-based or glycol-based smoke simulants (such as mineral oil or diethylene glycol) are utilized
• Members are expected to exit emergency vehicles for fire responses (or response-types) as detailed above wearing their SCBA minus the facepiece (which shall be brought along in the provided SCBA harness clip-on bag)
  
  o Seatbelts shall be worn at all times that a vehicle is in motion; proper training and practice yield the ability to don an SCBA while seated and belted
  
  o Truck Company HEOs shall don SCBA after arriving and securing their apparatus
  
  o Engine Company HEOs shall don SCBA after arriving and securing their apparatus. Engine HEO’s will be allowed exemption if they will remain with their apparatus and/or their apparatus is up-wind of the fire event and their risk of smoke exposure is deemed minimal by the incident commander.

INVESTIGATION RESPONSE TYPES

• Investigation-type responses for which there is no evident fire, smoke, or other respiratory hazard, responding personnel will wear their SCBA (above ground, below ground, or in any other area which is not, but which may become contaminated by products of combustion or other hazardous substances). In these circumstances, the SCBA may be worn with the face piece removed. The wearing of SCBA in these situations ensures that it will be immediately available for use if conditions change or if personnel are to enter an area where the full usage of the SCBA is required. Examples include but are not limited to:
  
  o Atmospheres which have been reported to have a smoke or CO detector sounding but there are no signs of smoke or other hazard present, nor any occupants feeling ill. Members shall investigate and if observation and/or monitoring suggest existence of a respiratory hazard, members shall fully don SCBA facepiece.
  
  o Atmospheres, scenes, or conditions that are potentially dynamic, changing and/or unknown.
  
  o In all cases in which full SCBA usage is not required but the member remains wearing the SCBA on his/her back, the member shall store the facepiece in the provided bag.
  
  o This exception does NOT in any way supersede the requirements listed under the headings ATMOSPHERIC and INCIDENT / ACTIVITY REQUIREMENTS FOR SCBA USAGE, which, if present, shall require full SCBA usage.

REMOVAL OF SCBA

Premature removal of SCBA must be avoided. This is particularly significant during fire incidents or any other incident where an IDLH atmosphere may exist including, but not
limited to, during overhaul operations when smoldering materials may produce increased quantities of carbon monoxide and other toxic products. Therefore, SCBA’s will be required to be used throughout the entire duration of a fire incident. Continuous air monitoring will be conducted by the ISO throughout the duration of the incident. Air monitoring will serve to aid the Incident Commander in determining the establishment of hot, warm and cold working zones.

If a firefighter detects vapor or gas breakthrough, changes in breathing resistance or leakage of the facepiece the firefighter will notify his/her Company Officer or the Incident Commander. The member is to leave the facepiece in place as the positive-pressure nature of the SCBA creates a flow of air from inside the system to outside the system, as opposed to allowing toxins to enter the system. The entire Company shall leave the area immediately and withdraw from the hot zone.

Communicating via voice or radio may require a more deliberate, measured manner of speaking. Speaking louder or yelling results in severe muffling and counteracts the intended communication. SCBA facepieces or MMRs are NOT to be removed simply to facilitate easier voice or radio communication.

RESPIRATORS FOR NON-IDLH ATMOSPHERES

For protection against particulates, the Fire Department will provide one of the following:

- N95 Particulate-Filtering Facepiece Respirators
- Alternate NIOSH-Approved Particulate-Filtering Facepiece Respirators

These are provided to protect the wearer by trapping particles of dust, vapors, and mists that are present in the atmosphere. It also exceeds the Center for Disease Control (CDC) guideline for mycobacterium tuberculosis (M-TB) exposure control.

Paper masks and canisters are less intrusive and may filter some of the airborne particulates found during fire based incidents, but they fall dangerously short when it comes to carcinogen exposure protection. SCBA is currently the only available level of respiratory protection that can truly keep you safe from inhaling these cancer-causing products of combustion. Therefore, particulate filtering respirators are only approved for EMS based incidents or other non-fire based incidents where more appropriate respiratory protection is warranted.

PERSONAL AIR MANAGEMENT

Personal Air Management is critical to reducing the chances that a firefighter will run out of air while operating in a hazardous atmosphere. All members, when utilizing SCBA for respiratory protection shall:

1. Exit from an Immediately Dangerous to Life and Health (IDLH) atmosphere before consumption of reserve air supply.
2. Exit should occur prior to Low-air alarm notification sounds indicating that the individual is consuming their reserve air supply.
3. Recognize the activation of the low-air alarm is an immediate action item for the individual and the team.

AIR MANAGEMENT DEFINITIONS

- **Hazardous/IDLH Atmosphere:** Any atmosphere in which MFD firefighters are required to use SCBA as per this RPP
- **Air Management:** An ongoing assessment of air consumption by those breathing air from SCBA. Firefighters in hazardous/IDLH atmospheres must regularly check their pressure gauges and refer to their I-HUD cues to know how much air is left in their bottle. Incident Commanders must proactively rotate personnel in hazardous/IDLH atmospheres to ensure timely replacement and removal from the hazardous/IDLH atmosphere prior to the SCBA’s low-air alarm activating
- **The Rule of Air Management (ROAM):** Each member must remain actively aware of the remaining air in the SCBA and manage and communicate to ensure that they can vacate the hazardous atmosphere before the SCBA’s low-air alarm activates
- **Point of No Return:** The point at which a member’s remaining air supply prevents a return to a non-IDLH environment without losing the protection of the respirator due to running the cylinder out of air

AIR MANAGEMENT BACKGROUND

Air management is critical to the safety and survival of firefighters. Many close calls, injuries, and approximately 60% of non-cardiac fireground line-of-duty deaths nationwide have been associated with firefighters running low or out of air while operating in hazardous/IDLH atmospheres. SCBA low-air alarms (compounded with numerous other integrated audible prompts and alerts associated with firefighting equipment) have become commonplace on the fireground. Many firefighters have developed complacency to such alerts as a result. In some case studies, firefighters whose low-air alarms were sounding and who were experiencing a true emergency were ignored by nearby firefighters due to this complacency.

Incident Commanders, Operations Chiefs, and Firefighters must manage their air like SCUBA divers do. SCUBA divers check their air from start to finish, and they never use their reserve/emergency air unless they have a true emergency.

The low-air alarm signals a firefighter that the emergency reserve air supply is being used. It is unacceptable for firefighters to work in hazardous atmospheres up to the time their SCBA low-air alarm activates. Firefighters are to exit any hazardous atmosphere before the alarm sounds thereby reserving the emergency reserve air supply for an actual life-threatening firefighter emergency.

Firefighters must realize that the 30-minute approval rating of the MSA FireHawk M7 SCBA indicates an approximate duration of 30-minutes for a fully charged cylinder. Factors impacting that approximate duration are:
• Degree of user physical activity
• Physical condition of user
• Degree of user experience
• Degree to which breathing rate is affected by excitement, fear, or other emotional factors
• The amount of air in the cylinder prior to use
• Atmospheric pressure – operating in pressurized atmospheres, such as in certain tunnel construction atmospheres, the duration will inversely proportionate to the degree of atmospheric pressurization

Following a line-of-duty death, the Phoenix Fire Department conducted a study of how long it takes to rescue a firefighter in trouble. They completed 200 RIT drills in different buildings with the following results:

• It took an average of 2.5 minutes for the RIT to get in a ready-state after a MAYDAY was called or determined to exist.
• It took an average of 3.03 minutes from MAYDAY to RIT entering the building.
• It took an average of 5.82 minutes to reach the downed firefighter.
• It took multiple RITs in succession to remove the downed firefighter, with an average of 12.33 minutes inside the building for each RIT.
• The average TOTAL time it took from MAYDAY to removal of the downed firefighter from the building was 21 minutes.
• It took an average of twelve (12) firefighters to rescue one (1) downed firefighter.
• One (1) in every five (5) RIT firefighters became distressed and required rescuing.

Rapid intervention is NOT rapid. Each member must work to conserve his or her air supply. Each member must reserve his or her emergency reserve air supply for emergencies.

HOW AIR MANAGEMENT WORKS

The point of no return is affected by many factors including how deeply the firefighter has entered into the hazardous atmosphere, his/her physical condition, the type of work being performed, and the potential for unforeseen blockages in the expected egress path. Both Chief and Company Officers are responsible for taking the lead in air management. They must monitor their crews’ remaining air supplies and proactively manage crew rotation so that each crew or member is out of the hazardous atmosphere before low-air alarms activate.

Chief Officers requesting LCAN reports including remaining air supply (reported as the LOWEST crew member’s SCBA cylinder PSI) during operations aids tremendously in preventing low or no-air emergencies. Firefighters are responsible for consistently monitoring their pressure gauges and I-HUD prompts and informing their company officer of their air situation.

The SCBA’s low-air alarm will activate when the cylinder pressure reaches ¼ (25%) of its capacity. In a 4500psi cylinder, this pressure will be approximately 1125psi. This 25% of the cylinder’s air should not be used for normal operations and is intended to be used in
the case of a firefighter’s emergency.

**Firefighters are expected to be out of the hazardous atmosphere before their cylinder reaches this last 25% of air supply. Low-air alarms sounding from a Hot Zone/IDLH atmosphere shall constitute a low-air emergency and must be addressed immediately.**

**MILWAUKEE FIRE DEPARTMENT’S AIR MANAGEMENT POLICY**

In order to ensure adequate air supply is maintained for a complete exit from the IDLH atmosphere, members must:

- Check air levels before entering a hazardous or IDLH atmosphere, having a minimum of 90% of the cylinder capacity (4050 psi) in the cylinder in order to make entry into a hazardous atmosphere
- Ensure full function of I-HUD when donning SCBA
- Follow the ROAM when operating in any hazardous/IDLH atmosphere
- When the first member of any crew reaches 50% of his/her air supply, the crew’s company officer is radio the IC or the immediate ICS supervisor utilizing the LCAN format, to advise them that the crew is at 50% air. This allows the IC to deploy an on-deck crew to replace the crew in the hazardous atmosphere prior to any member of that crew drawing down their remaining air into their emergency air supply
- If a crew member in the hazardous/IDLH atmosphere inadvertently works into the reserve air activating the low-air alarm, the company is to exit the structure. The officer is to report over the radio to the IC or immediate ICS supervisor the following info:
  - Company Number
  - Location
  - Example: “Operation from E30 on the 2nd floor; we are exiting the building via the Charlie-Side exit.”
  - It is the expectation of the Milwaukee Fire Department that all members will exit the hazard area before their low-air warning alarms are activated
  - If a low-air alarm is ringing in the hazardous/IDLH atmosphere
    - …AND there is not an immediate radio report from the crew member whose alarm is ringing
    - …AND the location and well-being of that member cannot be confirmed
    - …THEN that alarm is to be considered an emergency alarm until proven otherwise. Follow appropriate MAYDAY procedures
- Firefighters who comply with the rule of air management by exiting the hazardous atmosphere before their low-air alarm activates will be allowed to change bottles and return to service after appropriate recycle or rehab.
- Failure to comply may result in your company’s dismissal from the incident and/or disciplinary action.
REHABILITATION REQUIREMENTS

After a firefighter has consumed two consecutive SCBA cylinders of air, he/she shall be assigned to the rehabilitation area for rest and evaluation. Upon clearance from rehab and the receipt of the Incident Commander’s approval, the firefighter may return to duty. All members utilizing SCBA shall be monitored for fatigue or any other conditions that could result in illness or injury. A rehabilitation cycle shall be required following the consumption of each subsequent air cylinder following the initial rehabilitation cycle. These are bare minimum rehabilitation cycle requirements; MFD’s rehabilitation and hot/cold weather policies may require more frequent cycling into rehabilitation that supersede these requirements.

If the number of crews/resources on-scene is insufficient to support the IC’s ability to rotate crews in and out of the hazardous/IDLH atmosphere, the IC shall request additional resources in order to support both air management procedures and the incident objectives. Do not allow the incident to become “resource-driven.” Incident objectives should determine resource needs. It is important to ensure adequate staffing reserves are maintained to meet anticipated incident demands.

2 IN / 2 OUT Rule

1. While working in IDLH atmospheres or potentially IDLH atmospheres (interior firefighting operations, hazmat operations, etc.) members entering the hot zone will work in teams having a minimum of two (2) persons who remain in visual or voice contact at all times.

2. When members are working in a hot zone environment, a rapid intervention team (RIT) consisting of at least two members, preferably four members, shall be assigned and available for rescue of a department member or a team if the need arises. A RIT shall be fully equipped with the appropriate protective clothing, protective equipment, SCBA and any specialized rescue equipment that might be needed given the specifics of the operation under way.

3. The composition and structure of a RIT shall be permitted to be flexible based on the type of incident and the size and complexity of operations. The Incident Commander shall evaluate the situation and the risks to operating teams and shall provide one or more RITs commensurate with the needs of the situation.

4. Refer to MFD Operation Guidelines – RIT for additional information. (Currently #2011-51R)

NOTE: Nothing in this rule is meant to preclude firefighters from performing emergency rescue activities before an entire team has assembled, however, such action is not to be considered a standard of operation.

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RescueAire® RIT PORTABLE AIR SUPPLY

An MSA 60-minute RescueAire® pack with facepiece is in the RIT pack which is kept in the Car 3, Battalion Chief and ISO vehicles for use at alarms. This component will afford an additional air supply for our members trapped in a hazardous environment. It can provide a ready air supply for trapped civilians needing rescue, as well as other uses determined by the Rapid Intervention Team on scene. The RescueAire packs are identified by battalion on the first stage regulator and are to be used in conjunction with the existing RIT pack at the scene of alarms.

Several options exist for application of this emergency air supply to a civilian or firefighter. Refer to PG. 23 of SCBA Chapter of the MFD Training Manual for additional information.

If assigned to quarters with a Chief Officer, include the RescueAire® pack in the daily SCBA checks. Exchange the cylinder when the pressure drops below 4050 psi. The AudiLarm™ and regulator checks are the same as the PR14™ first-stage regulators and the FireHawk™ second-stage regulators used in the field.

Spare 60-minute SCBA cylinders can be obtained from Rescues 1 and 2, Compressed Air 2, or the Division of Construction and Maintenance. These cylinders are ONLY for use with the RescueAire® packs.

TRAINING REQUIREMENTS

The Milwaukee Fire Department’s overall training program shall evaluate each member’s ability to:

- Explain the general requirements of the RPP
- Explain why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effects of the respirator
- Demonstrate knowledge of the components of respiratory protection as outlined in the applicable federal and state standards
- Demonstrate how to conduct an inspection of, donning, doffing, check the seals of, and fully utilize the respirator
- Demonstrate the procedures for maintenance and storage of the respirator
- Demonstrate the use of provided SCBA under conditions of obscured visibility
- Demonstrate the emergency operations that are required when an SCBA component fails or a low-air emergency occurs and the Rescue-Aire® pack or ExtendAire™ buddy-breathing component are utilized to rescue the imperiled firefighter
- Demonstrate emergency techniques using an SCBA to assist other members, to conserve air, and show restrictions in the use of bypass valves
- Demonstrate the use of SCBA in limited or confined spaces
- Demonstrate how to recognize medical signs and symptoms that may limit or prevent the effective usage of the respirator
- Demonstrate handling problems related to the following that might be encountered
during the use of SCBA:
  o Low temperatures
  o High temperatures
  o Rapid temperature changes
  o Difficulty communicating
  o Confined spaces or reduced-clearances
  o Poor vision
  o Facepiece-to-face sealing problems
  o Toxin absorption through or irritation of the skin
  o Effects of ionizing radiation on the skin and the entire body
  o Punctured or ruptured eardrums
  o Use near water (or accidental, unplanned immersion)

Annual training shall be provided to each member required to use breathing apparatus. Hands-on training shall be conducted under simulated stressful circumstances to promote immediate user response to emergency situations. All training will be comprehensive, understandable, occur annually, and also occur when any of the following situations occur:
  1. Changes in the workplace or the type of respirator render previous training obsolete
  2. Inadequacies in the firefighter’s knowledge or use of the respirator indicate that the firefighter has not retained the requisite understanding or skill
  3. Any other situations arise in which retraining appears necessary to endure safe respirator use

Documentation of all medical evaluations, fit-tests, and employee training (including date, attendees, trainer(s), and subject matter) shall be held on record for the duration of each employee’s employment PLUS thirty (30) years.

Recruit, Cadet and field refresher training shall, at a minimum, be consistent with the State of Wisconsin Firefighter Level 1 & 2 certifications including, but not limited to, the following:
  • Identification of SCBA components, terminology, and equipment specifications
  • Operation of SCBA and related equipment
  • Inspection and maintenance of equipment
  • Donning methods employed by the Milwaukee Fire Department
  • Performance of all related fire or emergency scene activities, such as advancing hose lines, climbing ladders, crawling through windows and reduced-clearance openings, and performing rescues while wearing SCBA
  • Didactic instruction and evaluation of retention of same of organizational policies and procedures concerning safety, emergency operations, use, inspection, and maintenance
  • Performance of activities under simulated emergency conditions
  • Compliance with all performance standards of the Milwaukee Fire Department and all related governing agencies
INSPECTION, CLEANING, AND MAINTENANCE

The Fire Department will provide personnel with a respirator that is sanitary, and in good working order. Fire department personnel shall ensure that respirators are cleaned and disinfected using the procedures recommended by the respirator manufacturer.

Company Officers shall assign each member to a specific seat assignment for each work shift. Each member of the firefighting division is responsible for the operational check of his/her assigned SCBA, including PASS, iHUD and face piece, and is accountable for both for the remainder of his/her duty shift. This check shall also be performed upon any detail or short relief assignment to another company or apparatus, after each use or training, or at any time it may be necessary to ensure the unit is safe and in a ready condition.

Form F-650 [WEEKLY CLEANING AND MAINTENANCE CHECKLIST FOR SCBA AND PERSONAL FACEPIECES] is to be filled out for each SCBA. Weekly inspection, cleaning, and maintenance of SCBA equipment shall be conducted and recorded each Monday.

Follow the same cleaning and inspection procedure for post-incident cleaning, excluding F-650 entries. The company officer is to supervise the cleaning and maintenance of each mask after each use.

A checkmark (✓) entry on the F-650 in the column indicates acceptable performance in that category. Indicate non-acceptable performance by an entry of “NO” with a brief explanation recorded in the “Remarks” column. If an SCBA requires repair, refer to the section: "SCBA – DAMAGED/MALFUNCTIONING/MISSING” for directives.

The Program Administrator or his/her designee will ensure an adequate supply of appropriate cleaning and disinfection materials at each station. If supplies are low, members should contact their officer, who will submit a supply requisition for additional cleaning and disinfection materials.

Follow the cleaning and disinfecting procedures as found on PG. 21 of SCBA Chapter of the MFD Training Manual

In addition, the MFD further requires the following:

- After cleaning, disinfecting, and drying the FireHawk™ second-stage regulator, apply a very thin coating of MSA Christo-Lube lubricant to the sealing O-ring. Wipe off excess. Then, after cleaning, disinfecting, and drying the Ultra Elite® facepiece, apply a thin coating of Christo-Lube to the inside of the facepiece adapter. Both Christo-Lube applications detailed here may occur on an as-needed basis. (See PG. 22 of SCBA Chapter of the MFD Training Manual)

- Members may replace the O-ring at the cylinder valve coupling and facepiece nose- cup spider and disc valves if missing or damaged.

- Batteries in member I-HUDs may be replaced using an approved battery. Other batteries are to be replaced by Division of Construction and Maintenance personnel only.

- Any other repairs should be immediately referred to the Division of Construction and Maintenance for handling following current requisition and replacement procedures.
INSPECTIONS

Each SCBA, integrated PASS and I-HUD, is required to be inspected and tested weekly and prior to use. All air cylinders carried on the apparatus and spares in each station will be inspected for any damage, cleanliness, and proper fills.

Flow-testing of SCBA shall be conducted annually by Division of Construction and Maintenance personnel, with detailed records kept as per the section titled RECORD MANAGEMENT.

Follow inspection procedures as found on pgs. 6-18 of SCBA Chapter of the MFD Training Manual

Submit F-650s to the Construction and Maintenance Division on a quarterly basis as follows:

| March 31 | June 30 | September 30 | December 31 |

SCBA—DAMAGED/MALFUNCTIONING/MISSING

Car 18 is the primary contact for damaged, malfunctioning, or missing facepieces.

- In cases of a damaged or malfunctioning facepiece:
  - Complete a repair request via ManagerPlus adequately describing the problem and submit it along with the facepiece to Car 18.

- In cases of a missing facepiece:
  - Complete a ManagerPlus request AND
  - Submit an F-105, and an F-106 to Car 18.

- In either instance, the following will prevail:
  - Car 18 will provide the member with a reserve.
  - Car 18 will transport damaged facepieces to the Division of Construction and Maintenance.
  - Upon resolution, Car 18 will return the member’s repaired facepiece, or deliver a new one, and retrieve the reserve facepiece.
  - Car 18 will handle the tracking and recording of reserve facepiece disbursement.
  - Car 18 will maintain a stock of needed forms for use at emergency scenes.

Members are to clean and maintain reserve SCBA facepieces in accordance with the established standards as contained in the RPP.

SCBA harnesses and all attached assemblies will continue to be handled via the battalion supply depot system for repair/replacement. Required replacement paperwork and requisition submittal shall be in accordance with current MFD procedures.
following applies to SCBA that have been placed OUT OF SERVICE (OOS) for repairs:

- OOS SCBA will have a RED “Lock-Out” repair tag wired to both the cylinder band latch-wing AND the SCBA GREEN box within which the OOS SCBA is placed at the depot

QUALITY / QUANTITY OF BREATHING AIR

This system must be supplied with respirable or higher quality air; and a dew point not to exceed -65°F (24ppm v/v). In fire service applications, MSA recommends breathing air quality in accordance with NFPA 1989 standards.

The purity of the air from the Fire Department’s compressors shall be checked on a quarterly basis by a competent vendor.

The department shall assure that sufficient quantities of compressed air are available to refill SCBA for each incident. This shall be accomplished through the use of mobile air supplies or mutual aid from other fire departments.

Only trained personnel shall fill SCBA cylinders. Compressed oxygen shall not be used in open-circuit SCBA. Standards for breathing air and hazards associated include:

1. Oxygen content of 19.5-23.5%
2. Hydrocarbons (condensed) content 5 milligrams per cubic meter of air or less
3. Carbon monoxide (CO) content of 10 ppm or less
4. Carbon dioxide content of 1,000 ppm or less
5. Lack of a noticeable odor

The fire department shall insure that cylinders used to supply breathing air to respirators meet the following requirements:

1. Cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation test requirements of five years for composite cylinders
2. Note: composite cylinders have a maximum use life of 15 years
3. The moisture content in the cylinder does not exceed a dew point of -50°F [-45.6° C at one (1) atmospheric pressure]

REQUIRED MEDICAL EVALUATIONS

Using a respirator may place physiological burdens on firefighting personnel that vary with the types of work for which the respirator is used and the medical status of the employee. All new employees must undergo a medical evaluation prior to being fit tested or required to use a respirator. Existing members shall be medically evaluated annually thereafter.
The medical questionnaire, via electronic format, shall be administered confidentially during the member’s normal work hours and is also available to members wishing to complete it off duty. The questionnaire will determine the need for a follow-up physical examination. The department shall use the Physician or other Licensed Health Care Professional (PLHCP) to administer the medical questionnaire and any follow-up medical evaluations or examinations if needed, as defined in the current established occupational healthcare provider contract.

Medical questionnaires shall be administered prior to initial or annual fit tests to all firefighters or members required to use SCBA or respirators.

The employee shall have the opportunity to discuss the questionnaire and examination results with the PLHCP if so requested.

**REQUIRED FIT TESTING**

All members wearing respirators must be fit tested with the same type, make, model, and appropriate individual size that will be used on the job. The Respiratory Protection Program Administrator will oversee the fit testing of fire department members.

Fit tests will be conducted on all members who use respirators following the initial medical evaluation as a new employee, at least annually thereafter, or whenever the department observes or receives a report of changes in the member’s physical condition that could affect respirator fit, or the employee states that the fit of the respirator is unacceptable.

Some factors that may affect mask fit are:

1. Significant weight change.
2. Significant facial scarring in the area of the face piece seal.
3. Significant dental changes.
4. Reconstructive or cosmetic facial surgery.
5. Any other condition that would interfere with mask fit.

Tests will be administered using an OSHA accepted Quantitative Fit Test (QNFT). The protocol used will be stated on the fit test record for each employee. The QNFT yields a direct numerical measurement of the respirator face seal performance called a Fit Factor. As OSHA requires minimum Fit Factor of “500” for full-face respirators, and available Qualitative Fit Test (QLFT) protocols terminate at “100”, the QNFT shall be the only Fit Test utilized. A weighted average of the individual exercise Fit Factors, called the Overall Fit Factor, having a minimum value of “1000”, has been adopted by the MFD.

**QUANTITATIVE FIT TEST PROCEDURE**

1. Test administrator attaches test probe to respirator being tested
2. Member dons respirator (must remain in place as donned once test begins)
3. Test administrator will connect sampling tube to adapter
4. Member will test mask fit for a good seal
5. Test administrator will complete data entry and the test will begin
6. Member will follow exercise prompts on computer screen [SEE BELOW]
7. Upon completion, member will await instruction to doff from test administrator

QNFT protocols require the test subject to perform a series of exercises meant to simulate workplace motions (and their potential impact upon respirator seals). These eight (8) exercises each typically take 60 seconds to complete, one after another, until finished:

1. Normal Breathing – remain still and breathe as usual
2. Deep Breathing – take long breaths as if working hard; do NOT overdo it
3. Head Side-to-Side – breathe normally while turning head side-to-side, turning far enough to stretch the neck muscles. Each cycle from left-to-right should take several seconds, pausing momentarily at each side to take a breath
4. Head Up-and-Down – breathe normally while slowly alternating between looking up at the ceiling and down at the floor. Each up-and-down cycle should take several seconds
5. Talking Out Loud – read a prepared paragraph or count out loud to simulate speaking with the respirator in place
6. Grimace (15 Seconds) – grimace by smiling and/or frowning to intentionally try to create a leak in the respirator face seal. While this exercise is not in itself measured, the subsequent exercises evaluate whether or not a successful re-sealing of the facepiece occurs
7. Bend and Touch Toes – bend at the waste as if you are touching your toes while breathing normally. Return to a standing position, with each up-and-down cycle taking several seconds
8. Normal Breathing – remain still and breathe as usual

PROGRAM EVALUATION

Annually, the Program Administrator shall initiate a review of the procedures contained in this program. All members who wear, service, or supervise members wearing respirators shall be asked to provide information on:

1. Adequacy of the respirator(s) being used.
2. Accidents or incidents in which the respirator failed to provide adequate protection.
3. Adequacy of training and maintenance on respirator use.

The annual review shall evaluate RPP compliance and shall specifically address any problem areas, including members, equipment, inspection, maintenance, repair schedules, records, and resources. Any reported or observed problems shall be addressed in a timely manner to preclude the recurrence of an additional failure of a similar or related nature.

The Program Administrator shall recommend changes in the program and its implementation based on this information.
RECORD MANAGEMENT

Documentation of all medical evaluations, fit-tests, and member training (including date, attendees, trainer(s), and subject matter) shall be held on record for the duration of each member’s employment PLUS thirty (30) years.

Fit-test records shall include:
- Name of member tested
- Type of fit-testing performed
- Specific make/model/size of facepiece tested
- Results of each test (PASS or FAIL)

The Department is also required to keep a complete individual inventory record of all SCBA, SCBA facepieces, and SCBA cylinders, uniquely identifying each by serial or inventory number, and shall include:
- Date of purchase
- Date of manufacture
- Date placed in service
- Location placed in service
- All maintenance and repairs performed
- Replacement parts installed
- Upgrading
- Test performance
- SCBA cylinder inventory shall include hydrostatic test pressures and dates, which shall also appear on each cylinder according to manufacturer and applicable government requirements.

The Division of Construction and Maintenance shall keep F-650 forms on record for a minimum of five (5) years.
37.0 – Henry Maier Festival Park Response Plan

Units Dispatched: 4E + 2T + (RESC1 or RESC2) + 2M + 2B + C3 + C18

GENERAL

The procedures listed below are for when festivals are in progress. Fire and EMS calls during non-event times will follow MFD standard dispatching protocols. All responding units during non-festival times will respond directly to Gate 6 at 200 North Lincoln Memorial Drive, unless directed otherwise. A security officer will be present at this location 24 hours a day.

A special event plan will be created for all pre-scheduled events that require MFD resources to stand-by at Henry Maier Festival Park.

Henry Maier Festival Park contact phone numbers are:
- Security Dispatch 414-270-6433
- Administration 414-273-2680

PURPOSE

During an emergency it is essential that the MFD has the ability to access Henry Maier Festival Park at the same time that a crowd of several thousand people may be attempting to evacuate the grounds.

The plan below provides for a coordinated and efficient response package that will enable the MFD the ability to deploy resources in the most expedient manner. Since ingress and egress obstacles will provide first responders with their greatest challenge during events, the importance of a proper staging location along with adherence to the incident command system (ICS) cannot be overstated.

EMS RESPONSE PROCEDURES

A designated private ambulance provider(s) will be responsible for administering ALS and BLS services to patrons during festival hours per contract. In extenuating circumstances the provider may request additional MFD resources through MFD Dispatch. The private provider and/or grounds security will provide MFD dispatch with a gate location to which MFD resources should respond. If no information is given on the run sheet, responding MFD EMS units are to default to Gate 5 (use East Erie Street to East Summerfest Place (formerly East Polk Street) to access North Lincoln Memorial Drive (formerly North Harbor Drive). Entrance is on North Lincoln Memorial Drive, between East Summerfest Place and East Chicago Streets. The Gate 5 entrance will be where the Festival First Aid Station and EMS Operations Office is located. A representative from the private ambulance provider and/or grounds security personnel will be there to meet responding MFD units. MFD fire apparatus and transport units may not respond onto the grounds during festival hours, unless extenuating circumstances exist. If it is absolutely necessary to respond onto the grounds with an apparatus, the movement on the grounds needs to be coordinated with grounds security.
**FIRE AND EMERGENCY RESPONSE PROCEDURES**

In addition to any units that may be previously assigned at Henry Maier Festival Park, the following units will be dispatched to complete a first alarm response:

- 4 Engine companies
- 2 Truck companies
- 1 Rescue company
- 2 MED units
- 2 Battalion Chiefs
- Car 3 (enter at Gate 6, report to MPD Command Post)
- Car 18 (enter at Gate 6, report to MPD Command Post)
- ICP, if assigned, (enter at Gate 6, report to MPD Command Post)

**STAGING AREAS**

Dispatched units are to respond to the following staging areas.

**North Staging Area**

The following companies stage on East Michigan Street between Art Museum Drive and North Lincoln Memorial Drive.

- Battalion 1
- Engines 1 and 2
- Truck 2
- Rescue 2, if assigned
- MED 6

> Units are to enter from East Michigan Street and North Lincoln Memorial Drive, and proceed east on East Michigan Street to turn-around area to position apparatus for west egress.
> MFD Dispatch will adjust the response assignment if companies are not available or are already assigned to the event.
> When instructed, companies may access park via Gate 1, North Lincoln Memorial Drive, or alternate gate as determined by the incident commander.

**Fire Investigation Team (FIT): 1st Engine & 1st Truck**

Send the Officer and (1) Firefighter from the 1st arriving Engine and 1st arriving Truck to North Staging on the club car(s) provided by Henry Maier Festival Park containing MFD dry chemical, carbon dioxide and pressurized water extinguishers. Investigate the situation and begin mitigation procedures as able, communicating location, conditions, actions, and resource needs to Operations over the fire ground channel. The FIT should be aggressive, but methodical in their investigation and initial mitigation of fire.
South Staging Area
The following companies stage on East Summerfest Place between North Lincoln Memorial Drive and North Jackson Street.

- Battalion 4
- Engines 11 and 23
- Truck 1
- Rescue 1, if assigned
- MED 15

MFD Dispatch will adjust the response assignment if companies are not available or are already assigned to the event.

When instructed, companies may access the park via the emergency vehicle access road to Gate 10, or east through Gate 16 around to back of amphitheater to Gate 20 (one gate north of Gate 18).

**DIVE RESPONSE PROCEDURES**
Dive responses to Henry Maier Festival Park or surrounding waterways are to be handled per SOG 26.1 “Dive Assignment” (Maier Festival Park).

Refer to the following maps for hydrant and gate locations.
Responses to Miller Park can present first responders with many challenges and having a pre-determined set of procedures, coordinated with Miller Park and MPD security staff, can enhance emergency response operations of all types and complexities. On days when events are occurring, first responders are often confronted with the following issues: limited ingress and access points, large crowds, unique building layout and a large property. It is essential that MFD has the ability to access Miller Park at the same time that a crowd of several thousand people and autos may be in the way or attempting to evacuate the stadium and/or grounds. The procedures listed below are to be followed when ballgames or other events are in progress. Fire and EMS calls during non-event times will follow MFD standard response protocols and established SOGs.

Miller Park contact phone number:
- Command Post (24-hour x 365 days) 414-902-4457
- Security Director (Randy Olewinski) 414-902-4444

**PURPOSE**
During an emergency call while an event is in progress, the plan below will enable MFD the ability to stage and deploy resources in the most efficient manner. Since ingress and egress obstacles will provide a challenge during events, the importance of a proper staging location along with adherence to the incident command system (ICS) cannot be overstated. This response plan will allow the MFD Incident Commander to join the Miller Park Unified Command structure, so that a single Incident Action Plan (IAP) can be developed in order to establish clear communications, accountability, and deploy resources efficiently.

**RESPONSE PROCEDURES**
Units responding for any call-type on Miller Park property during an event will approach and stage per this SOG. After arriving and gaining pertinent information, the Incident Commander will deploy the staged resources to the proper location(s) and function according to the principles within the established SOG for the actual call-type.
• All apparatus should respond to the North Dock staging area located on South 44th Street and Selig Drive (see map) unless directed otherwise by command.

• First in Command personnel (Deputy Chief, Battalion Chief, or ISO) should establish command upon their arrival and proceed down Selig Drive toward the North Dock (see map). All other apparatus shall stand-by at the South 44th Street staging location, while Command makes contact with the command post for further information.

• Incident Commander will park in the North Dock parking area and proceed through the North Dock entry door to the MPD/Miller Park Unified Command Post. The command post is located directly on the right after you enter through the North Dock set of doors into Miller Park.
  o The North and South Loading Docks are staffed 24 hours a day/365 days a year. During events, the command post is also staffed with MPD personnel.

• MPD will have a radio pre-programmed for you to use in the command post (set to MPD ICS 13) that will allow for communications with MPD and Miller Park Security.

• A fire department box is located in the control room of this command post which has additional information (maps, contacts, hydrant locations, and FDC locations). The control room also has various live video footage monitors to assist in emergency location and best access route(s).

• Once the Incident Commander confirms the extent of the emergency and the exact location, the IC can deploy the staged resources and/or special-call for additional resources as needed.

Note: A designated private ambulance provider(s) is contracted by the Brewers for ALS and BLS services during event hours.
The MFD TEMS program was created to provide rapid medical support and humanitarian aid for law enforcement, civilians, and potential suspects during high-risk and critical tactical incidents and events. A TEMS response will be dispatched when a report is received from MPD regarding medical support for an exigent or potentially exigent tactical situation.

TEMS members and equipment are assigned to Engine 9.

TEMS members are selected through an application and credential review as determined by the TEMS director in cooperation with the medical director, MPD Tactical Enforcement Unit (TEU) commanders, and the MFD Special Operations Deputy Chief. Upon completion of the certification and training program, members must upgrade their state paramedic license to include the TEMS endorsement.

**EQUIPMENT AND GEAR**

Members of the TEMS program are issued the following equipment and gear:

- Ballistic armor – E9 assigned members
- Ballistic helmet – E9 assigned members
- Eye protection
- BDU shirt and pants
- Jacket
- Balaclava
- Gloves
- Knee pads
- Boots
- Gas mask
- IFAK (individual first aid kit)
- Mission specific gear as determined by MFD Special Operations and MPD TEU

**COMMAND AND CONTROL**

1. TEMS members will operate under the control of a Unified Command structure when deployed to provide tactical medical support. TEMS members will operate under the direction of the Tactical Unit Training Coordinator during joint training and exercises.
2. At every mission and training exercise, TEMS members will serve as the medical liaison between the Tactical Commander and the MFD Commander to coordinate rapid medical support.

3. All EMS medical skills and activities performed by the TEMS members will be reviewed annually by the TEMS Medical Director and the EMS Division.

**ACTIVATION AND DEPLOYMENT**

**Exigent**- Situation that poses immediate assumed danger to citizens or emergency personnel (hostage situations, barricaded persons with weapons)

The ranking MPD TEU Sergeant will contact the Milwaukee Fire Department Firefighting Deputy Chief (C3) and/or the Dispatch Supervisor via phone or radio. Car 3 will validate all requests for deployment and follow up with the requesting TEU Sergeant and MFD Dispatch Supervisor.

- A tactical response will be dispatched consisting of a Battalion chief, an engine or truck company, a MED unit, and TEMS 1.
- Unified Command should be established between law enforcement officials and MFD.
- The MFD Communications Supervisor will contact Car 3 and relay information updates.

**Non-exigent**- Situations that the MPD considers high risk or critical, but do not pose an immediate known danger to citizens or emergency personnel (high risk warrant service).

The ranking MPD TEU Sergeant will email or call the Firefighting Deputy Chief (Car 3), the Special Operations Deputy Chief (C5), and the Dispatch Supervisor as early as possible the day before the requesting date with specific information and necessary contact information.

- Assigned MFD crews will meet for the pre-warrant briefing with MPD TEU at a pre-designated time and location.

**BATTALION CHIEF**

- MFD BC will confer with TEMS members at the briefing to select a pre-determined medical rally point that is located in the safe zone.
- Communicate event address and medical rally point to Car3 via cell phone
- Once on scene, Co-locate and unify command with MPD IC
- Call Dispatch via cell phone when crews arrive on scene – confirm warrant address and medical rally point
- Ensure Med Unit and TEMS1 is staged at medical rally point and conduct radio check
- Ensure TEMS1 OPS member (co-located with MPD OPS) in warm zone has patent communications with unified command and with the TEMS1 hot zone member, conducting radio check
- Communicate all pertinent updates and resource needs to MFD Dispatch
• Additional resources shall be directed to respond to the medical rally point unless otherwise directed by TEMS COMMAND
• Expand or contract command structure and communications plan as indicated by changing scene dynamics [P6 / TG 10-15 are reserved for TEMS incidents]. 8-TAC-GRAY is the default backup radio frequency to P6 / TG10.
• Confer with and provide fire/EMS counsel to MPD IC
• Ensure that MFD members are provided stable and consistent command structure throughout

MED UNIT

• Following briefing, MFD Med Unit personnel will split, with one member driving the Med Unit and one member driving TEMS1 to the Medical Rally Point (Med Unit and TEMS1 vehicles will be co-located at the Medical Rally Point)
• Stage at predetermined medical rally point, positioning Med Unit for ready egress and maintaining awareness of event address and operational phases
• Remain vigilant and prepared for multiple traumatic injuries, maintaining radio awareness at all times
• If TEMS1 begins evacuating a patient from the hot zone to the medical rally point, prepare the Med Unit to receive the patient, the TEMS operators, and an MPD Officer or Officers
• Maintain patient care continuum as initiated by TEMS operators and transport patient per protocols

TEMS

• Following briefing, one TEMS OPS will travel in the MPD Bearcat to the warrant address and assume the role of Operations once on scene
• Remaining TEMS member will travel with the TEU Entry team and be part of the stack.
• Function as per TEMS operational norms and according to MFD TEMS training standards
• TEMS1 OPS shall maintain constant, simultaneous radio communications with TEMS COMMAND and with the hot zone TEMS member. 8-TAC-GRAY is the default backup radio frequency to P6 / TG10.
• TEMS1 OPS will communicate all pertinent updates and resource needs to TEMS COMMAND
• Provide communication link between TEMS stack member and TEMS Command.

MEDICAL PROTOCOLS

• TEMS Medical Director and Milwaukee County EMS provide medical oversight for medical care delivered by the TEMS members.

• TEMS members may perform medical skills and activities as authorized by, and in adherence to, the medical standards, protocols, and policies of Milwaukee County EMS, the TEMS Medical Director and the Milwaukee Fire Department.
  o The Tactical EMS program Standards of Care and Operational Policies are included as a separate EMS Standard Operating Guideline.

  Operational Guidelines
  TEMS (Tactical Emergency Medical Services Response)
**DOCUMENTATION**

- All medical incidents, planning, and analysis will be documented on the ‘MFD Tactical EMS Mission Checklist and Summary’ and submitted to the Special Operations Deputy Chief. These reports will remain confidential.
- Incident Commander will submit the After Action Review report to the Special Operations Deputy Chief.
- TEMS members are to adhere to all applicable laws and regulations regarding confidentiality of health information and privacy of patients. At no time will any patient information be shared with persons not directly involved in the patient’s care, except with the direct, written permission of the patient.
  - TEMS members will assist TEU officers in maintaining important medical/health history and current immunization records as requested. These records may be kept on each officer for use by TEMS members or other medical providers during a medical emergency. Confidentiality of such information will always be maintained.

**COMMUNICATIONS**

The communications plan (COMMPlan) for enhanced TEMS deployments is shown below.