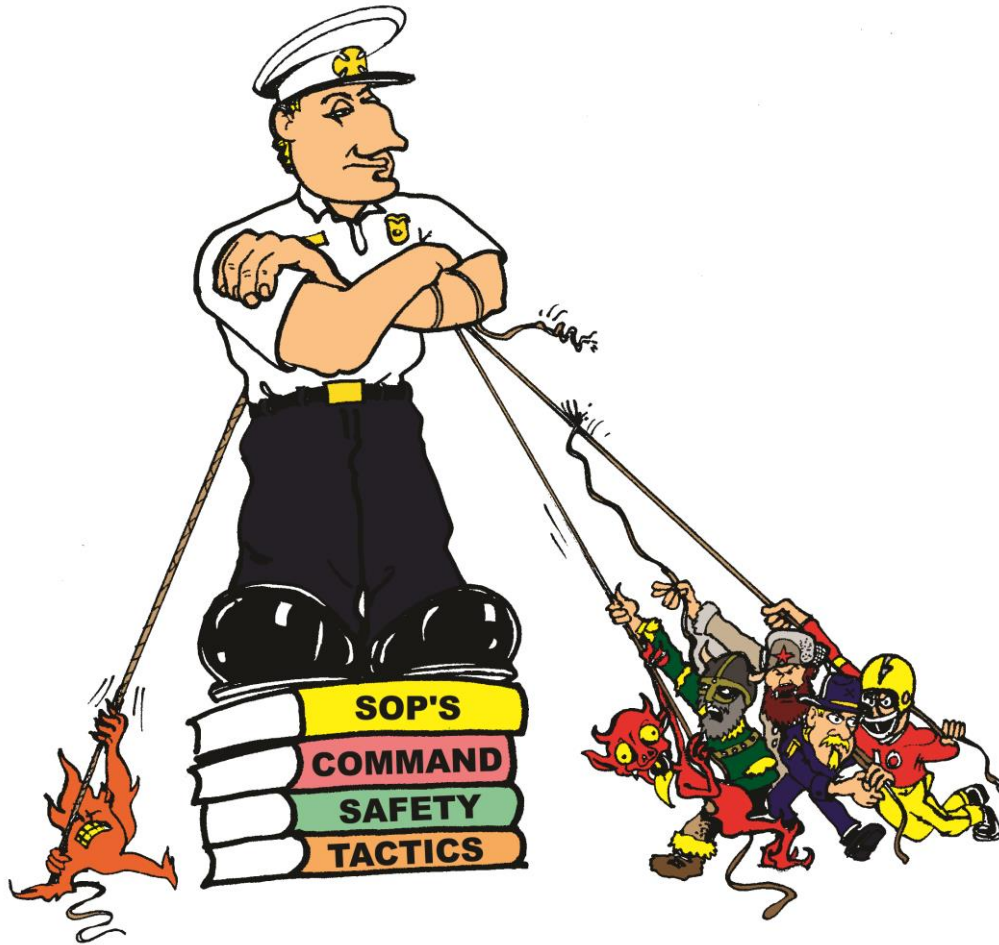




**BLUE CARD**



# COMMAND SOP's

Rev: July 2020

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## **Glossary of Terms**

Accountability location – a location where Units drop off their passports prior to making entry into the Hazard Zone. Located either at a forward pumper near the work entrance to a geographic location or it is physically located with an in-place Division Supervisor working in the Warm Zone of the incident.

Balancing the Alarm – filling out a 3-1 assignment to a full 1st Alarm assignment.

Box Alarm – An agreed upon, predetermined dispatch package that usually dispatches several different mutual aid departments to one (1) incident scene.

Branch - For larger incidents with lots of resource and/or multiple operational areas, a supervisory level established in either operations or logistics to provide span of control. Branch (Director) Officers coordinate and manage several S/D Supervisors assigned through the IC.

Code 2 response - defined as normal roadway driving, following all local driving rules and regulations.

Code 3 response - defined as an emergency response. When responding Code 3, warning lights must be on and sirens must be sounded to warn drivers of other vehicles, as required by the Local Motor Vehicle Code.

Cold Zone – Area outside the Warm Zone and is safe for personnel not wearing any PPE or an SCBA

Command Post (CP)

Command Team – A 3-person team consisting of: IC, Support Officer (SO), and a Sr. Advisor (SA). Command Teams are a quick and effective way to manage the swift influx of resources needed to bring local incidents under control.

Conditions, Actions, Needs (CAN) Report – Units assigned to working positions should structure all communications to the IC as a CAN report.

Crew/Unit – at least 2 people equipped with full PPE and a working portable radio.

Critical Factors - the incident critical factors are the basic items an IC must consider when evaluating tactical situations.

Division - a supervisory level established to divide an incident into geographic areas of operation and is led by a Division (Supervisor) Officer.

Elapsed Time Notifications (ETN): When an offensive Working Fire or Haz Mat incident is declared, the TRO to begin elapsed time notifications over the tactical frequency every five (5) minutes until the incident is placed under control.

Emergency Traffic (ET) – a very loud warble tone that is generated over the tactical channel. ET is sounded by a request from the IC.

Field Incident Technician (FIT) – Person who drives the BC (Chiefs Aide). This person becomes the IC's Support Officer or if the BC is assigned forward to a Division, they become the Division Safety Officer.

Follow-up Report – a report that follows the IRR that includes the result of the 360 and the initial accountability location. A Mobile IC will deliver their follow-up report prior to making entry into the Hot Zone.

Forward Pumper – a pumper that is located in one of the primary, forward attack positions on the fire ground where equipment, hose and water are deployed off of the pumper directly into or around the Hazard Zone.

Group - a supervisory level established to divide the incident into functional areas of responsibility and is led by the Group (Supervisor) Officer. *Blue Card does not use Groups inside the Hazard Zone.*

Hazard Zone – IDLH area of the incident. All personnel working in the Hazard Zone must be wearing full PPE while breathing from an SCBA. Also known as the “Hot Zone”.

High-rise Pack – a pre-loaded bundle of 1 ¾” attack hose with a nozzle and Gated-Y attached, usually 100 ft. long.

Horizontal Standpipe (HZSP) – a 2 ½” hose (can be a pre-connect or a dead load) that has a gated-y attached to the end. This allows 2 high-rise packs or shorter lengths of 1 ¾” hose to quickly be attached and then deployed to interior positions.

Hot Zone – IDLH area of the incident. All personnel working in the Hot Zone must be wearing full PPE while breathing from an SCBA. Also known as the “Hazard Zone”.

Immediately Dangerous to Life and Health (IDLH) – OSHA defines IDLH as: Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.

In Transit - the time it takes for a company to reach their assigned area after receiving an order from the IC.

Incident Action Plan (IAP) – represents the tactical priorities (based on the chosen strategy) that the IC must accomplish to bring the incident under control.

Incident Commander (IC) – the person with the overall responsibility of managing the entire incident scene.

Initial Radio Report (IRR) - The initial IC begins the command, control and communication process with an IRR. This report provides dispatch, as well as everyone else responding to the scene, with a standard size-up of the conditions seen from the initial command position.

Level 1 Staging - is automatically activated when the officer of the initial arriving unit clears dispatch to give their Initial Radio Report and assumes command. All other 1st alarm units will Level 1 stage (stop) in their direction of travel 1 block from the scene not passing their last tactical option.

Level 2 Staging - used for greater alarm assignments and is defined as a centralized staging location, adjacent to the incident scene where later arriving resources will assemble prior to being assigned to the incident scene.

Mayday - anytime a firefighter cannot safely exit an IDLH Hazard Zone. A Mayday will also be declared for any unit operating inside of an IDLH Hazard Zone who does not answer their portable radio after 3 attempts.

Mobile Command Position - IC #1 enters the Hazard Zone (when in the offensive strategy) in full PPE, with a portable radio, supervising and assisting their crew with fire attack while commanding the front end of the incident deployment.

National Institute for Occupational Safety and Health (NIOSH) - is the U.S. federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. NIOSH is part of the Centers for Disease Control and Prevention (CDC) within the U.S. Department of Health and Human Services.

National Incident Management System (NIMS) Incident Typing – NIMS has typed incidents as they pertain to the fiscal responsibility, the number of agencies required, and the amount of interoperability required to mitigate emergencies.

NIMS Incident Typing:

- Type 1 – Federal deployment requiring large amounts of resource
- Type 2 – Federal deployment requiring small to medium amounts of resource
- Type 3 – State level deployments not involving the federal government
- Type 4 – Local deployment requiring two (2) or more agencies to mitigate
- Type 5 – Local deployment requiring one (1) single agency to mitigate

On-Deck - a forward staging position located immediately outside the Hot Zone, safely distanced from the tactical entrance in a division with the primary responsibility of functioning as a Rapid Intervention Crew/Team (RIC/RIT).

Passport – are colored tags, which measure approximately 3 by 4 inches that are permanently marked with the company identification. Name tags of the crew members assigned to each apparatus are affixed to the passport, which is placed in the passport pouch.

Personnel Accountability Report (PAR) - involves a roll call with the confirmation that all personnel assigned to a crew, or multiple crews assigned to one (1) geographic area of the Hazard Zone are accounted for and have an adequate air supply to safely exit the Hazard Zone.

Priority Traffic – a radio message to the IC that contains critical information that most likely will require a significant adjustment to the IAP or the incident's overall strategy.

Pumping a Hydrant - a using a 4-way hydrant valve that the forward pumper used to lay a supply line with, a 2nd pumper connects to the same hydrant valve and then “pumps” the Forward Pumper's supply line (increasing the GPM and intake pressure to the Forward Pumper).

Radio Discipline – Assigned units only reporting status changes, priority traffic, and/or Mayday radio traffic messages when assigned to working positions. A “no good news” reporting system.

Recycling - a timely and efficient means of air replacement and re-hydration of companies while maintaining their SDG assignment.

Rehab - an assignment to a formal rehab location (close to the emergency scene) where Units will be de-conned, medically evaluated, rehydrated, and replenished.

Risk Management Plan (RMP) - The following RMP will be used at all times whenever a Hazard Zone exists:

- We will risk our lives a lot, to save savable lives
- We will risk our lives a little, to save savable property
- We will NOT risk our lives, at all, for lives or property that are already lost

Sections – Formal NIMS management positions used to manage the IC's span of control for larger, expanding, and/or long-term incidents requiring lots of resources. These positions include:

- Logistics
- Planning
- Operations
- Admin



- Safety

Sector - a traditional fire service term used to subdivide an incident into geographic and functional areas of operation.

SDG – An acronym that puts all subdivision types under a single (1) identifier; Sectors, Divisions, and Groups. The AHJ retains the right use terms as needed to subdivide an incident to maintain a manageable span of control.

Senior Advisor (SA) - The third member of the Command Team is the SA. Their major responsibility is to look at the entire incident and its impact from a broader perspective and to provide direction, guidance and advice to the rest of the Command Team and support staff.

SOP – Standard Operating Procedure.

Status Change - a radio message to the IC informing them that a Unit is moving from an assigned work location to a different geographic work location or exiting the structure to recycle or rehab.

Strategic Command Position - an IC located INSIDE of a stationary command post, with the windows rolled-up, wearing a headset while managing a tactical worksheet.

Strategic Decision-Making Model - This model conforms the decision-making process into a standard sequence: First we identify the incident's significant critical factors, plug the most significant factors into a risk management plan, develop the incident's overall strategy, develop the IAP, complete the incident's tactical priorities.

Strategic level - The IC manages the strategic level by strict command & control; deploying resources to specific tasks locations and objectives; maintaining the whereabouts of all resources in the Hazard Zone; maintaining an accurate tactical worksheet, and ensuring that frequent CAN and situational awareness reports are delivered from the key tactical areas of the operation.

Strategy – The overall operation “mode” of the incident. There are only 2 strategies: Offensive – Inside, or Defensive – Outside. The IC determines the incident's strategy.

Stretch – Deploying a handline from a pumper to a target location where water will be applied onto a fire.

Support Officer (SO) - the first command support position is the SO. The SO's roles and responsibilities include: evaluate and recommend changes to the IAP, provide direction relating to tactical priorities and the incident's critical incident factors, and assist with the tactical worksheet for resource control, accountability and tracking.

Tactical Level – this level of the incident organization is managed by Division Supervisors. When the IC assigns companies to an operational area, the Office-in-Charge of that area is responsible for managing the companies assigned to the Division and completing the Division's tactical priorities.

Tactical Priorities - Offensive - and their corresponding completion benchmarks:

- Fire Control (F/C) – “Under Control”
- Life Safety – Primary and Secondary “All Clear(s)” (A/C)
- Loss Control/Property Conservation – “Loss Stopped” (L/S)
- Customer Stabilization – Short term

Tactical Priorities - Defensive - and their corresponding completion benchmarks:

- Define the Hazard Zone
- Establish Cut-offs – Forward progress stopped
- Search exposures - Primary and Secondary “All Clears” – A/C's
- Protect exposures - “Fire Control” - Loss Stopped

Tactical Radio Channel – A specific radio channel that units operating on an incident scene will use to communicate with each other.

Tactical Radio Operator (TRO) – Located at Dispatch Center – this person manages all of the radio traffic for an assigned tactical channel.

Tactical Work Sheet – a standard worksheet or white board that the IC uses to perform the on-scene “bookkeeping” activities required to keep track of all the responders assigned to the incident and their ongoing operational status.

Task level – this level of the incident organization performs the actual work that solves the incident's problems. At a structure fire, this work is typically performed in an IDLH environment.

Tasks, Location, and Objectives (TLO) – Whenever an IC assigns a Unit inside of a Hazard Zone, they must give the Unit their TLO in the assignment.

Warm Zone – Area just outside of the Hot Zone that may become contaminated or is in a collapse area. Personnel working in a Warm Zone must be in full PPE with their SCBA face-piece readily available to quickly don.

## **Blue Card SOP Introduction:**

Public safety agencies (Police and Fire) are many times the agency of last resort. We get called because something in our community has gone wrong, and it is now jeopardizing people and/or property. We must always start out all of our emergency responses in a standard manner, where we will base our actions on a standard set of critical factors, in order to achieve a standard incident outcome. Every incident we respond to is different in some way. The things that protect us from these different, every time incident elements, is the command system that we use to manage our Hazard Zone operations. It must be used and applied the same way, for every incident we respond to. This prevents the incident from managing us. When we operate within our SOP's, we can effectively manage the incident while we protect our members operating inside of a Hazard Zone.

### **1.0 - Command Function #1 – DEPLOYMENT**

The major goal of Command Function 1 is to provide and manage a steady, adequate, and timely stream of appropriate resources. This Standard Operational Procedure (SOP) describes the standard deployment process used in the Blue Card Hazard Zone management system.

#### **1.1 - Company Status**

How responders are dispatched and put to work when they arrive on the scene is an essential component of our Incident Management System (IMS). When this front-end Deployment management occurs in a regular, orderly manner, the Hazard Zone workers become part of the IC's overall plan. This creates a safe and standard operational beginning.

The essence of incident control is the ability of every IC to create, manage, and—if necessary—move the position and function of all the resources operating in the Hazard Zone.

The IC is the resource allocator for the incident and is responsible for managing all assigned resources work cycles on the strategic level. The standard Deployment management that an IC must manage on every incident is the following items:

- Dispatch
- Standard incident response
- Staging
- Assignments to the incident scene by the IC
- Accountability in a Hazard Zone
- Work/Rest Cycle
- On-Deck
- Recycling
- Rehabbing
- Ready for reassignment
- Placing companies back into service

This creates a resource delivery system that allows the IC to deploy resources according to his/her IAP and it also provides a system that allows an IC to be supported in order to manage and track accountability on the strategic level as incidents continue to escalate.

## **1.2 – Dispatch Center**

The major goal of the local the Dispatch Center is to dispatch the appropriate amount and type of resource(s) to the scene of an emergency immediately after the receipt of the appropriate information.

The call taker must make an initial determination of the appropriate Nature Code, based on the information received from the caller.

Structural fire alarms, Hazardous Materials incidents, Serious MVA's, and MCI incidents should be dispatched using pre-determined dispatch packages. These standard dispatch packages should also include the command support required to manage the different amounts and types of resource responding.

### **1.2.1 - Blue Card Standard Structural Fire Dispatch Packages**

*FD's – Put your standard, local dispatch packages and resource profiles here. The following Blue Card resource packages match up to the Blue Card Training and Certification Program.*

**Still Assignment:** A one (1) unit Engine Company response to a reported fire that poses no significant danger/threat to people or property.

**3-1 Assignment:** A multi-unit response dispatched to a reported fire in a normal sized residence or a reported fire that can be easily controlled by one (1) full attack team. A 3-1 assignment consists of:

- 3 Engine Companies
- 1 Ladder/Truck Company

- 2 total Response Chiefs, Safety Officers, Training personnel, or Staff Officers (a combination of at least 2)
- 1 Medic/Ambulance

**1<sup>st</sup> Alarm/Box Assignment:** A full multi-unit response dispatched to a reported fire in a commercial structure or high life safety structure. A 1<sup>st</sup> Alarm assignment consists of:

- 5 Engine Companies
- 2 Ladder/Truck Companies
- 5 total Response Chiefs, Safety Officers, Training personnel, or Staff Officers (a combination of 5)
- Larger Command Vehicle (CV) if available
- 1 Medic/Ambulance

**Balancing a 1<sup>st</sup> alarm from a 3-1 assignment:** Initial arriving officers of a dispatched 3-1 assignment must fill out, or balance, the 1<sup>st</sup> Alarm before requesting more resource greater than the 1<sup>st</sup> Alarm. This will ensure that all dispatched 1<sup>st</sup> Alarm resource will respond directly to Level 1 Staging positions, while operating on the incident's assigned tactical radio frequency.

**Greater Alarms/Boxes:** Additional alarms should somewhat reflect the resource of a full 1<sup>st</sup> alarm assignment, but because enough Chief Officers or additional command help was sent on the 1<sup>st</sup> Alarm/Box, the need for the same amount of Chief Officers will vary from incident to incident and should be specified when calling for additional alarms. This could also be the same case for Ladder/Truck companies.

### 1.2.2 - Working Fire policy

The term "Working Fire" indicates a situation that will at least require the commitment of all responding companies. This report advises dispatch that the companies will be engaged in tactical activities and will be held at the scene for an extended period of time. The Dispatch Center will monitor radio traffic on all incidents to anticipate the needs of Command.

**Working Fire Upgrade:** When the IC declares a "Working Fire" incident, the Dispatch Center will automatically dispatch a 4<sup>th</sup> Engine Company and a Rehab Unit for an original 3-1 assignment. For a 1<sup>st</sup> Alarm "Working Fire" declaration, a 6<sup>th</sup> Engine Company, and a Rehab Unit will be dispatched, along with staff officer notifications going out to all needed support personnel.

**When notified of a Working Fire First Alarm, the Dispatch Center should:**

1. Upgrade the dispatch to a Working Fire assignment
2. Isolate a tactical channel
3. Dispatch a Fire Investigator
4. Dispatch PD for traffic and crowd control
5. Dispatch gas and electric companies
6. Make move-ups to affected areas

7. Document progress reports, SDG assignments, emergency traffic, and elapsed time notifications
8. Be prepared to assign additional TRO's to monitor/work Staging and other SDGs created by the IC
9. Be prepared to dispatch further assistance
10. Be prepared to dispatch any special agencies or equipment when the need is indicated
11. Make notifications to pertinent personnel

Any fire at a public-school facility requires the State Fire Marshal to be contacted. The on-duty State Fire Marshal will use his/her discretion as to a response.

**Elapsed Time Notifications (ETN):** When an offensive Working Fire or Haz Mat incident is declared, it will prompt the TRO to begin elapsed time notifications (an IC can also request ETN's whenever they feel it is necessary). The TRO will announce over the tactical frequency an elapsed time notification every five (5) minutes once a working incident has been declared and will continue ETNs until the incident is placed under control, or until command requests to discontinue or restructure the ETN's.

The IC must verbally acknowledge each ETN by re-announcing the incident's strategy over the assigned tactical radio frequency until the incident is placed under control, or until command requests to discontinue or restructure the notifications.

**Move ups, back fills, and maintaining system wide service coverage:** IC's should keep the Dispatch Center aware of the amount of resource(s) needed and a predicted length of time the resource will be required to control the situation. The Dispatch Center has the responsibility to back fill critical areas of the community in order to continue to deliver core services to the department's customers with reasonable response times. These Units may also be needed in the future to quickly respond to the current working incident.

*FD's – Put your local back fill and move-up procedures – mutual aid stuff here . . .*

### **1.2.3 – Dispatching Incidents**

**Channel 1:** All emergency incidents will be dispatched on Channel 1. Each incident dispatched will be assigned a tactical radio frequency that is different than Channel 1. At no time should an incident be run on a main dispatch channel where subsequent dispatches could cover critical Hazard Zone communications.

One tactical radio frequency can host several EMS incidents at once, but for incidents that are declared "Working Fire", the assigned tactical radio channel should be cleared of other incidents, or, if there is credible call information, the call should be assigned on its own separate tactical radio channel upon dispatch if available.

## **All Hazard Zone transmissions shall be carried out on one (1) tactical radio frequency.**

Some incidents may require the use of multiple radio frequencies in order to support operations outside of the Hazard Zone (Level 1 & 2 staging, Rehab, Safety, Planning, Logistics, etc.). Each additional channel activated for the incident must have a dedicated person assigned to manage that channel at all times. The IC must only be responsible for the operation of one (1) tactical radio frequency while an active Hazard Zone exists.

**The Tactical Radio Operator (TRO):** Handles all communications between units assigned to an incident and the Dispatch Center on the incident's assigned tactical radio frequency.

**Dispatched acknowledgement:** All units responding to an incident shall acknowledge the Dispatch Center by radio on the assigned tactical channel or by Mobile Computer Terminal (MCT) if equipped. If the Dispatch Center does not receive an acknowledgment within one (1) minute of dispatch, the TRO will request acknowledgment by radio on all channels (starting with the assigned tactical channel) and via the MCT if equipped. The Dispatch Center should send a cover assignment if no reply is received after three (3) attempts to contact the unit or within a two (2) minutes of the original dispatch.

The Dispatch Center should continue to attempt to make contact with the original company while the cover unit is responding. If unable to contact the original unit, the company will be placed unavailable and the unit's appropriate supervisor should be notified of the circumstances.

**Self-Dispatch:** There are many times when units are making standard, non-emergency apparatus movements where they will witness or see something that requires an emergency response and some type of mitigation. In these situations, the officer or member initiating the incident will contact the Dispatch Center on Channel 1 and will give the following information:

- Nature of the incident
- Exact location of the incident
- Resource request required to control the incident

Once reported, the Channel 1 Operator should assign a separate tactical frequency for the incident and dispatch any additional resource required on Channel 1. Because the requesting Unit is typically close to the scene, they should give the recently dispatched responders (if any) at least 1 minute to start their response out before transmitting a standard Initial Radio Report (IRR) on the assigned tactical radio frequency. This time lag will give everybody who is dispatched the needed time to get into a responding status in order to receive the IRR information.

**Adding an additional Unit to a dispatched incident:** Unit's may add themselves to a dispatched incident by contacting the TRO on the incident's assigned channel. Companies adding on to an assignment must advise the TRO if they are substituting for another unit or responding in addition to the original assignment. The TRO should cancel the original unit dispatched if the substituting unit is closer to the scene (EMS).

### **Unit response statuses**

- Code - 1: not assigned to a service call, following all state/local driving regulations.
- Code - 2: assigned to a non-emergency service call, following all state/local driving regulations.
- Code - 3: assigned to an emergency call using lights and sirens in the response.

### **Units while responding:**

- The TRO will act as the initial IC until the 1<sup>st</sup> unit or member arrives to the scene and transmits a standard Initial Radio Report.
- All fire and EMS responses will be Code-3 unless otherwise indicated by the Dispatch Center or Command.
- Minor medical incidents and some service calls may be dispatched Code-2.
- Company Officer's may make the decision based on the dispatch information to respond Code-2 on a dispatched Code-3 incident. When this occurs, the Officer must advise his/her TRO of the status change on the assigned tactical channel.
- Similarly, if the Company Officer makes the decision to respond Code-3 on a dispatched Code-2 call, he/she must advise his/her TRO on the assigned tactical channel.
- While responding, companies may communicate with one another if radio traffic permits. Effective communications during this period can set the stage for effective action and improve the overall rescue and fire attack effort. Factors such as occupancy hazards, access, traffic conditions and response routes should be communicated when necessary.
- Company Officers should review tactical information on their MCT, map books and any pre-fire planning info available while enroute.
- Subsequent arriving units must monitor all radio traffic on the assigned channel to be fully informed of the situation based on the reports of the first arriving units.

**Additional Incident Information:** The TRO will relay any additional critical information gained from subsequent callers to responding units as soon as possible. Critical information and/or updates must be transmitted via radio on the assigned tactical frequency to all dispatched units.

Companies needing specific additional information shall send these requests through the TRO.

### **1.3 - Response and general scene safety**

**A prompt, safe response shall be attained in the following standard manner:**



- All members must maintain the ability to respond quickly to dispatched incidents (always stay close to the truck).
- All personnel shall be mounted on board, properly attired for the call, and seated with seat belts securely fastened before the truck moves.
- All radios are set to the assigned channel.
- Station doors fully open.
- Follow all emergency response SOP's.
- Drive defensively and professionally at all times.
- Know where you are going.
- Use warning devices to move around traffic and to request the right-of-way in a safe and predictable manner.
- All responding apparatus should have 2 members in the front seats of the apparatus whenever possible. The driver is responsible for operating the vehicle safely.
- The Co-driver is responsible for being a second set of eyes and ears anytime a unit is responding to or returning from a response.
- Driver and Co-drivers must be focused on intersection management any time their response vehicle enters into an intersection.
- The unique hazards of driving on or adjacent to the fire ground requires the Driver and Co-driver to use extreme caution and to be alert and prepared to react to the unexpected.
- Drivers must consider the dangers their moving vehicle poses to fire ground personnel and spectators who may be preoccupied and focused on the emergency scene and may inadvertently step in front of or behind a moving vehicle.
- When stopped at the scene of an incident, vehicles should be placed to protect personnel who may be working in the street and warning lights shall be properly used to make approaching traffic aware of the incident.
- No personnel may exit a vehicle or piece of apparatus until it comes to a complete stop.
- Personnel dismounting the apparatus must look both ways and verify the outside surroundings before stepping off of the apparatus.
- When waiting for personnel to return to the truck before repositioning closer to the scene, the driver/operator shall keep the apparatus at a full stop at all times.
- At night, vehicle mounted floodlights and any other lighting available shall be properly used to illuminate the scene.
- All personnel working in or near traffic lanes shall wear high visibility vests.
- Drivers shall avoid backing whenever possible: Where backing is unavoidable, spotters shall be used.

### **1.3.1 - Emergency Response Driving Procedures**

The use of sirens and warning lights does not automatically give the right-of-way to the emergency vehicle. These devices simply request the right-of-way from other drivers, based on

their awareness of the emergency vehicle presence. Emergency vehicle drivers must make every possible effort to make their presence and intended actions known to other drivers and must drive defensively to be prepared for the unexpected, inappropriate actions of others.

- Use warning devices to move around traffic and to request the right-of-way in a safe and predictable manner.
- All responding apparatus should have 2 members in the front seats of the apparatus whenever possible. The driver is responsible for operating the vehicle safely.
- The Co-driver is responsible for being a second set of eyes and ears anytime a unit is responding to or returning from a response.
- Driver and Co-drivers must be focused on intersection management any time their response vehicle enters into an intersection.
- The unique hazards of driving on or adjacent to the fire ground requires the Driver and Co-driver to use extreme caution and to be alert and prepared to react to the unexpected.
- Drivers must consider the dangers their moving vehicle poses to fire ground personnel and spectators who may be preoccupied and focused on the emergency scene and may inadvertently step in front of or behind a moving vehicle.
- When stopped at the scene of an incident, vehicles should be placed to protect personnel who may be working in the street and warning lights shall be properly used to make approaching traffic aware of the incident.
- No personnel may exit a vehicle or piece of apparatus until it comes to a complete stop.
- Personnel dismounting the apparatus must look both ways and verify the outside surroundings before stepping off of the apparatus.
- When waiting for personnel to return to the truck before repositioning closer to the scene, the driver/operator shall keep the apparatus at a full stop at all times.
- At night, vehicle mounted floodlights and any other lighting available shall be properly used to illuminate the scene.
- All personnel working in or near traffic lanes shall wear high visibility vests.
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### **1.3.1 - Emergency Response Driving Procedures**

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- All department employees are required to use seat belts at all times when operating a vehicle. Anyone riding as a passenger/attendant in a vehicle is also required to use seat belt at all times when in a moving vehicle.
- The Company Officer of the vehicle will confirm that all personnel and riders are on-board, properly attired, with seat belts on, before the vehicle is permitted to move.

- The Office-in-Charge (or driver in a single occupant vehicle) of the vehicle is responsible for the safety of all vehicle operations and managing compliance of this procedure.
- Fire Department vehicles are authorized to exceed posted speed limits only when responding Code-3 under favorable conditions. This applies only with light traffic, good roads, good visibility and dry pavement. Under these conditions a maximum of 10 mph over the posted speed limit is authorized.
- Under less than favorable conditions, the posted speed limit is the absolute maximum permissible.
- When emergency vehicles must travel in center or oncoming traffic lanes, the maximum permissible speed shall be 20 mph.
- Intersections present the greatest potential danger to emergency vehicles. When approaching and crossing an intersection with the right-of-way, drivers shall not exceed the posted speed limit.
- When emergency vehicles must use center or oncoming traffic lanes to approach controlled intersections, (traffic light or stop sign) they must come to a **complete stop** before proceeding through the intersection, including occasions when the emergency vehicle has green traffic lights.
- When approaching a negative right-of-way intersection (red light, stop sign) the vehicle shall come to a **complete stop** and may proceed only when the driver can account for all oncoming traffic in all lanes yielding the right-of-way.
- Units responding to calls using a freeway for access only, will precede Code-2 while on the freeway unless otherwise ordered by command or Dispatch Center.
- For incidents that are located directly on a freeway, company officers must use their best judgment on the proper response (Code 2 or 3) based on the critical factors present.

Code-3 response is authorized only in conjunction with emergency incidents. Unnecessary emergency response shall be avoided. In order to avoid any unnecessary emergency response, the following rules shall apply

- When the first unit reports on the scene with "nothing showing" or an equivalent report, any additional units shall continue into the scene using a Code-2 response.
- The first arriving unit will advise additional units to respond Code-2 whenever appropriate (EMS runs after the pt(s). has been triaged and downgraded).

#### **1.4 - Establishing Command (Function #2)**

Command shall be formally declared on all incidents where two (2) or more Units are dispatched. The first Unit or member to arrive to the scene of a multi-unit dispatched incident should assume command of the incident by transmitting a standard IRR (there are a few exceptions to this procedure that will be covered in Function #2).

Once Command has been established, all routine communication between the Dispatch Center and the incident will be directed through Command.

## 1.5 - Calling for additional resources

The IC is the person that has to match (and manage) the work that must take place at the incident scene to the people and equipment that will be doing the work. Matching these two constants (tasks and workers) requires that the IC have a good grasp of the available area personnel, equipment, apparatus and the systems used to activate and manage those resources.

The IC will need to connect the profile of the incident to the profile of the local deployment process by quickly answering a set of closely connected questions that create a basic response profile for the incident:

- What resources are on the scene?
- When will the responding resources arrive on the scene?
- How much work can the responders on the initial assignment do and for how long?
- How much work is there beyond the capability of the initial assignment?
- How many geographic/functional points need resources assigned to them to cover the incident and get ahead of the power curve?
- What is the profile of the additional resources that will be required?
- What type of command support do I need to manage the dispatched resource?

The IC must automatically, instinctively, and quickly develop and compare these two profiles (**event vs. response**) and then call for the additional resources that will be required to bring the response model up to effectively engage and (hopefully) overpower the problem the event is creating.

Alarm upgrades and addition structural fire alarms/boxes, Hazardous Materials request, and EMS manpower requests should be dispatched using pre-determined dispatch packages. These standard dispatch packages should also include the command support required to manage the different amounts and types of resource responding.

## 1.6 - Staging Procedures

The IC is the resource allocator for the incident and is responsible for managing all assigned resources work cycles on the strategic level.

Level 1 and 2 Staging procedures place resources into positions where the IC can assign them based on his or her incident action plan. When the IC identifies a task that needs to be done, they choose the proper resource, confirm their availability, and then order them into action. Managing incident operations in this fashion is how we coordinate and incorporate all of the efforts of multiple units into a single, cohesive operation. If you don't have and follow SOP driven staging procedures, you can't apply IMS to the incident scene.

Staging creates a resource delivery method that allows the IC to deploy resources according to his/her IAP and provides a system that allows the IC to manage accountability on the strategic level. If companies do not stage when they get to the scene they will not be assigned according to the IC's plan.

Units that disregard staging procedures and "auto-assign" themselves (freelance) in a Hazard Zone do nothing but make the scene unsafe for everybody else who followed the staging procedures. Therefore, officers or members who disregard the staging procedures will be dealt with in a corrective, progressive and lawful manner.

### **1.6.1 - Level 1 Staging**

Effective utilization of the Level 1 Staging procedures:

- Prevent excessive apparatus congestion at the scene.
- Allows time for the IC to evaluate conditions prior to assigning companies.
- Places apparatus in uncommitted locations close to the immediate scene to facilitate a more effective assignment by Command.
- Reduces radio traffic during the critical initial stages of the incident.
- Facilitates fireground accountability
- Allows Command to formulate and implement an IAP without undue confusion and pressure.

**Level 1 Staging procedures are in effect for all units dispatched on the 1<sup>st</sup> alarm assignment.**

**Level 1 Staging procedures are automatically activated when the initial arriving unit clears the Dispatch Center to give their Initial Radio Report and assumes command.**

This action causes all later arriving resources to Level 1 stage in an uncommitted position one block from the scene and announces that they are Level 1 staged at the scene over the tactical radio channel.

For engine companies this means that they don't pass their last water source (in an area with hydrants). Ladder/Truck companies don't pass their last access point into the incident site. All Level 1 Staged units must wait for an assignment from the IC before proceeding out of their Level 1 Staging location.

- Applies to all initial responders on the 1<sup>st</sup> Alarm
- 1<sup>st</sup> Unit & BC respond directly to the scene
- Immediately goes into effect with Initial Radio Report from IC #1
- All subsequent arriving until stage 1 block away in their direction of travel while not passing their last tactical objective
- Each unit Level 1 Staging will simply state their unit is Level 1 staged

- “E-1 is Level 1”

There will be occasions where a Mobile IC has placed themselves inside the Hazard Zone and they are unaware of a significant critical factor that needs to be addressed. Company officers can make a conscious, deliberate decision to address a critical, tactical need that they see while driving their response vehicle or while Level 1 staged in these circumstances. \*It is important to note that these situations are rare and generally involve some type of severe life safety issue. At no time, however, will a unit auto assign themselves into the hazard area without notifying the IC of their actions. That is defined as freelancing and it is absolutely prohibited.

### **1.6.2 - Level 2 Staging**

Level 2 Staging procedures are used for greater alarm assignments. Level 2 Staging is defined as: a centralized staging location, adjacent to the incident scene where later arriving resources will assemble. Level 2 Staging should be close enough to the incident scene to provide timely access but is located in an area that is out of the way and not exposed to the incident’s hazards.

Dispatched greater Alarm/Box Units should be dispatched to a Level 2 Staging location on a different radio frequency from the Hazard Zone frequency. This frees up available airtime on the tactical radio channel. It also allows the IC to focus on the units that are assigned to the Hazard Zone, helping to eliminate radio distractions from later arriving resources that are not yet part of the Hazard Zone IAP.

When requesting addition alarms/boxes, the IC should designate a Level 2 Staging location and put companies responding to Level 2 on a separate radio frequency.

- The Dispatch Center will notify additional units dispatched to the incident that Level 2 Staging is in effect and the location of the Level 2 Staging area.
- The Dispatch Center will notify greater alarm Units of the tactical frequency of Level 2 Staging
- Units dispatched to the Level 2 Staging area will report in person to the Level 2 Staging Manager. The most preferable method of communication in the Level 2 Staging is face-to-face.

Command may designate a Level 2 Staging Manager who will be responsible for the activities outlined in this procedure. In the absence of such an assignment, the first fire department officer to arrive at the staging area will automatically become the Level 2 Staging Manager and should notify Command upon their arrival to the Level 2 Staging area. The arrival notification should first be made to Command on the assigned Level 2 Staging channel. Level 2 Staging responsibilities can be transferred to a later arriving chief, or staff officer if needed.

If the first arriving unit to the Level 2 Staging location is an Engine company, the engine company officer has the following options for their crew:

- They can assist the Company Officer with Level 2 Staging operations until relieved.
- Assigned them as manpower to another company in Level 2 Staging.
- The crew can be moved up to form a minimum of a 2-person company and they can be assigned into the Hazard Zone as a unit.

Once Level 2 Staging is implemented, all communications involving staging will be between Staging and Command (or the Operations Section Chief if established).

The Level 2 Staging Manager will perform the following duties.

- Notify the IC (or Ops Section Chief) upon their arrival at the staging area on the assigned Level 2 Staging channel.
- Verify the companies available at the staging location
- Determine from the CP the minimum complement of units to be maintained in the Level 2 Staging area
- Contact the CP for additional resources when the number of companies in the staging area falls below the established minimum
- Maintain a current list of available companies in the staging area
- Organize the apparatus so it can be easily deployed out of the staging area if necessary
- Maintain a list of companies that have been deployed to the incident site and their initial assignments from the Level 2 Staging area
- Relay the assignment of units from the CP using face-to-face to the staged companies when possible
- Relay to companies the following information when they are assigned out of Level 2 Staging
  1. Any tasks, the location and the objectives assigned to the unit
  2. The area where to report to, or the Division Supervisor to whom they are to report to
  3. The tactical channel on which they are to operate on

Once dispatched, all greater Alarm companies responding to a Level 2 Staging location should stay off the air unless contacted by the Dispatch Center, the Level 2 Staging Manager, or Command. Once arriving to Level 2 Staging, the Company Officer of the Unit should report in person to the Level 2 Staging Manager. The crew should then standby with their unit, with the crew intact, with apparatus warning lights turned off until they are assigned to incident site duties or released from the scene.

When assigned, companies leaving staging should communicate directly with Command or their assigned S/D Supervisor for further instructions (if needed).

There will be incidents where the IC will need to quickly assign response chiefs Hazard Zone management roles. In these circumstances, the IC will need to make a determination when calling for additional resources on whether the response chiefs on greater alarms should Level 1 or Level 2 stage.

The arrival of Staff Officers (no IDLH work) can enhance the Command organization and incident management. These later arriving officers should assume or transfer Level 2 Staging Manager duties from any Company Officers who are filling the role. This will allow them to be available to be assigned into a Hazard Zone with their unit.

Because there are so few Ladder/Truck companies in the response system, when they arrive in Level 2 Staging first, they should assume Level 2 Staging and start performing the roles of the Level 2 Staging Manager. Once the first Engine Company or staff chief has arrived at the Level 2 Staging location, they should transfer Level 2 Staging duties from the Ladder/Truck so they can be assigned to the incident site.

Vehicle parking at the incident site can be very limited. Un-needed, subsequent arriving apparatus should be left out of the way in the Level 2 Staging area. Many times, companies will need to manually transport all of the needed tools and equipment to the Hazard Zone when they are assigned out of Level 2 Staging.

IC's must maintain an awareness of in transit times when these types of assignments are made. Long in transit times from a Level 2 Staging area should be concluded with the company notifying the IC or Division Supervisor that they have arrived at their assigned work location.

Staff Officers should also leave their vehicles in the Level 2 Staging in a manner that does not block access if their vehicle is not needed at the scene.

Apparatus in the Level 2 Staging area should be arranged in manner that allows for easy access in and out of the staging area. Apparatus not needed at the scene site, which is left in the Level 2 Staging location, should be positioned/parked in a manner that does not congest or compromise access in or out of the Level 2 Staging area.

### **1.7 - IC assigning Units into a Hazard Zone**

Incident operations are conducted around the completion of the tactical priorities. Incident communications should mirror this simple concept. When the IC assigns companies based on a well thought out IAP, everything seems to naturally fall into place and companies will base their progress reports on the original orders the IC gave them. This keeps the operation focused on what we showed up to do – making sure everyone is out and okay, elimination of the incident problem, and reducing the harm/damage/loss to the customer's property.

IC's will need to use the following structure when assigning any unit into the Hazard Zone:

- Tasks
- The Location of those tasks
- The Objectives of the tasks



One of the IC's major objectives is to control both the position/location and function of all resource assigned to the Hazard Zone. Being very specific about the location and the objectives of the tasks that need to be performed goes a long way in helping the IC (and the rest of the team) know where everybody is and what they are doing. Much more on assigning units in Command Function #5 – Communications.

## **1.8 - Hazard Zone Accountability**

Each level of the incident organization has its own accountability responsibility. No organizational level can do the accountability responsibilities for another level.

### **1.8.1 - Company/Task level accountability responsibilities**

Companies working on the task level have the greatest stake in the accountability system because they operate inside the Hazard Zone. No Hazard Zone management system can outperform unsafe behaviors on the task level.

Task level responsibilities include:

- Following all staging procedures
- Being properly assigned into the Hazard Zone
- Properly using the passport accountability system
- Staying together as a company
- All members inside are attached to a hoseline
- Always maintaining an adequate air supply to safely exit the Hazard Zone
- Maximum depth into a structure – 175-200 feet – based on air supply
- No freelancing

#### **The following rules will be adhered to at all times on the task level:**

The minimum number of personnel assigned to a crew or a team operating in a Hazard Zone shall be two firefighters with a least one portable radio.

Crews or teams always go in and come out together.

All personnel shall be in contact with their Company Officer by either:

- Voice (radio)
- Vision (TIC),
- Touch (hoseline)

Company Officers shall give an accountability report upon exiting the Hazard Zone to either the IC or their assigned S/D Supervisor.

Any member whose job assignment is to operate outside of the hazard area is NOT to enter the hazard area without the express permission of the member's company officer, S/D Supervisor or the IC.

NO member shall operate in the Hazard Zone alone.

### **1.8.2 - Tactical level accountability responsibilities**

Whenever two (2) or more units are assigned to one geographical area, a tactical level boss, or Division Supervisor, should be designated to the area before a 3<sup>rd</sup> unit is assigned to the same geographic area. This supervision should be upgraded with a command level officer (or Safety Officer) to manage the entry point.

The Hazard Zone tactical level of the incident organization is managed by S/D Supervisors. When the IC assigns companies to an operational area, the Office-in-Charge of that area is responsible for managing the companies assigned to the area. In many cases, the initial tactical level responsibility may be assigned to the first Company Officer assigned to the area. As the number of work cycles, the span of control and or the risk increases, a command level officer should be used to replace the initial Company Officer.

Here is the list of the responsibilities for a Chief Officer assigned as a S/D boss:

- S/D Plan matches IC Plan
- Risk Management in the S/D
- Complete Tactical Priorities in the S/D
- Positions always match conditions in the S/D
- Implement and manage the S/D IAP
- Coordinate w/ other S/D's when needed
- Manage the Passport Accountability System
- Assist with S/D Air Management
- Manages Work-Rest Cycles
- Manages On-Deck crews
- Manages Recycle & Rehab

Much more on the tactical level accountability/management responsibilities in Command Function #6 - Organization.

### **1.8.3 - Strategic level accountability responsibilities**

The IC manages strategic level accountability by strict command & control; deploying resources to specific tasks, locations and objectives; maintaining the whereabouts of all resources in the Hazard Zone; maintaining an accurate tactical worksheet and ensuring that frequent CAN and situational awareness reports are delivered from the key tactical areas of the operation.

The key to strategic level accountability for escalated incident operations is to build an effective incident organization. It is the IC's responsibility to account for all resources until delegated to tactical level supervisors. The IC does this by assigning S/D responsibilities to Chief Officers. Chief Officers physically position themselves at the entry point in their assigned area in order to manage their assigned piece of the incident operation. This places strong supervision, management and leadership in forward positions where the hazards are present. Organizing in this fashion greatly enhances firefighter safety and is one the most significant tool an IC can use to increase his/her strategic level capability, especially for escalating incident operations.

**1.8.4 - Tactical worksheets:** The best way to remember something is to write it down. This is particularly true when you are managing something as dynamic and dangerous as a fire. The strategically placed IC (working out of command post) has a continual deployment-management challenge to somehow keep track of what is happening. As more responders show up, go to work, and the incident starts to "move fast and spread out," these dynamic conditions can quickly exceed the IC's mental capability to maintain a current awareness of "who's where, doing what."

A major deployment-management function involves the IC performing the on-scene "bookkeeping" activities required to keep track of all the responders assigned to the incident and their ongoing operational status. The system also must account for the work in progress, the work still to be completed, and everyone's safety. A tactical work sheet is the best, basic form that the IC typically uses to record resource details and work activities.

#### **1.8.5 - PAR's and Rollcalls**

**PAR:** A Personnel Accountability Report (PAR) involves a roll call and confirmation that all personnel assigned to a crew, or multiple crews assigned to one (1) geographic area of the Hazard Zone working under the supervision of one (1) tactical boss, are accounted for and have an adequate air supply to safely exit the Hazard Zone.

PAR Reports should be conducted face-to-face whenever possible. When A S/D Supervisor is in place, the S/D Supervisor will deliver the Division's Par Report to the IC. Without a S/D Supervisor in place, the Company Officer will deliver the PAR Report directly to the IC.

**Rollcalls:** A Roll Call is an accountability report from all Company Officers of an individual crew assigned to the Hazard Zone, or S/D Supervisors reporting on all personnel working in a specific geographic area of the Hazard Zone at one specified area in the incident.

When the IC makes a general announcement to all units on the fireground to initiate a roll call, all individuals, units, and/or S/D's shall.

- Notify their Company Officer of their condition and location.
- Notify the Supervisor of their assigned S/D of their condition and location

- S/D Supervisors shall be responsible for the count and location of all personnel assigned under their command who are located in the Hazard Zone.
- After all companies or S/D have been accounted for, the IC shall transmit a PAR to the Dispatch Center for the entire incident.

The IC must drive the roll call to avoid multiple units contacting him/her first. Unless a Unit DOES NOT have a PAR, they should maintain radio silence until contacted by the IC to report their PAR.

A formal roll call should be conducted for the following circumstance:

- Changing from an offensive to a defensive operation

Other situations that may require a roll call include:

- Missing or unaccounted for members
- Sudden, unexpected events in the Hazard Zone
- A Mayday (depending on the circumstances)
- Anytime the IC feels it is necessary

### **1.8.6 - Passport Accountability System**

When properly used, the passport accountability system will increase firefighter safety and provide the Initial Accountability Officer and S/D Supervisors with a means to track the location and function of all firefighters working in a Hazard Zone.

#### **Accountability Hardware**

Accountability equipment for each piece of apparatus shall consist of:

- Passport (including members name tags)
- Helmet ID stickers
- Hose ID tags (1 permanently marked with the company ID – 1 blank)
- Grease pencils
- Passport pouch (with extra helmet ID's)
- All response chiefs carry a S/D management board in their RIC bag

Passports are colored tags, which measure approximately 3 by 4 inches that are permanently marked with the company identification. Name tags of the crew members assigned to each apparatus are affixed to the passport, which is placed in the passport pouch.

Each individual in a riding position is issued individual nametags. One nametag for each member presently assigned to the company is required to be placed on the passport. Extra individual nametags should be kept on the underside of the member's helmet.

All helmets shall always reflect the proper ID of the company the member is presently assigned to. All personnel are required to keep their helmet IDs accurate. Extra helmet ID stickers should be kept with the passport in the passport pouch.

### **Passport Application and Use**

Each Company Officer will be responsible for ensuring that the passport and MCT roster reflects only the members presently assigned to the company. Passports shall reflect only those crewmembers who are about to enter the Hot Zone. When entering the Hot Zone with a partial crew, such as when an engineer remains at the engine to pump lines, the Company Officer must remove the nametags of those members not entering the Hot Zone. The nametags of these members may be returned to the member, placed on the Company Officer's helmet Velcro strip or placed in his/her coat pocket.

Implementation of the passport system will occur at any incident that requires the use of an SCBA. The use of the accountability system will commence as the first unit arrives on the scene. The first arriving company will give an IRR and assume command. In the follow up report, their accountability unit identification and geographic location will be announced, "E-1 will be the Alpha side accountability location".

As staged units are assigned, Command will give assignments, which will include their respective accountability unit identification and geographic location. Each crew/unit will deliver their passport to the engineer of the accountability engine where they deployed a handline from the accountability engine.

When the engineer charges the stretched hoseline with water, their unit's passport, passport pouch, and hoseline ID tag are placed on the discharge gate at the pump panel (or accountability board located nearby the Engineer). The passports on the discharge gates identifies crews and crew members on each hoseline and makes the pump panel the initial accountability location for that geographic area.

Hoseline ID tags are removed from the passport pouch at the discharge gate and placed on each respective hoseline. These hoseline ID tags provide a means to identify the individual hoselines that crews entered the building on, providing a reference point if there is a need to find lost or trapped firefighters operating on that particular handline.

As additional companies arrive to the accountability location, their passports/pouches are delivered to the engineer, and the process is repeated.

Ladder crews will leave their passport on the apparatus dash when going to the roof to perform a roof report. When going to the interior of the structure, each ladder crew will deliver their passport to the accountability location at their point of entry.

Once a passport is delivered to the pump operator, the passport will remain on the designated discharge gate indicating the "point of entry" to the Hazard Zone until supervision is upgraded in the area with a Chief/Safety Officer.

Upon re-assignment (released or assigned to rehab) the Company Officer must retrieve their passport. Both the Company Officer, Engineer or S/D Supervisor will be responsible to see that passports are retrieved.

Crews exiting at a different location other than the original point of entry must immediately notify their original S/D Supervisor and/or Accountability Officer of their changed status. Their passport must also be retrieved.

### **Tactical Level Passport Accountability**

When S/D supervision is transferred to a Command Officer, it elevates S/D management with a true tactical level boss vs. a working boss. This greatly facilitates the completion of the S/D objectives, it enhances the accountability process, and it increases firefighter safety in the S/D.

Command officers assigned to manage a S/D, will need to be fully turned-out, then transport and place the BC RIC bag close to the entry point of your assigned area. The BC RIC bag contains a S/D accountability and air management board to assist in running the accountability process and managing the work/rest cycle of the companies assigned to your work location. Once the accountability board is retrieved, go to the initial accountability engine where the passports are located and place them on the accountability/air management board.

Interview the engineer/pump operator to roughly determine the current interior work times of your assigned units in the Hazard Zone. Estimate the exit times required for the units assigned to your area. Write them on the board.

Return to the entry point and start performing the standard responsibilities of a S/D Supervisor described in Command Function #6 – Organization.

A company being assigned to a location that already has a Chief Officer in place in the S/D, will report to the S/D Supervisor face-to-face, give him/her the company passport, and await an assignment from the S/D Supervisor while remaining intact as a crew in an On-Deck position.

The S/D Supervisor will need to help manage the air supply of the Units assigned to their area. This is one of the main functions of the accountability/air management board. The board is set up to enter Unit's entry times, the standard on air working times, and the expected exit times of the Unit's assigned to the S/D.

S/D Supervisors assisting assigned Unit's with their air management times in no way takes away or diminishes the Company Officer's responsibility for managing his/her crews air supply.

Companies exiting the Hazard Zone should perform a PAR face-to-face with their S/D Supervisor. One item to cover in the face-to-face communication is the physical condition of the crew exiting the Hazard Zone. S/D and Company Officers are responsible to monitor the welfare of their personnel at all times and determine if S/D recycling or a formal rehab is appropriate.

If the company is able to recycle, they will retain their assignment to the S/D, and the S/D Supervisor will retain the Unit's passport on their accountability board, noting the company is recycling.

If the company is sent to rehab, the S/D Supervisor will return the passport to the Unit being sent to rehab and they will notify command of the status change of the company ("Charlie to Command, I'm sending E-2 to Rehab and I need another engine company to replace them").

### **Terminating the passport system**

Passport accountability will be maintained throughout the entire incident. Accountability will be terminated once the last passport is returned to the last company exiting the Hazard Zone.

Upon termination and release from the incident, Company Officers and crewmembers will ensure that the passports / pouches are accurate and returned to the dash of their apparatus.

### **General passport rules:**

- Passports will be delivered to the assigned accountability location prior to entering the Hazard Zone.
- Passports will reflect only those personnel presently assigned to the Unit who are ready to make entry into the Hazard Zone.
- Passports will be maintained at the point of entry in the Warm Zone.
- Passports never enter the Hazard Zone.
- Passports will be retrieved by crews upon exiting the Hazard Zone.
- Initial passport accountability location is the 1<sup>st</sup> engine to a geographic location where crews deployed hoselines.
- When S/D management is bumped up to a Command Officer, all passports are managed by the S/D Supervisors who are responsible for the Units in that work location.
- No Passports in the Command Post

### **1.9 – Two in – Two out / Immediate Rapid Intervention Crew (IRIC)**

In January of 1998, OSHA implemented the two in two out regulations to the Occupational Safety and Health Standard (PART 1910) - section 1910.134(g)(4). The link to the standard is below.

There are many critical factors to meeting the two in two out standard on a local level. Individual departments will need to consider several variables when complying with the standard that could include:

- Overall resource levels of the department
- Company staffing levels of the department
- Response times and order of arrival times of the department
- Volunteer vs. part time vs. career deployment practices

Click on the link to view [1910.134\(g\)\(4\)](#) - OSHA Procedures for interior structural firefighting.

### **1.9 - Managing the Work/Rest Cycle**

Members are totally dependent on the air that they bring with them into the Hazard Zone. We must base our operations around the realistic working times of our SCBA's. Company officers must maintain an awareness of their crew's air levels and the decision to exit the Hazard Zone must be governed by maintaining an adequate enough air reserve to deal with any sudden or unplanned events while exiting.

It is the IC's responsibility to allocate sufficient amounts of resource to key tactical areas early on in the event to prevent companies from working past safe air reserve times. This type of proactive deployment management prevents Maydays from occurring.

IC's, S/D Supervisors, and Company Officers must all agree to realistic SCBA work times in the Hazard Zone. These work times must give the workers a margin of safety in case something goes wrong while exiting. Company Officers must manage this on the task level and keep the IC or S/D Supervisor informed of their air supply and projected work times.

Company Officers must base their decision to exit the Hazard Zone on their air supply. This decision cannot be based on being relieved, or if problems still exist in their S/D.

S/D Supervisors need to use the accountability system hardware tools to assist them in managing their assigned company's work/rest cycle, air supply, and S/D accountability.

S/D Supervisors assisting assigned Unit's with their air management times in no way takes away or diminishes the Company Officer's responsibility for managing his/her crews air supply.

### **1.10 - The 3-Deep Deployment Model**

The IC must always provide a steady, adequate stream of resources. 3-Deep is the concept where an IC always has a steady stream of workers for the required tasks based on the incident's critical factors.

The 3-Deep Deployment process starts out with the initial arriving workers who have been assigned into and are working in the Hazard Zone – the first layer.

After these key tactical positions have been covered, subsequent arriving units are assigned to On-Deck positions (described shortly) at the entry points already utilized by initial arriving Unit's.



This gives the IC a rapidly assignable resource and S/D support in the form of On-Deck companies – the second layer.

Once all of the critical tactical areas are adequately backed up with On-Deck Units, subsequent arriving units will either Level 1 or 2 Stage. These staged Units now give the IC the tactical reserve needed to replace companies or to back fill any companies addressing a sudden incident problem.

This model gives you workers “**3-Deep**”. Workers working in the Hazard Zone, workers ready to go to work right outside of the Hazard Zone and having replacement workers waiting for an assignment in staged positions.

This involves the IC first requesting/acquiring and then effectively and proactively assigning later arriving units to On-Deck positions while keeping a tactical reserve in staged positions.

### 1.11 - In Transit

**“In Transit” is defined as: the time it takes for a company to reach their assigned work area after receiving an order.** It often varies due to:

- Distance between staging and the incident
- Size of the incident perimeter
- Amount of equipment the company needs to assemble

The IC or S/D Supervisor will lose direct accountability of these companies while they’re In Transit. It is the responsibility of the Company Officer to monitor the tactical radio channel while In Transit. For long in transit times (over 5 minutes or more) upon arrival to the assigned work area, the Company Officer should provide a radio announcement to the IC that the company is intact and in the assigned work area.

### 1.12 – On-Deck

**“On-Deck” is defined as; a forward staging position located just outside the immediate Hazard Zone, safely distanced from the entrance of a tactical position/S/D. *Once a crew is assigned to an On-Deck position, they are first and foremost a Rapid Intervention Crew until they are given an assignment into the Hazard Zone.*** The On-Deck deployment model greatly assist an IC with managing Hazard Zone units work/rest cycles and their air supplies.

On-Deck crews will be supervised either by the S/D Supervisor or the Company Officer and they will remain On-Deck until assigned by the IC or S/D Supervisor. The most likely assignments for On-Deck companies are:

- Reinforce a position within an assigned sector
- Crew relief within an assigned sector

- Any other tactical position assigned by the IC
- Deploy as a RIC unit

Once the IC has deployed units to the critical S/D around the incident scene, the IC must then take a proactive aggressive approach to assigning additional resources to those S/D's. This is best achieved by assigning staged resources as On-Deck crews to those areas as soon as they arrive in staged positions. Layering On-Deck crews around the fire ground will also provide the IC with the tactical reserves to manage the standard work cycle or sudden and unexpected incident events.

Assigning On-Deck crews is done simply by contacting a staged company and directing them to go On-Deck in a specific S/D. The order would sound like this: "Command to Engine 5, go On-Deck on the Charlie side of the structure, Engine 1 is your accountability and resource location, you are assigned to Charlie sector".

A crew assigned to an On-Deck position will need to park their apparatus in a manner that doesn't block access to the scene. Crews must be intact with full PPE, bring as many spare air cylinders as possible and the RIC bag. Upon arrival, the On-Deck company must contact the IC or their S/D Supervisor and inform them that they are in position and ready to go to work.

On Deck crews must remain intact, in a ready state and monitor the tactical channel at all times. On-Deck crews must also size up the area that they are assigned to, this size up should include:

- Locating the structures entrance/exit points in their assigned area
- Interior and exterior conditions
- Unit ID of crews operating inside the structure
- Approximate location of interior crews
- Identify which crews are operating each hoseline

When an On-Deck crew is used as a relief crew, the On-Deck Company Officer should do a face-to-face and transfer information with the officer exiting the structure. The information transferred should include:

- Interior conditions
- Routing instructions to the work area
- Interior obstructions
- Additional tools/resources required
- S/D objectives

### **1.13 - Company Recycling**

Companies operating within a S/D will require the refilling of air and fluid replacement in predictable time frames. At large scale incidents Command should establish at least 1 Rehab location. Most of the time, crews that are assigned to rehab will be placed back in service after

rehabbing. The rehab area may be located quite a distance from the work area and this distance creates the potential for:

- Command losing direct accountability of companies in transit to rehab
- Difficulty reassembling and reassigning crews in a timely manner from rehab

**Recycling is defined as: a timely and efficient means of air replacement and re-hydration of companies while maintaining their S/D assignment.** If conditions permit, a company's work cycle could be up to 2 to 3 air cylinders. In order to maintain a steady stream of resource in critical S/D, crews being relieved and exiting their S/D should recycle themselves in a timely manner. Companies being relieved and recycled will remain in their assigned S/D, refill their air supply, re-hydrate, then report back to their S/D Supervisor or the IC that they are ready to go back to work.

Command/S/D Supervisors have the option of assigning/requesting an Air/Light unit to geographic divisions. Air/Light Units assigned to geographic areas on the fire ground will help expedite the recycle of companies within the S/D.

Company Officers should forecast the length of time they will be working in an assigned S/D and should bring spare air cylinders if necessary. This will enable a company to recycle close their S/D in a timely manner when a utility truck is not available in their S/D or area. The S/D Supervisor may need to request additional resources to replace on deck crews or have recycled crews assume vacated on deck positions.

S/D Supervisors and Company Officers are responsible to monitor the welfare of their personnel at all times and determine if S/D recycling or a formal rehab is appropriate.

#### **1.14 - Rehab**

Companies operating within a S/D will require the refilling of air and fluid replacement in predictable time frames. At working incidents, Command should establish at least 1 Rehab location.

Rehab is an assignment to a formal rehab location (close to the emergency scene) where Units will be medically evaluated, rehydrated, and replenished.

Rehab should operate on the staging/logistics channel and will inform the command post when they are close to the scene. The CP should inform rehab where to set up on the incident site. The Rehab Officer is usually the individual who drove the rehab unit to the scene, but the Rehab Officer should be upgraded as required. All necessary medical personnel shall be assigned to rehab to monitor members' welfare.

S/D Supervisors and Company Officers working a Hazard Zone are responsible to monitor the welfare of their personnel at all times and determine if S/D recycling or a formal rehab is

appropriate. When a formal rehab is appropriate, the S/D Supervisor or the Company Officer will notify the IC of a status change and the re-assignment of a Unit(s) to rehab. The IC must notify the Rehab Officer of all units who are re-assigned to rehab

Units assigned to rehab must do a face-to-face with the Rehab Officer when arriving to rehab and deliver the company's passport.

The Rehab Officer will notify the CP when each individual Unit arrives to the rehab location. This will prevent the IC from losing accountability of a company in-transit to the rehab location.

Once rehabbed, units can be assigned back to the Incident scene through the rehab officer, but most of the time they will be placed back into service. If this is the case, the Rehab Officer will confirm with the CP that company is being placed back into service and will return the company's passport when they are leaving the rehab area.

In the rare instances when a company will be re-assigned back to an active S/D, the Rehab Officer will take on the role similar to a Level 2 Staging Manager, returning the Unit's passport, and giving them the following information:

1. Any tasks, the location and objectives assigned to the unit
2. The area where to report to, or the S/D boss to whom they are to report to
3. The tactical channel on which they are to operate on

## **2.0 - Command Function #2 – Assume, Confirm and the Positioning of Command**

Major Goal: To quickly establish and confirm a single IC and to place that IC in the most effective command position as long as the Hazard Zone exists.

The assumption of command must be a natural, automatic and regular occurring organizational event. Command Function #2 is designed to create a standard process for the initial command assumption to occur and then place/upgrade that IC in the most effective command position based on a standard set of conditions.

### **2.1 - Establishing Command**

Command shall be assumed on all incidents where two (2) or more units are dispatched.

One or two company responses that are not going to escalate beyond the commitment of these companies do not require the first arriving unit or officer to formally assume command. The first arriving unit or officer will remain responsible for any needed command when required.

Examples would include:

- Single unit response Check Welfare
- Check Hazard
- Any EMS call requiring only two companies

The first Unit or member to arrive to the scene of a multi-unit dispatched incident will assume command of the incident by transmitting a standard Initial Radio Report (IRR), (Function 5 – Communications).

The confirmation of command occurs when the Dispatch Center uses the Order Model to repeat the IRR back to all responding units, confirming that the initial arriving unit is in command of the incident.

Assuming command causes the first-arriving unit or member (the IC) to size up the incident, determine the incident's strategy and formulate an incident action plan (IAP). All of this is executed and shared with all the incident responders when the initial IC transmits an IRR.

When the incident begins with an in-place IC, all later-arriving units will be assigned based on the IC's IAP. This puts all the incident players on the same page. Everyone knows what the problem is and what action is being taken to solve it.

The absence of an effective IC is the most common reason for ragged incident beginnings and unsafe endings. Effective (and coordinated) action is the result of beginning (and ongoing) incident operations with an in-place and in-charge IC.

Once command has been established, all routine communication between the Dispatch Center and the incident will be directed through the IC.

The initial IC shall remain in command until command is transferred or the incident is stabilized, and command is terminated.

A formal IC must be in place, performing the functions of command, whenever a Hazard Zone exists.

## **2.2 - Naming Command - Radio Designation**

The radio designation "**COMMAND**" will be used along with the major crossroad, or the specific occupancy name of the incident site (i.e. "Main Street Command", "St. Joe's Hospital Command"). This designation will not change throughout the duration of the incident.

The designation of "Command" will remain with the IC throughout the duration of the incident.

One tactical radio frequency can host several EMS incidents at once, but for incidents that are declared working, the assigned tactical radio channel should be cleared of other incidents, or, if there is credible call information, the call should be assigned on its own separate tactical radio channel upon dispatch if available. This will avoid having multiple "Commands" operating on 1 (one) tactical channel.

## **2.3 - Command Positioning**

The IC's position will greatly affect their ability to control the incident scene. Typically, the Company Officer of the first arriving engine company will become the initial IC for the incident, IC #1.

There are two (2) command positions that a Company Officer can place themselves in, depending on the situation. These two command positions are:

- Mobile Command Position – Investigating or placing themselves inside the Hazard Zone
- Strategic Command Position - Stationary, inside of a Command Post (CP)

### **2.3.2 - Mobile Command Position**

Many times, the strength of our local IMS is a mobile IC, who directly supervises the use of quick force at the beginning of the event. These actions are reinforced and upgraded by response Chiefs who come in behind the initial mobile IC to quickly establish a stationary, exterior command post that supports and expands on the mobile IC's initial actions. The mobile command position provides the front-end command structure for that capability.

When in the mobile command position IC #1 operates forward, in full PPE, with a portable radio, supervising and assisting their crew with control efforts.

The advantages of a mobile IC:

- Enhances crew safety and accountability
- Gives the IC another set of critical factors to evaluate and base unit assignments on (interior conditions)
- Usually solves the problem quickly

The disadvantages of a mobile IC:

- Combining action and command is tough to do
- Difficult communication position (full PPE in a Hazard Zone)
- Limited field of vision
- Reduces strategic span of control

The entire response team coming in behind a mobile IC must realize that the initial IC is in an attack position, not a command position. We trade off this position disadvantage because many times this initial front end “hit” is enough to stabilize the incidents problems.

When the front-end control efforts don’t stabilize the situation, the mobile IC is not in the best position to continue command; they are in the worst position. The mobile command position should end in one of three (3) ways:

1. Situation is quickly stabilized
2. Command is transferred from the mobile IC (#1) to a subsequent arriving Command Officer (IC #2)
3. If the situation is not stabilized and there is a delay in the arrival of a Command Officer, the mobile IC must move to an exterior (stationary) command position and operate in the command position. When this happens, the Company Officer has the following crew options:
  - Move up one of your crew members to Company Officer. Minimum 2-person Company in a Hazard Zone
  - Assign your crew member(s) to another Company in the hazard zone. This must be acknowledged by both officers and they must be incorporated in the accountability system.
  - Have crew exit with the IC and perform IC support roles

### **2.3.3 - Company Officer IC’s**

There are 3 operational levels that function at the scene of a Hazard Zone. They are the:

- Strategic level
- Tactical level
- Task level

Each of these levels is distinct and has their own set of responsibilities.

For the majority of the incidents we respond to, the initial responsibility for managing all 3 organizational levels is handled by IC#1, when they are a Company Officer.

The first arriving Company Officer IC will size up the incident’s critical factors, declare the incident strategy and assume command. IC #1 has initial command and control responsibility for the entire incident operation on the strategic level until command is transferred or terminated.

On the tactical level, a mobile IC will implement and execute an incident action plan that addresses the incidents critical factors in order to facilitate the completion of the tactical priorities for the chosen strategy.

A Company Officer mobile IC will also directly supervise and assist their crew members with the tasks required to bring the incident's problems under control.

In many cases, this initial attack wave eliminates the incident hazards. For incidents that are not quickly controlled, are escalating, or are significant in scope and size upon our arrival, the strategic and tactical operational levels must be upgraded with Chief Officers as required.

The strategic level of command on these types of incidents will be the 1<sup>st</sup> operational level that is upgraded. This command transfer significantly improves the IC's position and ability to perform and manage the 8 functions of command and the corresponding strategic safety requirements for the entire incident operation. Placing the IC in a standard Command Post (CP) position where they can exclusively focus on incident management, enhances and facilitates both the completion of the tactical priorities and firefighter task level safety.

#### **2.3.4 – Strategic Command Position - Company Officer**

***The strategic command position is stationary, remote, outside of the Hazard Zone and located inside of a vehicle (Command Post – CP).***

Certain incidents, by virtue of their size, complexity, or potential for rapid expansion, demand early, strong, stationary command from the outset of the incident. In these cases, the first arriving Company Officer (IC #1) will assume command and, from the beginning of the event, stay out of the Hazard Zone in a stationary exterior CP (most of these situations present as larger, defensive fires). A tactical worksheet shall be initiated and utilized to assist in managing these types of incidents.

If the Company Officer assumes a Command position from the onset of the Incident, the following options are available to assign of the remaining crew members on the IC's Unit.

- A. "Move up" an acting officer within the Company. This is determined by the individual and collective capabilities and experience of the crew.
- B. Assign the crew members to perform staff functions to assist the IC. Staff functions include recon/reporting, communications assistance; help with tactical worksheet tracking etc.
- C. Assign company personnel to another Company. This must be acknowledged by both the original and the receiving officer and by their inclusion in the accountability system.

"Passing command" to a unit that is not on the scene creates a gap in the command process and compromises incident management and safety. To prevent this command and control gap, command shall not be transferred to any officer who is not physically located on the scene. Command should not be transferred unless accompanied by a standard transfer of command.

#### **2.3.5 – Strategic Command Position – Chief Officer**

The command position is defined as: the IC located INSIDE of a stationary Command Post, with the windows rolled-up, wearing a headset while managing a tactical worksheet. A stationary Command Post (CP) allows the IC to begin packaging command for the on-going operation and escalation of that incident. Physically locating the IC in the command position puts the IC in the



strongest possible position to carry out the functions of command, accomplish the incident's tactical objectives, and ensure the safety of all members working on the fireground.

Responding Command Officers should do the following, if/when possible, while enroute to the scene to set themselves up for success and to make the command-transfer process as seamless as possible:

- Initiate filling out a tactical worksheet with the Dispatch Center assignment (if not driving)
- Reference any pre-plan info, access aerial views and hydrant locations [MCT] (if not driving)
- Listen critically to all radio traffic
- Log assigned companies onto the tactical worksheet (if not driving)

**If a Battalion Chief is the initial-arriving unit to the same structure fire, they will operate in the command position. Chief Officers should only operate in the command position when they are the IC.**

## **2.4 - Transferring Command**

To a major extent, command effectiveness is directly connected to regular command positioning; the entire command system revolves around the rapid establishment of a stationary, remote IC, operating in a standard CP.

By setting up and staying in a CP, the IC is in the ideal position to maintain on-line control; remain continuously available to communicate; and monitor and evaluate responders' changing needs while they are operating within the Hazard Zone.

The 1<sup>st</sup> arriving Chief Officer will respond directly to the scene. If an active Hazard Zone still exists, or if there are still tactical benchmarks to coordinate, command should be upgraded to a strategic command position. When arriving to the scene, IC #2 must transfer command in the following manner:

1. Size-Up - Verify that all operating positions match the current incident conditions
2. Transmit that your unit is On-Scene ("Battalion 1 On-Scene")
3. Contact IC #1 and announce that you'll be transferring command: "taking it from out here"
4. Verify the position & function of all Hazard Zone resource with IC#1
5. Obtain a CAN report from IC #1 (needs translated are critical)
6. Contact and Confirm the command transfer with the Dispatch Center, announce the current strategy, and make a resource determination

Command transfers should be short and sweet. When IC #1 (usually a mobile IC) transmits a concise, clear Initial Radio Report, unit assignments and condition reports, it ensures that IC #2 (usually a Command Officer working out of an SUV) will have quality information to quickly facilitate the command transfer.

## **2.5 - Package Command for ongoing operation and escalation**

The following bullet points put an effective IC in charge of the incident.

- Strong standard command
- Sectors/Divisions (IDLH)
- SOPs
- Clear communications
- Standard strategy/action planning

Once in a strategic command position, the IC can now use the “standard” pieces of the incident management system to control incident operations. This comes down to the IC always being in a position where they can control where the workers are while matching their actions to the current incident conditions.

## **2.6 - Upgrading the Command Post (CP)**

When the IC assumes a strategic command position inside a vehicle, the CP becomes the IC’s “field office.” Based on the size and design of the command vehicle (typically a response chief’s SUV), it will give the IC the following advantages:

- A stationary, remote and quiet place to listen, analyze and make decisions
- A superior communication position (better more powerful radios, no PPE, quiet)
- More radio channels available
- A place to write and record
- Protection from the elements
- Better Intel equipment (MCTs, reference materials)

Here are some of the disadvantages to working in an SUV CP:

- Sometimes you have a poor view of the hazard area
- It’s very hard to manage more than one radio channel
- A Support Officer is needed for a true, strategic advantage
- Not much room for more than 2 people to effectively operate in
- People keep banging on your door

Once the SUV-CP has reached its command limit (the end of a 1st Alarm/Box), it should be upgraded to a larger command vehicle (CV) so the CP and the Command Staff can keep pace with the event.

As the incident’s requirements continue to grow, so must the command capability used to manage those resources. The IC’s position must be upgraded and supported for these larger-scale, fast-moving operations. Larger command vehicles (CVs) give command a place where they can keep pace with the incident requirements.

## **2.7 - Command Teams**

For incidents that are complex or will require a larger amount of resource (up to about a 5th Alarm/Box) a Command Team should be quickly formed to manage the incident. Command Teams are a quick and effective way to manage the swift influx of resources needed to bring local incidents under control. Larger command vehicles also provide the command staff a position and place for this to happen on a consistent, standard basis. Here are the advantages of working from a dedicated CV:

- Provides a place for several command partners (SO, SA, Section & Branch positions)
- You can manage several radio channels at once
- Allows the IC to focus solely on the Hazard Zone
- Offers access to data, video feeds, phones, weather, reference materials, etc.

If available, larger CV's should be dispatched on all multiple-alarm incidents.

While these vehicles make it easier for the IC to perform the functions of command, they are not absolutely necessary. Parking a number of regular response-chief vehicles in close proximity to each other forms a "command village" and is also an effective way to accomplish the same thing.

Supporting an IC at an incident out of a larger, dedicated command vehicle will be covered in greater detail in Function 8—Continue, Support & Terminate Command.

### **3.0 - Command Function #3 – Situation Evaluation**

Major Goal of Command Function 3 is to develop a regular approach to size-up using standard information-management forms that identify the incident's major critical factors.

The information-management phase, known as *size-up*, involves the systematic, yet rapid and deliberate consideration of all the incident's critical incident factors. This standard size-up approach must begin at the very start of every incident operation. This ensures that we will develop a rational incident strategy and corresponding action plan based on the current conditions.

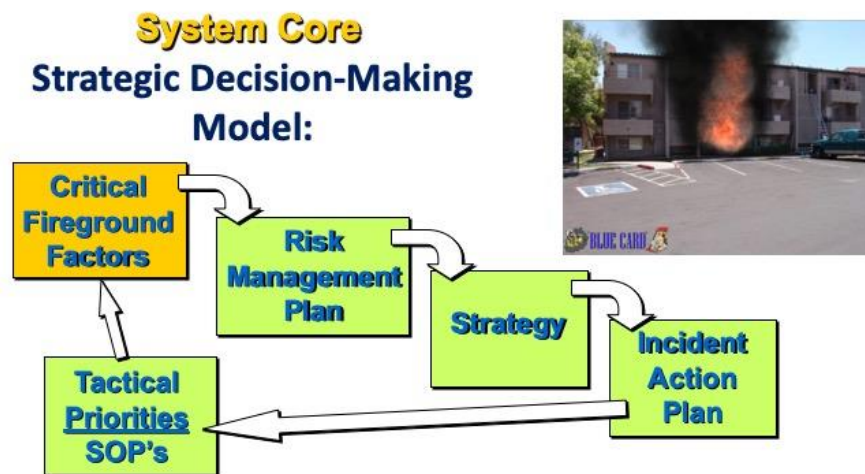
#### **3.1 - Matching standard conditions to standard actions**

Standard conditions are identified as the incident's **Critical Factors**. We must identify the incident's critical factors before taking any action. Our initial size-up produces the information that becomes the basis for the incident strategy and the corresponding incident action plan (IAP). Investing a small amount of time evaluating the critical factors is extremely important to both beginning and on-going command and operational success, as well as firefighter safety.

The current, accurate and relevant information the IC obtains at the front end of the event will generally provide the informational foundation for effective initial and on-going action. This systematic evaluation process continually produces standard, safe, well-managed incident outcomes.

### 3.2 - Strategic Decision-Making Model

The strategic decision-making model gives the entire organization an evaluation/action system that takes the mystery out of initial emergency operations. This model conforms the decision-making process into a standard sequence: First, we identify the incident's significant critical factors, and then we base all actions on our evaluation of those factors. By continually evaluating those factors, we keep the plan current and the workers safe.



### 3.3 - Information management

Information management presents complex challenges during most working incident operations. Information must be quickly received, processed, interpreted and acted upon. In some cases, certain factors can be observed from the command post, while others can only be determined from different locations inside and outside of the structure/incident area.

Obtaining critical information requires the IC to develop, refine and practice a standard system of incident-intelligence management that is applied to actual on-line incident operations.

The IC uses a combination of the following four basic information forms to help manage and process information on the emergency scene:

- Previous experience
- Visual information
- Reported Info/Reconnaissance
- Pre-incident planning and familiarity

### 3.3.1 - Previous experience

Previous experiences and lessons learned are major incident-management resources and offer a practical way to evaluate where the incident is now and anticipate where it is heading. If we have seen similar conditions in the past and developed an action plan to meet and match those conditions, we can anticipate the outcome of those actions if we were to apply them again (been there, done that).

A major decision-making capability involves quickly accessing the memory files that, over time, get loaded into a responder's brain when they encounter actual incident situations. A seasoned IC will relate past experiences to present conditions in order to evaluate where the incident is and anticipate which way the incident is headed.

### 3.3.2 - Visual observation

Visual observation and inspection are one of the most important ways we gain information. This information form requires a critical, perceptive eye and is the most common way the IC gathers information during initial and ongoing incident evaluation.

While enroute, the IC should observe the weather conditions (wind speed and direction) and the horizon for any smoke or fire conditions.

As the IC approaches the scene, they should take a route that shows 3 sides of the structure, or when possible, completely circle the incident (later arriving Command Officers). A drive-around when possible can reveal a great deal of information, such as the layout of the incident area; access or obstruction issues; the extent and severity of the incident problem(s); potential structural failures; or rescue situations.

***An important note on visual information as a size-up tool: Whatever the IC sees from the Command Post trumps what all others see and report*** (e.g. interior reports of "We're getting it!" when the IC can see a 10-foot fireball coming from the roofline).

### 3.3.3 - Recon information

Information the IC can't gather visually from a mobile or Command Post position is typically acquired from personnel assigned to standard geographic and functional positions. Information can come from S/Ds dealing with specific problems and locations who then transmit their information reports to the IC. It also can come from other sources, such as owners/occupants, technical representatives, other agencies, law enforcement or media video feeds.

When the IC assigns companies and S/Ds to key operating positions, they must report back regarding the conditions, actions and needs (CAN report) in their assigned area. With this information, the IC builds a strategic picture of what is happening around the entire incident site. The IC uses this "big picture" to keep the strategy and attack plans current and to keep all Hazard Zone workers connected.

The IC is responsible for understanding the overall situation, incident resources, and organizational and operational statuses. S/D Supervisors concentrate on information that supports tactical operations, integration and coordination. Companies must deal with the details required for direct task-level effectiveness. Simply, the level of required information (details) gets cut into smaller pieces as it moves toward the task level.

### **3.3.4 - Pre-planning information**

Pre-incident planning arms the IC and the response team with facts and details almost impossible to acquire during an actual event. This is because pre-incident planning is conducted in ideal situations, during the daytime under non-emergency conditions. By physically visiting these tactically significant occupancies during these information-gathering visits, we increase the awareness and knowledge of responders who might have to operate at (and in) these locations under critical conditions.

Even though the task-level workers operating at an incident aren't in the position to review the actual plan during an event, they retain the familiarity gained during the preplanning process.

An IC working in the command position is generally in the best position to look at, manipulate and manage the plans, and they can relay pertinent information to the decentralized operating S/Ds and companies.

### **3.4 - Critical Factors**

Virtually every incident factor has a related set of consequences ranging from minor to fatal. This is what makes critical factors *critical*. A major function of IC information management is to identify the factors with the most severe consequences and then concentrate on reducing, stabilizing, eliminating or avoiding the possible outcomes of those critical factors. This requires the IC to develop a standard approach of sorting and prioritizing critical factors.

The IC needs a simple system to deal with all basic incident information. Critical factors offer such a system. There 8 basic Critical Factor categories:

1. Building
2. Occupancy
3. Arrangement
4. Life safety
5. Fire
6. Resource
7. Action
8. Special circumstances

#### **3.4.1 – Critical Factor Category – Building**

- Size—area and height
- Interior arrangement/access (lobbies, stairs, halls, elevators)
- Construction type—ability to resist fire effect
- Age
- Condition—faults/weaknesses

- Value
- Interior compartmentation/separation
- Interior arrangement / Basement profile
- Vertical—horizontal openings, shafts, channels
- Outside openings/access—doors and windows/degree of security
- Utility characteristics (hazards/controls)
- Concealed spaces/attack characteristics
- Effect the fire has had on the structure (at this point)
- Time projection on continuing fire effect on building
- How much of the building is left to burn?

### **3.4.2 – Critical Factor Category – Occupancy**

- Specific occupancy Type—group (business, mercantile, public assembly, institutional, hazardous, industrial, storage, school)
- Value characteristics associated with occupancy
- Fire load (size, nature)
- Status (open, closed, occupied, vacant, abandoned, under construction)
- Occupancy—associated characteristics/hazards
- Type of contents (based on occupancy)
- Time—as it affects occupancy use
- Property conservation profile/susceptibility of contents to damage/need for salvage

### **3.4.3 – Critical Factor Category – Arrangement**

- Access, arrangement, and distance of external exposures
- Combustibility of exposures
- Access, arrangement and nature of internal exposures
- Severity and urgency of exposures (fire effect)
- Value of exposures
- Most dangerous direction—avenue of spread
- Time estimate of fire effect on exposures (internal and external)
- Barriers or obstruction to operations
- Capability/limitations on apparatus movement and use
- Multiple buildings

### **3.4.4 – Critical Factor Category – Life Safety**

- Location of occupants (in relation to the fire)
- Number of occupants
- Condition of occupants (by virtue of fire exposure)
- Incapacities of occupants
- Commitment required for search and rescue (firefighters, equipment, and command)
- Fire control required for search and rescue
- EMS needs
- Time estimate of fire effect on victims
- Exposure/control of spectators
- Hazards to fire personnel

- Access rescue forces have to victims
- Characteristics of escape routes/avenues of escape (type, safety, fire conditions, etc.)

### **3.4.5 – Critical Factor Category – Fire**

- Size
- Extent (percent of structure involved)
- Location
- Stage (inception to flashover)
- Direction of travel (most dangerous)
- Avenue of travel
- Time of involvement
- Type and amount of material involved structure/interior/finish/contents/everything
- Product of combustion liberation (smoke, heat, flame, gas, etc.)
- What is perimeter of fire?
- How widespread is the fire area?
- Fire access—ability to operate directly on fire

### **3.4.6 – Critical Factor Category – Resource**

- Staffing and equipment on scene
- Staffing and equipment responding
- Staffing and equipment available in reserve
- Estimate of response time for personnel and equipment
- Condition of responders and equipment
- Capability and willingness of personnel
- Ability of responders to fit into an IMS
- Number and location of hydrants
- Supplemental water sources
- Adequacy of water supply
- Built-in private fire protection (sprinkler, standpipe, alarms, protected spaces, smoke removal, etc.)

### **3.4.7 – Critical Factor Category – Action**

- Effect current action is having
- Things that need to be done
- Stage of operation (rescue, fire control, property conservation, customer stabilization)
- Effect of the command function—is command established and working?
- Has the IC forecasted effectively?
- Is the incident in the proper Strategy with the corresponding IAP?
- Tactical priority questions: Are victims okay? Is fire out? Is loss stopped?
- What is the worst thing that can happen?
- Are operating positions effective?
- Are there enough resources? (Personnel, apparatus/equipment, logistics/support, command, water, SCBA air)
- Are troops operating safely?
- Is there a safety plan/organization (On-Deck, tactical supervision, etc.) in place that can react in case someone gets in to trouble?



- Situation status: from out of, to under control

### **3.4.8 – Critical Factor Category – Special Circumstances**

- Time of day/night
- Day of week
- Season
- Special hazards by virtue of holidays and special events
- Weather (wind, rain, snow, heat, cold, humidity, visibility)
- Social unrest (riots, terrorism, etc.)

### **3.5 – Managing Critical Factors**

The incident critical factors are the basic items an IC must consider when evaluating tactical situations. They constitute a checklist of major elements associated with size-up, decision-making, initiating operations, and review and revision. It's important for the entire team to agree upon what the critical incident factors are, as well as the standard organizational reaction to those factors.

Command deals with these incident factors through a systematic management process that:

1. Includes a rapid overall evaluation
2. Sorts the critical factors in order of priority
3. Seeks more information about each of those factors
4. Focus on the major factors effecting the incident (fire)
5. Quickly and properly react to visual observation and CAN reports

Critical incident factors represent an array of items that remain dynamic throughout the event. Therefore, the relative importance of each factor changes over time. Command must deal continuously with these changes and base decisions on current information relating to the most important factor.

The effective IC does not stick with the initial plan of action after conditions change—for better or for worse. Successful incident operations require the IC to revise the IAP as needed by constantly reconsidering the incident's major critical factors based on feedback from the information forms.

When IC#1 (Co. Officer) chooses the offensive strategy in the mobile command position, they make their initial size-up from an exterior position. The IC sees the effect the incident problem is having outside the Hazard Zone. The mobile IC then moves to the interior and begins collecting information about how the incident problem is affecting the inside of the structure. These conditions, such as the problem location and the amount of smoke and heat, are utilized in the decision-making process to assign subsequent arriving units.

When an IC is operating in a strategic command position, they usually have a good view of the incident scene. As the IC assigns units to the different operational positions around the inside and outside of the incident scene, they will receive size-up information in the form of progress/CAN reports from these different positions.

The IC must consider these reports along with what they are actually seeing. Whatever the IC sees, trumps all other reports.

### **3.5.1 - Consider fixed factors – manage variable factors**

**Fixed factors** pertain to the things that can't be change, such as the way a building sits on a piece of property, the occupancy type or the distance of an exposure. These fixed factors present certain realities that the IC must plug into their incident action plan. If something that normally takes 3 minutes is going to take 20 minutes because of a fixed factor, the IC must react, plan and manage accordingly

Fixed Factors:

- Building
- Occupancy Type
- Arrangement

**Variable factors** are things the IC can change. If a building is full of smoke, the IC can order ventilation. If the building is heavily secured, a ladder/truck company can force entry. Engine crews manage the fire by applying a sufficient amount of water to extinguishing it. When we don't (or can't) control the variable factors, we should be in safe locations, away from the factors that may harm us.

- Variable Factors
- Life Safety
- Fire
- Resource
- Action
- Special Circumstances

### **3.5.2 - Critical Unknowns**

During most critical incident situations, command must develop an initial action plan based only on the critical factors they can see at the beginning of operations. Most of the time, the initial information is very incomplete. The ability to identify the "knowns" and the "unknowns" emerges when the IC uses the standard inventory of the critical factors. The IC must:

- Quickly size up what they know and what they don't know
- Identify and address critical "unknowns" during incident operations
- Some unknowns must be addressed immediately, especially in situations that involve firefighter safety and survival, before the problem can even be engaged (such as basement fires)
- Some forecasted critical unknowns are so critical that they may drive the initial or current strategy choice

### **3.5.3 - Quickly Identify & React to Safety "Red Flags"**

Red flags are pieces of information that we must address because they can end up injuring or killing us. The IC must always take a pessimistic approach when sizing-up, assuming the worst until determining otherwise.

A red flag will not necessarily change the overall incident strategy or incident action plan, but it must be identified and addressed by the IC and the rest of the Hazard Zone team. This is a big part of how the IC ensures everyone goes home when the event is over. Some examples of red flags include:

- Fire in the attic/concealed space (where structural elements are located)
- Operating above a fire (basements, floor above the fire)
- Zero visibility
- Encountering high heat
- Reports of, "We can't find the fire", beyond normal discovery times
- More than one (1) request to back up an attack position
- Reports that state "fire control," but you can still see active fire conditions from the command post
- Victim(s) located
- Wind-driven fires
- Smoke/fire showing from cracks in walls

#### **3.5.4 - Maintain a Realistic Awareness of the Elapsed Incident Time**

One constant for structure fires is that the building will last a very short period of time when exposed to flame. Another severe time constraint is the length of time an SCBA will supply air to its wearer.

In many systems, the Dispatch Center provides the IC with elapsed-time reminders. These reminders serve as cues for the IC to re-evaluate conditions, the current strategy and to consider the length of time firefighters have been operating in the Hazard Zone.

#### **3.5.5 - Structure & Time Information around the Tactical Priorities**

Tactical priorities provide a job list for incident operations; they are the reason our customers call us. For structural firefighting, these tactical priorities include fire control, search/rescue, property conservation and customer stabilization.

Effective incident communications focus on completing the tactical priorities (within the parameters of the critical incident factors and firefighter safety). This approach requires a simple, standard communications game plan (SOP) for the entire organization.

#### **3.5.6 - Continually Reconsider Conditions; Stay Current & Stay Connected to Resources**

The IC develops their strategy and the IAP based on the initial size-up of the incident's critical factors. These critical factors are very dynamic; they are either getting better, or they are getting worse, but they never stay the same. The current and forecasted incident conditions must drive the strategy, the IAP and our risk-management plan.

#### **4.0 - Command Function #4 – Strategy & Incident Action Planning**

To quickly determine the most effective, correct action, the IC must “cut through” a lot of confusion along with evaluating all of the incident hazards. What we do at the very beginning of the event generally sets the stage for what happens throughout the incident.

Command Function 4 describes how the IC develops and uses the incident strategy and incident action plan (IAP) to take the correct actions that matches and takes control of the incident conditions—all within the overall incident strategy.

#### **4.1 - Matching standard conditions to standard actions to produce a standard outcome**

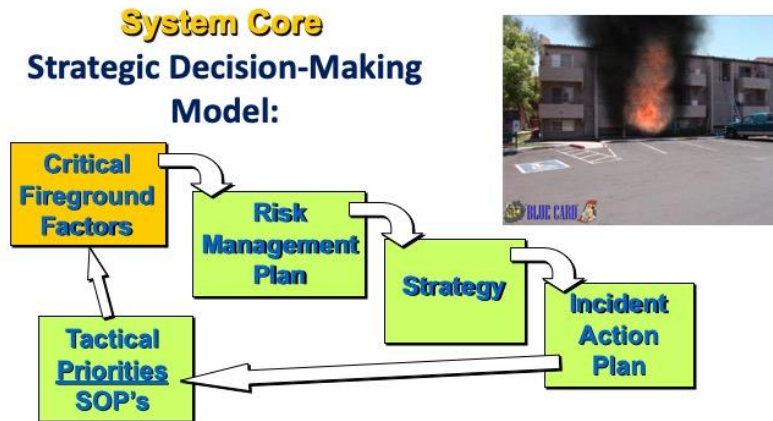
This is the core of the Blue Card command system and is the launching pad for all operations. Standard conditions are identified as the incident’s **current and forecasted** critical factors (Function 3 Size-Up). We must:

- Identify the incident’s critical factors before taking any action.
- Our initial and ongoing size-up of the incident’s critical factors must produce the information that becomes the basis for the current incident strategy and incident action plan (IAP).
- Current, accurate and relevant information provides the informational foundation for effective initial and ongoing action.

This systematic evaluation process continually produces standard, safe, well-managed incident outcomes.

#### **4.2 - Strategic Decision-Making Model**

The strategic decision-making model gives the entire organization an evaluation/action system that takes the mystery out of initial emergency operations. This model brings the decision-making process into a standard sequence: First we identify the incident's significant critical factors, and then we base all actions on our evaluation of those factors. By continually evaluating those factors, we keep the plan current and the workers safe.



#### 4.3 - Use the Critical Factors to Develop the Incident Strategy & the IAP

We must use a standard evaluation approach and incident-management system to develop and conduct our operations around the incident's critical factors. Critical factor management is detailed in Command Function 3 – Situation Evaluation.

#### 4.4 - Risk Management Plan (RMP)

Fireground operations will fall into one of two strategies, Offensive or Defensive. These two strategies are based on a standard Risk Management Plan that is to be employed on ALL IDLH Hazard Zones.

The following Risk Management Plan (RMP) will be used at all times whenever a Hazard Zone exists:

- We will risk our lives a lot, to save savable lives
- We will risk our lives a little, to save savable property
- We will NOT risk our lives, at all, for lives or property that are already lost

Operations in the above three levels of risk categories shall be performed in a highly calculated and controlled manner. Highly calculated and controlled refers to effective application of department SOPs, training, and fireground safety systems (PPE, radios, apparatus, supervision/organization, water, etc.) that must be used/followed at all times, in order to take effective action for the level of risk present.

We must always begin our operational response with the assumption that we can make a difference for our customers by conducting standard incident operations. Our risk-management approach is based on us always conducting operations within standard operational and safety SOPs.

Rescue operations in the Hot Zone are the only place where, based on the possibility of saving a threatened customer, the RMP allows workers to take a significantly higher level of risk. High risk rescue operations are based on a deliberate situation evaluation, a conscious decision by the IC, and the continual application of the safety SOPs.

The offensive/defensive strategy should again be re-evaluated and re-declared after primary and secondary "all clears" has been achieved. Both are critical decision points for the IC.

#### **4.5 - Determine the overall incident Strategy**

A Hazard Zone consists of the overall zones identified which determine the level of risk to civilians and emergency workers in relationship to the incident's problems. The Hazard Zone is divided up into three (3) separate, distinct areas:

1. Hot Zone - An IDLH environment due to heat, lack of oxygen, and/or the presence of toxic chemicals and/or the products of combustion. Workers inside of the Hot Zone must be in the proper PPE for the hazards identified
2. Warm Zone - A defined area just outside of the Hot Zone that has the potential to become IDLH contaminated with the incident's products. Workers inside of the Warm Zone must also be in the proper PPE for the hazards identified (same as Hot Zone workers)
3. Cold Zone - A safe area outside of the Warm Zone that has little or no chance of becoming IDLH contaminated with the incident's hazards. Workers in the Cold Zone require no PPE. The Cold Zone typically contains the strategically positioned command post, staging, rehab, logistical support, etc.

Overall operational strategy is divided into only two categories: Offensive or Defensive.

- Offensive operations are conducted inside of the Hot Zone to control the incident's problems.
- Defensive operations are conducted outside of the Hot Zone - in safe locations - to control the incident's problems.

An IC properly managing the incident's strategy has the **#1 – GREATEST** overall impact on responder safety.

The two separate strategies create an *understandable* plan that describes in simple terms how close the emergency responders will get to the incident's hazards.

The overall strategic decision is based on the critical factors weighed against the RMP.

The IC must avoid taking unnecessary risks to save property when our members are the only life safety threat in the Hazard Zone.

Do NOT combine Offensive & Defensive operations in the same fire area.

#### **4.6 - Declare the incident's Strategy as part of the Initial Radio Report (IRR)**

Declaring the incident strategy up front, as part of the Initial Radio Report will:

- Announce to everybody the overall incident strategy.
- Eliminates any question on where we will be operating on the incident scene (inside or outside the Hazard Zone).

#### **4.7 - Confirm ongoing strategy as part of the Elapsed-Time Notifications (ETN)**

When an offensive Working Fire is declared, it will prompt the TRO to begin Elapsed Time Notifications (an IC can also request ETN's whenever they feel it is necessary).

The TRO will announce over the tactical frequency an elapsed time notification every five (5) minutes until the incident is placed under control, or until command requests to discontinue or restructure the ETN's.

The IC must verbally acknowledge each 5-minute notification by re-announcing the incident's strategy over the assigned tactical radio frequency until the incident is placed under control, or until command requests to discontinue or restructure the notifications.

#### **4.8 - Use the Incident Organization & Communications to Implement the Strategy/IAP**

Using the strategy to control incident operations allows the IC to begin under control and stay under control when everyone operates within the incident management system and the overall strategy.

The IC uses the radio to manage incident operations. This starts with the Initial Radio Report where the initial strategy is declared. After subsequent arriving units Level 1 stage, the IC orders them into action with an assignment that includes a specific task, location and objective(s). The status of the critical factors in each companies' locations serves as the foundation for the CAN reports companies provide to the IC. These actions connect everyone together on the incident site and help the IC manage the proper strategy based on the current conditions.

For expanding and long-term Hazard Zone management (hard to build a large organization when the problem goes away quickly) the IC decentralizes the Hazard Zone by assigning S/D responsibility to later arriving officers. S/D Supervisors operating in forward positions give the IC the following strategic advantages:

- They control access into and out of the Hazard Zone based on the current strategy.
- They have a better view of conditions in their S/D than the IC.
- They are in a much better position to directly manage the air supplies, tactics, safety, and accountability of assigned personnel in their S/D.
- These officers are in the strongest position to manage and supervise expanding incident operations.

The IC provides the S/D Supervisors with the overall strategy and objectives for their area. This becomes the starting point for conducting operations within that S/D. As progress is made, objectives are met or conditions change (good or bad), the S/D Supervisor reports this information to the IC along with any resource needs.

The IC must process reports from all the operating S/Ds to continually manage both the overall incident strategy and the corresponding IAP.

#### **4.9 - Standard Company Functions**

Standard company operations assign basic fireground functions and activities to companies based upon the capability and characteristics of each type of unit.

Standard company operations assign fireground functions to the particular company who can best accomplish the task/operation.

Standard company operations integrate the efforts of Engine and Ladder/Truck companies to effectively complete the chosen strategy's tactical priorities.

Standard company operations should reduce the amount of detail in the orders from the IC that is required to get companies into action on the fireground. This greatly reduces radio traffic.

The following items represent the standard task/skill sets performed by Engine and Ladder/Truck companies. These basic functions will provide the framework for field assignments for these companies:

##### **4.9.1 - Standard Engine Company Functions:**

- An Engine Company's primary responsibility is to extinguish fires by applying water onto what's burning as quickly and as safely as possible
- Establish water supplies
- Stretch hoselines
- Operate nozzles
- Search, rescue, and treatment
- Open up concealed spaces
- Deploy ground ladders
- Pump supply lines
- Supply master streams
- Loss control activities

##### **4.9.2 - Standard Ladder/Truck Company Functions:**

- Whenever necessary, assist with fire control activities
- Search and rescue
- Ventilation (post fire control)
- Forcible entry
- Raise ladders
- Provide access into concealed spaces/check for fire extension
- Utility control
- Provide lighting
- Deploy aerial devices



- Operate ladder pipes (aerials and platforms)
- Perform overhaul
- Extrication
- Loss control activities
- Provide roof reports on big box, commercial and strip mall occupancies

Each company is expected to perform all basic functions safely within the limits of their capability. It is the on-going responsibility of Command to integrate company tasks and objectives as required with the capability of on-scene units.

#### **4.10 – Strategic level water supply considerations**

An uninterrupted water supply should always be established (400+ GPM produced the first 30 minutes of the operation) using a fire hydrant or a portable water tank shuttle supply operation whenever an offensive “working fire” is declared.

Command is ultimately responsible for managing attack positions in either offensive or defensive locations. The key to effective attack positioning is WATER. Water not only extinguishes the fire; it protects firefighters from the lethal products of combustion (heat).

The IC must have an acute awareness of the following water supply factors:

- The required fire flows for the incident
- The projected fire flows that can actually be produced
- Is there enough water available to safely extinguish the fire?
- What are the water supply options (hydrants, natural sources, tankers)?
- Are key tactical areas adequately supplied with water?

When assigning an Engine Co. (pumper) to deploy and operate a handline(s) in the Hazard Zone, it is very important for the IC to specify what to do with the unit’s apparatus and where their handline and/or water supply comes from. This actually manages attack positioning and prevents un-necessary congestion around the incident scene.

##### **4.10.1 - Forward & Key Pumpers**

A Forward Pumper is defined as: A pumper that is located in one of the primary, forward attack positions on the fireground where equipment, hose and water are deployed from the pumper directly into or around the Hazard Zone.

*\*Note: The Forward Pumper reference is geographic and functional in nature and **DOES NOT** imply that the attack position has an uninterrupted water source. IC’s must maintain an awareness of all Forward Pumpers water supply status.*

A Key Pumper is defined as: A pumper that makes a direct connection into a hydrant via the Key Pumper’s intake valve and then “pumps” water to the Forward Pumper’s intake. This overcomes all of the friction loss in the supply hose (up to 1,000 ft) and it delivers the max GPM possible from the hydrant to the forward pumper (up to 2,000 GPM using 5” LDH).

#### **4.10.2 - Pressurized Water Supply**

Lines must be laid with consideration for the access problems they can create. Always lay supply lines along the side of the roadway that the hydrant is located on and cross over at the fire scene if necessary.

Max speed when laying supply lines is 10 mph. Faster speeds result in excess hose on the roadway and the possibility of hanging up a supply coupling in the hose bed. Slower speeds also provide several advantages:

- Reduces the risk of striking pedestrians, spectators, vehicles, other apparatus and/or firefighters working at the scene
- Provides time for the Company Officer to size-up and evaluate the critical fire ground factors
- Provides time for the Engineer to safely and appropriately spot the apparatus into forward/key positions

First due companies approaching the scene with any evidence of a working structure fire should lay their own supply line whenever possible.

Key tactical positions should be identified, and Forward Pumpers should be placed into those locations early on in the operation with an uninterrupted water supply. The Forward Pumpers can then distribute this water supply to a variety of hand lines, appliances, master streams or FDC's.

Fire hose quickly limits the general access as the fireground operation evolves. Command must direct apparatus to important key tactical positions as early as possible. Take full advantage of the hydrants closest to the fire area before laying additional supply lines from distant hydrants.

Secondary hydrants should be used to obtain additional supply if the demand exceeds the capability of the closest hydrants. Shared mains must also be considered when opening up secondary hydrants. These actions could reduce the water available to the Forward Pumpers in good tactical positions. Many times, pumped water is the best option to increase flows.

Take advantage of the equipment on apparatus already in forward attack positions instead of bringing in more apparatus. Connect extra attack lines and appliances to Forward Pumpers which already have a good water supply instead of making "daisy chain" supply line connections which congest the scene.

Do not use hydrants located so close to the fire building that structural failure or fire extension will jeopardize the water supply and/or the apparatus.

#### **4.10.3 - Pumped Water**

After initial arriving companies have established an adequate water supply, newly arriving companies should stage on those hydrants providing the ability to pump the hydrant. Staging key pumpers on hydrants enhances fire ground safety in several ways:

- Ensures an uninterrupted water supply

- Provides max hydrant volume when needed
- Reduces forward scene congestion
- Ability to pump water through the forward pumper in the event of mechanical failure

A pumped water supply is necessary when large volumes of water are required on the fire ground. This normally occurs later in the attack operation when Engine mounted master streams, ladder pipes, or multiple high GPM attack lines are in operation.

Whenever possible, first alarm companies should lay their own supply lines to cover all critical tactical positions before pumped water is considered.

Supply line lays exceeding 300 feet in length should be pumped when supplying aerial devices, large bore master streams, or several handlines at once. A single 5-inch hose can deliver the entire volume of the hydrant (1200 – 2000 GPM depending on main and supply hose size) when being pumped by a key pumper. This often times makes it unnecessary to lay additional supply lines to Forward Pumpers in large volume water operations.

#### **4.10.4 - Water Shuttle Operations**

Whenever possible, departments should try to utilize a water supply from a fire hydrant as opposed to using a drafting/water shuttle operation. When a hydrant is not located close enough to the scene to provide a pressurized water source, a water shuttle operation should be set up and utilized as soon as possible.

Because a water shuttle operation takes place outside of the Hazard Zone, pumping engineers and water shuttle apparatus operators should be placed on a separate radio channel that is managed by a water supply supervisor. This will greatly reduce radio traffic on the Hazard Zone tactical channel.

The key to a successful water shuttle operation is the initial portable water tank set up location and minimizing the idle time of water shuttling apparatus. The proper initial set up of the water supply operation is essential for two reasons; (1) the water supply requirements are most critical during the first few minutes of the attack, and (2) it is difficult or impossible to build on or maneuver around a poor initial set up.

A water shuttle specific 1<sup>st</sup> Alarm/Box response should be able to provide a continuous flow of 400+ GPM if the water supply source is located a reasonable distance from the scene and the dump site has been properly set up.

The defensive strategy **MUST** be considered when adequate fire flows cannot be established early on in the operation.

There are 3 main components to a water shuttle operation:

- **Dump Site**; using portable water tanks at the scene
- **Travel Time**; the time it takes to travel between a dump site to a fill site, and back
- **Fill Site**; utilizing a fire hydrant, a well pumping station, or a draft location away from the scene to fill water shuttle apparatus

**Dump Site** - On most offensive working fires in areas without hydrants, the initial arriving Engine Company will respond directly to the scene and begin their fire attack using tank water. Once the initial arriving pump operator has their pump panel set up, they will assist a subsequent arriving Engine or Tanker driver with setting up a portable water tank to start a drafting operation.

Members must spot their apparatus and set-up the portable water tanks in a manner that maximizes water shuttle apparatus access in, out, and around the water tanks and the emergency scene in general.

**Travel Time** – Can be the biggest factor in producing adequate fire flows. The IC must consider the travel times to and from the fill site as they relate to supplying adequate fire flows. This is especially critical in long term offensive firefighting (two or more work cycles).

**Fill Site** - The closer the fill site is to the dump site will greatly increase the water flows that can be achieved. Fill sites should be selected in the following order:

- Hydrants that are located closest to the scene
- Well pumping stations that are located closest to the scene
- Drafting location

Once a pressurized supply site has been initially set-up, leave all supply hose, valves and accessories attached and in place until the operation is concluded. This will great speed up turnaround times at the fill site.

If shuttled water has to be drafted out of a static water source, Command should dedicate one drafting pumper at the source to supply/fill water shuttling apparatus. This will provide for the quickest turn-around times at the fill site.

#### **4.11 – Managing Tactical Priorities**

Once the overall incident strategy has been determined, the IC must manage the completion of the tactical priorities for the chosen strategy. Each strategy has a different set of tactical priorities to complete.

Tactical priorities provide the IC with a simple, short list of major categories that act as a practical 1-2-3 guide during the difficult initial stages of fireground planning. The IAP must be short and simple; complicated IAP's tend to break down during this critical time.

Generally, the IC tries to achieve the same basic objectives from one incident to the next. Tactical priorities offer a regular set of “hooks” on which the IC can hang tactical activities in order to develop a standard approach to solving incident problems. With this standard approach, the IC can manage the basic work sequence at every incident, in the same manner. This creates consistency the troops can understand and dependability that continually creates standard actions to the incident current conditions.

#### **4.12 - Offensive Incident Action Planning**

When an incident's critical factors and the risk-management plan indicate the offensive strategy, firefighting forces will enter the structure (Hot Zone), in the appropriate PPE, to attempt to control the incident hazards inside of the Hot Zone. An offensive IAP is based on the standard offensive tactical priorities.

Standard offensive strategy tactical priorities and their corresponding completion benchmarks:

- Fire Control – “Fire Control” (F/C)
- Life Safety – Primary and Secondary “All Clear(s)” (A/C)
- Loss Control/Property Conservation – “Loss Stopped” (L/S)
- Post Fire Control Firefighter Decontamination (Decon)
- Customer Stabilization – Short term

The offensive tactical priorities establish the major operational activities, in the order they should be addressed, when selecting the offensive strategy.

#### **4.13 - \*Blue Card – Fire Research**

Blue Card Command SOPs are focused primarily on the strategic aspects of IDLH and Hazard Zone management. Whenever presenting on strategy, tactics must also be presented on (side by side) because you use the strategic part of the system to facilitate the completion of the tactical part of the system (completing the chosen strategy's “tactical” priorities).

The Blue Card SOPs are based on and support the fire research performed by highly qualified engineers. This evidence-based, critical factor data provides the fire service with the information to adjust “best practice” tactics to employ when fighting modern day structure fires.

#### **4.14 - Offensive apparatus placement**

Customers request our service when a building is on fire. Our primary goal must be to eliminate/minimize the fire as quickly and as safely as possible. The most effective action to take when something is on fire, is to put water on the fire. To facilitate this, apparatus on offensive fires should be placed around the Hazard Zone using the following guidelines:

- Engine/Pumpers establish initial attack positions by establishing an uninterrupted supply of water. This should be done as early as possible.
- Avoid placing non-pumper type apparatus (Squads, Heavy Rescues, Truck/Ladder Companies, etc.) in key tactical offensive attack positions.
- Place Engine/Pumpers as close to what's burning as safely as possible (30 ft rule). This greatly facilitates applying water onto a fire as quickly as possible.
- The further the attack position is from the fire area, the longer it will take to put water on the fire. Command must account for these longer water “in-transit” times as they relate to the continued fire effect on civilians and the building's structural components.
- Units assigned to an incident where their apparatus will not be utilized in a key tactical position (only used for: man-power, hand tools, small equipment, etc.) should be directed to “spot out of the way” when being assigned, minimizing scene congestion.

#### **4.15 – Offensive Attack Positioning and Performing 360's**

When arriving to the scene, the initial size-up is usually performed and then transmitted (via the Initial Radio Report (IRR - Function 5 - Communications) from inside the cab of the apparatus. The initial size-up and strategic decision made on the IRR is NOT an affidavit of the overall incident conditions. Whenever possible, prior to making an offensive entry into a structure fire, a mobile IC should perform a 360-degree assessment of the fire building/area to further determine:

- The fire's size, location, and extent
- Verify basement type (if present) and the stories from the Charlie side
- The ventilation profile of the structure (the identification of flow paths or potential flow paths)
- Identify the safest, most appropriate attack position
- Life safety profile of the incident
- Confirmation of the initial Strategy and IAP

A thermal imaging camera (TIC) is an essential tool for sizing up a structure's fire conditions. If available, a TIC should be used during the entire 360-degree assessment. TIC readings of the interior of the fire compartment should also be obtained prior to committing crews to entry.

Some fire area arrangements prohibit mobile IC's from performing a full 360-degree assessment of the structure (larger buildings, long apartment/row house/town house complexes, large strip malls, etc.). The IC must announce on the Follow-Up Report when a 360-degree assessment of the structure cannot be performed on the initial size-up (i.e., "360 not performed due to the buildings size/arrangement").

Incidents where a 360-degree assessment cannot be performed by the initial IC, Command must ensure that a unit be assigned to assess any unviewed sides of the structure as soon as possible into the incident (usually the "Charlie" side). This is especially critical for structures that have any type of basements or sloping grade elevations in their overall arrangement.

#### **4.15.1 – 360-degree assessments and verifying the fire's size, extent, and location**

One of the most critical size-up items when performing a 360-degree assessment is determining the fire's size, extent, and location.

When visible fire is located (observed), water should be applied onto it as quickly and as safely as possible. All fire research indicates that putting water into a compartment that is hosting a fire makes everything better. Water application onto visible flames and/or hot smoke prior to final extinguishment of the actual burning fuels does nothing but IMPROVE interior conditions for the:

- Civilians
- Firefighters
- Building's contents
- Building's structural components

The thickness, density, and pressure of the smoke should also be assessed and are good indicators of the fire's stage and location. High pressure smoke escaping a structure usually indicates the fire has enough oxygen to continue to build pressure. Entry crews can expect higher interior temperatures when these conditions are visible from the exterior.

Fires that have entered into a ventilation-controlled state (due to consuming all of the available oxygen in the compartment) can present themselves with light smoke or nothing showing conditions upon arrival. Ventilation controlled fires can rapidly accelerate to extreme fire behavior conditions (temps over 1,800 F) when enough oxygen is introduced into the fire area with the absence of water being applied to control the fire and/or to reduce interior temperatures. Providing any tactical ventilation prior to obtaining fire control at this stage in fire control operations will intensify the fire and **MUST** be avoided.

#### **4.15.2 – 360-degree assessments and verifying the basement type (if present) and stories from the Charlie side**

Mobile ICs must verify the basement type (if present) of the structure and the stories that are present from the Charlie side. The number of stories from the Charlie side of the structure will need to be announced in the follow-up report if the stories don't match up to side Alpha. This does not include the basement.

Basement type and conditions must be identified before entering the structure whenever possible. Local basement type descriptions must be agreed upon by the entire response team.

Basement involvement must be considered and validated whenever there are smoke/fire conditions presenting from upper floors (in response areas that have basements). The initial IC **MUST confirm** the conditions in the basement prior to making entry into the structure whenever possible.

When the 360 size-up identifies/confirms basement involvement, the IAP must be re-adjusted to make the attack directly on the basement fire. **Firefighters should NOT make entry on a floor above a working basement fire. Always fight a basement fire on the same level of where the basement is located. This most often requires exterior water application through one of the basements horizontal openings.** If no horizontal openings are present (with a confirmed basement fire) penetrating nozzles should be used to apply water into the basement.

#### **4.15.3 – Assess the ventilation profile of the structure (the identification of flow paths or potential flow paths) during the 360-degree assessment**

An assessment of the outside openings and determining the overall ventilation profile of the structure shall be made prior to any offensive entry whenever possible. Critical items to size-up when assessing a structure's ventilation profile are:

- 100% High pressure exhaust vent(s) – very hot, convection heat currents. Worst place to be in a burning structure.
- 100% Low pressure inlet vent(s) – cool air inlet. Best place to be in a burning structure.
- Bi-direction vent – Upper portion of the opening is the high-pressure exhaust vent; lower portion of the opening is the low-pressure inlet vent. These two (2) layers separate themselves at the “neutral plane”. A well-defined neutral plane usually indicates the fire is located on that level of the structure.
- Puffing/alternating exhaust/inlet vent – usually caused when the pressure of the fire gasses cannot escape the opening/compartment because high pressure is impacting the opening (possibly caused by high winds or PPV on the opening).

- The ventilation profile will change throughout the incident based on; changes to wind direction and speed, changes in fire conditions, water application, as well any “tactical” ventilation performed by operating units.
- Whenever possible in the 360 assessment, close potential vents connected to the fire area and don’t create any new ones.

#### **4.15.4 – Use the 360-degree assessment to identify the safest, most appropriate attack position**

A major element of the IC’s IAP is determining the safest location(s) for making an offensive attack (the physical location where firefighters will initiate flowing water onto the fire). Whenever possible, attack offensive fires in the following manner:

- Perform quick hits (exterior water application) to improve interior conditions whenever possible prior to making offensive entry into the fire area/structure
- When making entry, always perform door control
- Always avoid entering into an exhaust (high pressure) vent or flow path
- Always attempt to make an offensive entry from an inlet (low pressure) vent of the structure (or a neutral opening)
- Always attempt to operate from the upwind side of the structure (critical with wind speeds over 10 mph)
- Always operate on the same level or below the fire WHENEVER possible
- ALWAYS AVOID working above a working structural fire

#### **4.15.5 – Use the 360-degree assessment to size-up the life safety profile of the incident**

Immediate life safety issues are one of the primary reasons 360-degree assessments are performed. If there are any imminent rescue issues during the 360-degree assessment, the IC will need to announce the situation during the follow-up report and re-adjustment the IAP as necessary to address the life safety issue(s) present.

#### **4.15.6 - Confirmation of the initial Strategy after performing a 360-degree assessment:**

Performing a 360-degree assessment provides the initial mobile IC a view of all sides of the structure prior to transmitting the Follow-Up report and making entry into the structure. Most of the time, the initial strategy reported on the IRR won’t change. But there are some incidents where the 360-degree assessment will require a change to the incident’s overall strategy or an adjustment to the IAP. The overall incident strategy must be re-confirmed as part of the Follow-Up report. Situations that may/will require changing the original strategy and/or IAP may include:

- Immediate life safety issues(s) not seen from the initial command position
- Basement fires where the initial attack efforts must be re-directed to a different area/location on the fireground
- Fires located in a different area or part of the structure not seen from the initial command position where entry or initial water application will be made from a different location as stated in the IRR



- Conditions after a 360-degree assessment indicate the fire's size, location, or extent requires changing from the offensive to a defensive strategy

#### **4.16 – Offensive fire stream considerations**

Fire control forces must consider the characteristics of fire streams and choose the most effective nozzle/stream for the task:

- Smooth bore nozzles: Higher flows at lower nozzle pressures vs. fog nozzles. Lower air entrainment than fog nozzles. Can be used on 1 ¾", 2", and 2 ½" handlines.
- Fog nozzles: Higher air entrainment than smooth bore nozzles. Can be used on 1 ¾", 2", and 2 ½" handlines. Most effective nozzle for protecting exposures.
- Penetrating nozzles: Used to penetrate/pierce a structures walls, floors, and ceilings to apply water from one area of the fireground that is separated via a barrier from another. If not practiced and used (if available) can be slow to set up and deploy. Streams produced by penetrating nozzles should be considered "fog" streams when flowing.

Choose the proper sized attack line:

- 1-3/4" Lines: Fast to deploy, the most mobile handline when charged and flowing water, good volume, 150-200 GPM
- 2" Lines: Slower deployment and mobility speeds. GPM depends on pump pressure and nozzle type, 200-300 GPM
- 2-1/2" Lines: Slowest deployment speeds, difficult to advance and move once charged and flowing water, 200-300 GPM. Usually used with smooth bore nozzles
- Engine Mounted Master Streams: Fast to set up and operate, large volume, great reach and penetration, 500 to 1,000 GPM
- Elevated Master Stream: Slow to set up – maximum water, 500 to 2,000 GPM

Offensive attack hose evolutions/stretches must be highly mobile—as mobility is slowed, attack activities begin to become more defensive in nature and effect.

#### **4.17 - Strategic level attack line placement considerations**

When operating in the offensive strategy, attack hoselines of adequate volume (150-200 GPM) should be used to put water on the fire, to control access through doors, halls, stairways, or other vertical and horizontal channels/shafts through which people and fire may travel. General attack line placement guidelines include:

- Always establish an early, uninterrupted water supply for all fire-suppression activities
- Consider mobility, air entrainment vs. GPM when selecting the properly sized hoseline
- All initial FD efforts must be directed towards controlling the fire
- Controlling the fire supports rescue efforts and hoselines must be placed in a manner to control interior access, confine/control the fire, and protect avenues of escape

- Water should be applied to the fire as quickly and as safely as possible. Safely is defined as: the further away from the fire that you can apply water on it, the safer it is for the occupants, the property, and the firefighters (use the reach of the stream)
- Many times, it is much quicker and safer to apply water onto offensive fires through outside horizontal openings using a straight stream or smooth bore nozzle. This is true for all fires, but especially true for fires that are visible on upper floors or higher elevations
- Always avoid applying a fog pattern into/onto an outside opening
- When required, entry teams must use their handline streams to cool hot smoke (to reduce interior temperatures) prior to direct water application onto the actual burning fuels (gas cooling)
- Once fire knockdown has been achieved, fire control crews must continue to reduce the interior temperatures of the structure to below 200 degrees F to improve occupant and firefighter survivability. This is done by direct water application (using a semi-fog pattern or broken solid stream) onto the ceilings, walls, and other hot surfaces/objects directly exposed to the combustion process
- Be prepared to back up in place hoselines if requested
- Always try to operate from one (1) attack position whenever possible. Operating from multiple attack positions on offensive fires can increase risks to firefighters
- No uncharged hoselines past the entry point of the structure. All hoselines entering the Hazard Zone must have adequate GPM (150+ GPM) to protect entry crews
- All members working in the Hazard Zone must be operating under the protection of a charged hoseline in their immediate geographic/work area
- No Gated-Y's past the entry point of the structure
- Maximum distance inside a structure is 175-200 feet
- Interior work times must be tied to SCBA air supplies, and the decision to exit the structure (Hot Zone) must be based on exiting with an air reserve (33%)

Once initiated (flowing 150+ GPM) an offensive attack should quickly have a positive effect on the fire. Consequently, backup plans should be developed quickly. If you apply water to an offensive attack position and the fire does not go out – react quickly. Back it up or re-deploy to a more effective position.

Predict where the fire is going to go and put crews in positions to get ahead of the fire. This is especially true when fighting fires in compartmentalized structures such as strip malls, apartments or any compartmentalized structure with common attic/void spaces.

Beware of hoselines that have been operated in the same place for long periods. Fire conditions should quickly change after applying water to the seat of the fire (for the better). The IC must continually evaluate the effect of hoseline operations. If the operation of such lines becomes ineffective, move, adjust, or redeploy them.

Normal means of egress most often times will give control forces the fastest access points into the structure while protecting these avenues of escape for occupants and firefighters.

In some instances, (upper floor occupancies with long handline stretches) it may be faster using alternate means of egress to apply water on the fire (ground ladders, aerial devices, fire escapes, drop bags, etc.). When using alternate means of egress to quickly put water on the fire, command must quickly cover and protect the normal means of egress for both the occupants and firefighters to safely utilize.

A strategically positioned IC is in the best position to evaluate the overall effectiveness of the fire attack, while interior crews are sometimes in the worst position to evaluate their effect on the fire. Command must continually compare interior control reports to what they can see from the command post (CP). Whatever the IC sees with their own eyes from the CP outweighs interior reports of “we’re getting it” when fire conditions haven’t changed for the better.

Company Officers and S/D Supervisors must assume responsibility for the effectiveness of their fire streams. Officers must maintain an awareness of where fire streams are going and the overall effect they are having on controlling/eliminating the fire.

Command must avoid backing up handlines that are already in place when operating crews don’t request back-up when providing CAN reports. Always ask a company if they require back-up before backing them up. That is why a CAN report includes “NEEDS”.

#### **4.18 – Offensive Fire Control Strategic Considerations**

The IC manages the Fire Control tactical priority by getting companies around all 7 sides of the fire and overwhelming it with water. The 7 sides of the fire are:

- The interior/inside
- The top (includes ceilings, joist spaces, attics, and floors above)
- The bottom (includes the floor below, crawl spaces, joist spaces and basements)
- All four sides (includes adjacent rooms, occupancies, or other buildings) and the concealed spaces of all those sides (includes walls, joists, attics, utility chases, void spaces, build-over’s, etc.).

The term “**Working Fire**” indicates a situation that will at least require the commitment of all initially responding companies. This report advises Dispatch Center that the companies will be engaged in tactical activities and will be held at the scene for an extended time period.

The term “**Knockdown**” indicates that the main body of fire has been controlled in a unit’s assigned geographic work area, but the 7 sides of the fire have NOT been validated for any fire extension.

The term “**Fire Control**” should be transmitted when the main body of fire has been extinguished and all 7 sides of the fire have been confirmed as having no fire extension (or when extension has been controlled) in an assigned unit’s geographic/operational area.

When all areas exposed to the products of combustion report fire control, primary and secondary all-clears, and no other resources are required to complete the remaining tactical priorities, the IC will transmit an “**Under Control**” radio report to the Dispatch Center.

Command must direct whatever operations are required to get water on the fire as early as possible in the event. Command should not become too distracted with other incident

requirements until the fire control benchmark is achieved. **The rescue/fire control-extension/exposure problem is solved in the majority of cases by fast, strong, well-placed water application that puts water on the fire as quickly and as safely as possible.**

Command must consider the most critical direction and avenues of fire extension, plus the estimated speed of a standard fire progression, particularly as they affect:

- Level of risk to fire fighters
- Confinement/control efforts
- The concealed spaces that contain the structures support elements/systems
- Rescue profile of the incident
- Exposures

Command develops an effective attack through the management of these factors. Command must balance and integrate attack size and position with fire conditions, risk and resources.

The basic variables relating to offensive attack operations involve:

- Location/position of attack
- Size of attack
- Required support for the attack until fire control is achieved (door control and additional attack lines if required)

Command must request and allocate adequate personnel and resources based upon this fire spread/control evaluation.

Command must make critical decisions that relate to cutoff points and the development of a pessimistic fire control strategy. This decision also includes a forecast of where the fire will be when attack efforts are in position to engage the fire. It takes a certain amount of time to get water to a location, and the fire will continue to eat up property while the attack is being set up.

Don't play "catch up" with a fire that is burning through a building. Project your set-up time, write off lost property and get ahead of the fire to adequately overpower it by applying the water required to control the fire.

Once the fire control benchmark has been achieved and transmitted, the operation must switch its primary focus to ventilating the structure to maximize occupant tenability and firefighter safety.

#### **4.19 Offensive Ventilation Operations**

Fire research has conclusively demonstrated that the current fuel loads found in present day structure fires quickly consumes all the available oxygen in the fire compartment and it becomes "ventilation controlled". In the early stages of this fire decay, the fire still has enough heat energy (high temperatures) to continue to break down solid fuels into combustible vapors (pyrolysis). This process continues to load the compartment with fuel and heat; at this point in the fire's progression, the only factor limiting the fire's growth is the lack of oxygen.

Based on the fire research, the following is Blue Card's policy and procedures for managing ventilation on offensive structure fires:

- Until the fire control benchmark has been achieved and transmitted, the entire response team's objective is NOT to supply the fire with any additional air (oxygen) while Command's primary objective is to coordinate an overwhelming force of the proper water application required to control the fire and cool the fire compartment. This is referred to as "Tactical NON-Ventilation"
- Any flow paths (or potential flow paths) identified in the 360-degree assessment should be closed prior to entry whenever possible (or not disturbed if an existing barrier is in place)
- Door control must be provided for entry crews
- NO TACTICAL VENTILATION SHALL BE PERFORMED PRIOR TO FIRE CONTROL (unless hydraulic)
- No vertical ventilation shall be performed on any structure fire at any time
- The process of fire extinguishment starts the ventilation process by cooling (contracting) the hot gases in the compartment. After knockdown, the continued water application to the exposed heated surfaces greatly accelerates this process. The goal is to cool the interior to below 200 F via water application
- Once fire control has been achieved, Command must shift the incident's IAP to a high priority of ventilating the fire compartment/structure. Once fire control has been achieved, the best forms of post fire control tactical ventilation are:
  1. Horizontal ventilation (natural ventilation) with wind speeds of over 10 MPH. Wind speeds of over 10 MPH will overpower most hydraulic and mechanical ventilation. When high winds are present, upwind horizontal openings should be utilized as your high-pressure inlet points, while consciously controlling the appropriate low-pressure outlet(s)
  2. Hydraulic ventilation. During the fire control process, fog and smooth bore nozzles can be manipulated to produce water streams that create 10,000 to 18,000 CFM when flowing through a horizontal opening (depending on nozzle selection – fog nozzles move about twice the CFM as smooth bore nozzles)
  3. Mechanical ventilation (PPV) has been documented to create wind speeds of up to 10 MPH flowing through an exhaust opening. PPV should be used (in conjunction with hydraulic ventilation) when wind speeds are below 10 MPH, while consciously controlling the appropriate low-pressure outlet(s)

#### **4.20 – Offensive Search and Rescue Operations**

The major goal of the offensive tactical priorities is the protection of any customers exposed to the incident hazards.

The **NUMBER ONE (#1)** method to be used in completing the life safety tactical priority in offensive working fire situations is to control the fire as quickly and as safely as possible. The fire research shows that there is a zero chance of occupant survivability if occupants are directly located in a compartment that has flashed over and has become ventilation controlled (high temps, lack of oxygen, toxic atmosphere).

The fire research also shows that the survivable areas connected to a fire compartment that have become ventilation controlled (flash over) have a barrier between the occupant and the fire area (closed door(s) or wall(s)). Therefore, it is imperative that occupants be protected in place (behind their barriers of protection) while all initial efforts interior efforts are directed towards fire control while simultaneously performing primary searches behind water application. Any barriers directly connected to the fire area should NOT be opened prior to fire control and post fire control ventilation.

The IC will use the following methods to address the Life Safety tactical priority on offensive structure fires.

**Protect in place.** A life safety tactic of leaving people indirectly exposed to a fire compartment behind their barrier of protection while control forces control and then ventilate the fire area.

**Primary searches.** Are performed in the immediate fire area in conjunction with fire control and are for the purposes of locating victims directly exposed to the products of combustion (very lethal).

**Secondary searches.** Are performed after fire control has been achieved and the atmosphere has been properly ventilated. This involves the process of opening barriers and searching any survivable compartments directly exposed to the fire area, along with a secondary, more thorough search of the original fire compartment.

#### 4.20.1 - Rescue Order

The IC uses the standard rescue order to prioritize and manage searches. The rescue order is the standard order that we use to search a Hazard Zone:

1. The most endangered
2. The largest group
3. The remainder of the fire area/structure
4. The exposures

The IC initiates the completion of the offensive tactical priorities by ordering companies to advance hoselines to the interior of burning structures. This supports the Rescue Order by:

- Placing initial lines directly to the most hazardous area of the building—the burning or burnt part (if a quick hit was used) – places crews in the same area as the most endangered group.
- Initial interior crews will be searching and protecting (with water) the same corridors that the occupants in the building would use to evacuate.
- The hand line protects FF's, it controls the problem, and it gives the operation an "anchor point" to control the fire and conduct search operations off of.
- All initial attack efforts should be directed towards fire control and verifying the 7 sides of the fire prior to opening any barriers protecting any survival compartments.

The IC is responsible for assigning all incident resources in order to achieve quick and effective primary searches of the areas directly exposed to the fire. The IC must assign companies to

search specific geographical areas of structure. This eliminates searching the same area multiple times, while other critical areas remain unsearched.

The most urgent reason for calling additional alarms is for the purpose of covering life safety. Command must develop a realistic (and pessimistic) rescue size-up as early as possible.

When encountering larger, high density, compartmentalized, multi-unit/room residential structures, it is usually more effective to implement a “protect in place” life safety operation as opposed to removing multiple people from a structure who are not directly exposed to the incident hazards. These actions should:

- Contain, control and eliminate the incident problem
- Secure and protect normal means of egress
- Remove the products of combustion
- Search and clear the immediate areas of involvement
- Systematically clear the remainder of the fire area/exposures

When primary search companies encounter, and remove victims, Command must assign other companies to continue to cover the interior search positions vacated by those companies. Command must also request and provide the necessary medical resources to treat any patients encountered on the incident site.

Command must obtain secondary All-Clears of all affected areas once fire control has been achieved and the structure has been adequately ventilated (temps below 200°F and the O<sub>2</sub> level above 19%).

Completed Primary and Secondary searches of the entire structure should be announced (to the Dispatch Center/TRO) over the tactical channel using the Order Model. The IC shall avoid giving piecemeal primary all clear reports over the tactical channel when multiple areas of a structure require a search. A good time to make these announcements are when the IC is acknowledging ETNs.

Occupancy type will many times drive the IC's search priorities. Residential occupancy types must have a high life safety focus because these structures can be occupied 24/7/365. Strip mall, commercial and big box fires typically have much lower life safety requirements. Many times, in these types of structures, firefighters are the highest life exposure.

Primary searches should not be conducted in large, non-residential spaces where companies will outwork their air supplies. Again, all initial actions should be directed towards putting water on the fire and ventilating the structure unless there is credible information of survivable occupants located inside the Hazard Zone.

#### **4.21 – Offensive Loss Control Operations**

All loss control operations start with putting the fire out and ventilating the structure. All three organizational levels must constantly remain aware that all of our actions are designed to protect savable property and control loss (from response to leaving the scene).

After achieving fire control and ventilation is taking place, we must direct all efforts on the incident scene toward controlling and preventing any unnecessary property damage. These efforts fall into 2 categories:

- Overhaul
- Salvage

Once fire control, ventilation and primary and secondary all-clears have been achieved, a loss-control plan should be developed to describe how salvage and overhaul will be performed for the specific incident.

#### **4.21.1 - Overhaul**

The goal of overhaul is to reduce the incidence of secondary fires, control loss, and stabilize the incident scene while providing for firefighter safety. Overhaul activities include thoroughly searching the fire scene to detect and extinguish any hidden fires or "hot spots".

Effective overhaul activities reduce the potential for secondary fires. When addressing overhaul operations, the IC should:

- Ensure overhaul is conducted safely.
- Ensure proper PPE is worn for the conditions
- Ensure allied overhaul and salvage equipment are utilized when necessary.
- Ensure all fire is extinguished by addressing the 7 sides
- Ensure at least two firefighters with a charged hoseline remain in the fire area to detect any possible hidden fire and/or re-ignition during the overhaul phase of the operation.
- Use early and continuing horizontal ventilation when appropriate to maintain an acceptable working environment and reduce loss.
- Fire companies must evaluate and monitor conditions when operating fans.
- Meet with the property owner/occupant concerning overhaul operations.
- Closely coordinate overhaul with fire investigators.

Suppression crews should open any construction voids that were exposed to fire to check for and verify fire control.

Floor, wall or ceiling areas showing evidence of extensive decomposition due to fire exposure should be thoroughly examined during overhaul.

Plenum spaces, soffits and pipe chases should receive careful inspection as they provide possible routes for fire to spread throughout a structure.

Attic fires can pose a special hazard for secondary fires where combustible insulation has been exposed to heat and fire. Large areas can receive fire damage and can be located in difficult to reach areas. In some cases, all exposed insulation must be removed to extinguish all remnants of any possible fire. This is especially true with cellulose insulation.

Removing insulation can be accomplished two ways; 1) the removal of large sections of the ceiling. If possible, areas unaffected by fire should have their contents covered or be completely



removed from the area before pulling the ceilings down to overhaul an attic fire. 2) In some response systems, a cellulose vac can be utilized to remove the insulation without destroying the ceiling system.

#### **4.21.2 - Salvage**

Salvage includes the activities required to stop direct and indirect fire damage in addition to those required to minimize the effects of firefighting operations. This includes losses from water, smoke and firefighting efforts.

Salvage operations must be aimed at aggressively controlling loss by the most expedient means. Salvage objectives are:

- Stop or reduce the source of damage
- Protect or remove contents

Command should provide for salvage at all fires or other incidents posing potential damage to property.

Salvage operations most often involve smoke removal and covering building contents with salvage covers or plastic. In some cases, the contents of threatened areas, where appropriate, can be removed to a safe location. When removal is not practical, contents should be grouped in the center of rooms, raised off the floor and covered to provide maximum practical protection.

The following items should be considered when addressing salvage:

- Type, value and location of contents
- The extent and location of the fire
- Recognition of existing and potential damage sources
- Estimate of required resource

Salvage efforts should begin in areas most severely threatened by damage. In most cases that will be areas directly adjacent to or below the fire area. Additional salvage activities should expand outward until all areas of potential loss are secured.

All firefighting activities have the potential to damage property and contents. The key to successful salvage is to distinguish between excessive damage, and damage that is required to reduce potential fire damage. All members must avoid creating excessive damage to the structure. The best philosophy to follow is to treat the customer's property as if it is yours. Only do what's necessary to stop loss.

The IC will transmit a report of "**loss stopped**" once all of the affected areas have been properly overhauled, salvaged, ventilated and the incident conditions have ceased causing damage to the structure and its contents.

#### **4.22 – Offensive Structural Firefighting Decontamination (Decon)**

Decon happens after somebody or something (PPE, equipment, etc.) has had an exposure to something that is toxic. The goal of Decon is to avoid or to reduce all exposures before they happen. This starts with an overall mind-set of:

- Avoid letting toxins get on you in the first place
- When toxins are present, reducing your exposure to the toxins by wearing the proper PPE
- Limit your exposure to toxins to the shortest duration as possible
- Decon as soon as possible after being exposed to toxins
- Prevent cross-contamination of toxins into the Cold Zone, into the fire trucks, into the fire houses, and back to the firefighter's homes

#### **4.22.1 - Strategic Decon Considerations**

- Apparatus assigned to the scene should be placed in the Cold Zone of the incident with all windows closed (pump operators should never breath smoke).
- If the apparatus is not involved in an integral process of fireground operations, turn off the motor to reduce the diesel exhaust on the scene. In colder climate conditions (below freezing) apparatus may be required to continue running so they don't freeze.
- Establish hot, warm and Cold Zones at the scene. Limit entry to necessary personnel only and limit the time firefighters are exposed in the Hot Zone.
- Working structure fires create very high temperatures and atmospheric pressures inside the interior of the fire structure. These conditions greatly increase the toxins and free radicals that both the occupants and firefighters are exposed to. Therefore, whenever possible, quick hits should be performed from the exterior of the structure to reduce interior temperatures, reduce interior pressures, along with the reduction of the overall toxins being released from the combustion process. This also greatly reduces FF exposures.
- The final extinguishment, continued water cooling off the atmosphere, and post fire control ventilation greatly reduces firefighter and occupant exposures to the toxins produced by the combustion process (because the fire is now out).
- On-deck units can be readily available without standing in smoke. Stay outside of the smoke envelope and be aware of the greater picture when in the Warm Zone.
- Prior to removing firefighting PPE worn in the Hot Zone (including SCBA face piece) a gross decontamination should be performed to remove potentially harmful toxins. Decon workers should be in the same level of PPE as Hot Zone workers while wearing their SCBA during the Decon process.
- Utilizing the pump operator for Decon should be avoided due to their lack of respiratory protection.
- Exiting crew members should Decon each other before going off air
- A designated Decon line should be deployed in the Warm Zone outside of the Hot Zone away from any potential IDLH. The goal of the Decon process is not to allow toxins into the Cold Zone.

- Decon Members should brush large debris off first, and then spray each other with water to remove as many loose particulates from turnouts and equipment as possible.
- Dry Decon: During cold weather operations, dry brushing should be conducted to remove the toxic products of combustions from the fire fighters prior to going off air and removing SCBA face pieces.
- Personnel recycling should consider exchanging their hood for a clean hood
- Personnel recycling should consider a quick neck, hand and face wipe using baby-wipes
- Personnel should wash their hands after; suppression activities and overhaul
- Personnel should wash their hands before; entering Rehab, returning to their apparatus, and entering their living quarters.
- When released from the incident, fire fighters should bag their contaminated turnouts in large, encapsulating leak-proof bags for transport back to the station.
- Contaminated equipment, turnouts and hose should be transported back to the fire station out of the cab of the apparatus to reduce cross-contamination into the cab of the apparatus.
- Command and the rest of the response system must allow personnel the necessary time to return to the fire station, out of service, to continue the Decon process and return to a ready state in order to deliver service. This includes:
  - The continued Decon process of Hazard Zone personnel and equipment at the fire house (in separate designated areas away from the living quarters)
  - The process of equipment and apparatus being deconned and placed back into a ready state
  - The process of personnel being placed back into a ready state. This includes; showers, and changes into clean work uniforms.

#### **4.23 - Defensive Incident Action Planning**

A defensive situation is where the incident problem has evolved to the point that lives and property are no longer savable, and offensive tactics are no longer effective or safe. The entire defensive strategy is based on protecting both exposures and firefighters.

**Firefighter safety is the No. 1 defensive priority. No firefighter should be injured on a defensive fire.**

All defensive activities will occur outside of the Hot Zone (Hazard Zone).

Defensive Strategy Tactical Priorities and their corresponding completion benchmarks:

- Define the Hazard Zone
- Establish Cut-offs – Forward progress stopped
- Search exposures - Primary and Secondary “All Clears”
- Protect exposures - “Fire Control” - Loss Stopped

Defensive operations represent the standard organizational response to situations that cannot be controlled utilizing offensive tactics. When conditions go beyond the safety systems required

for interior operations, the IC must conduct defensive operations from outside of the hazard area. The IC must write off lost property and decide where the cut-off will take place (if there are exposures).

If defensive operations are conducted from the onset of the incident, Command must notify the Dispatch Center that there will not be searches completed for the involved structure(s).

During defensive campaign operations, the IC will coordinate the rotation of crews through the Dispatch Center.

#### Basic Defensive IAP

- Identify critical fireground factors
- Quick determination on the need for additional resource
- Evaluate fire spread/write-off lost property
- Search exposures
- Protect exposures
- Prioritize fire streams, provide big, well placed streams, pumped water
- Surround and drown main fire area

#### **4.23.1 - Transitioning from an Offensive strategy to a Defensive strategy**

When the offensive strategy is chosen on our initial arrival, most of the time, a well-placed initial attack solves the incident's problem. But there are many times (for many reasons) that our initial, and sometimes re-enforced attack efforts, do not solve the incidents problems and conditions continue to deteriorate to the point where the critical factors indicate switching from an offensive to a defensive strategy.

IC's must be very pessimistic in these types of situations, especially if the structure has a primary "All Clear". Command must change strategies before the fire causes the building to collapse. When this happens, Command is very late in the strategy shift and on the receiving end of the building's decision governing the new strategy. The IC must make the defensive decision, NOT the building by coming apart.

The announcement of a change to a defensive strategy will be made as follows:

- Clear with Dispatch Center – Ask for Emergency Tones/Traffic
- Emergency Tones transmitted
- Announce to all Hazard Zone units:
- "Shifting to the Defensive Strategy"
- All Unit's "Exit" or "Abandoned" the structure
- All Units report PAR's upon exit
- Dispatch Center repeats Emergency Traffic report - verbatim

"Exit the Structure" will be defined as: an orderly withdrawal where interior lines and equipment will be withdrawn and repositioned when changing to a defensive strategy.

“Abandoned the Structure” will be defined as: an emergency retreat where all hoselines and heavy equipment will be left in place and all members in the Hazard Zone will exit the structure as quickly and as safely as possible.

A PAR (Personnel Accountability Report) shall be obtained for all units exiting the Hazard Zone after any switch from an offensive to a defensive strategy.

Commands greatest priority once a strategic shift has been initiated is the safe exit of all units located in the Hazard Zone. Level 1 Staged units and other units working outside of the Hazard Zone shall maintain radio silence until all PAR's have been tallied on all interior units (unless they have priority traffic).

Company Officers will account for their crews and advise their S/D Supervisor or the IC on the status of their crew upon exiting.

S/D Supervisors will notify the IC of the status of the individual crews assigned to their S/D upon their exit, preferably in one complete report.

#### **4.23.2 - Defensive apparatus placement**

Rules of thumb for defensive apparatus placement:

- Always spot out of any potential collapse zone
- Masonry or wood structures – spot 1 x's the full height of the building away from the structure (or a min of at least 30 ft away)
- Tilt wall structures - spot 1 ½ x's the full height of the wall away from the building (30 ft tilt wall – equals spotting a min of 45 ft away from the wall)
- Unlike offensive fires, defensive fires require the IC to consider the key tactical placement of Truck/Ladder companies for providing aerial master streams
- When protecting exposures that are near the defensive fire area, place the pivot points of master streams on the walls that need to be protected
- Larger buildings with no significant exposures, attempt to place elevated master streams on the corners of the structure
- Engine mounted master streams (deck guns) are more effective when used to apply water through a structure's horizontal openings as opposed to “lobbing” water over the exterior walls of a structure (elevated master streams are much more effective applying water over tall walls)

#### **4.23.3 - Exposure Protection – Strategic Separation**

Arrangement becomes a major critical factor with defensive fires. The way the main fire compartment/area is arranged to its neighboring exposures will dictate operating positions on a defensive emergency scene.

All exposures, both immediate and anticipated, must be identified and protected. The first priority in defensive operations is personnel safety; the second is exposure protection.

Stand-alone buildings with no significant exposures must have the collapse zone identified and all operating units will remain behind those defined boundaries —*this perimeter must not be crossed.*

One thing that greatly reduces firefighters' "creeping" toward the fire area is shutting down all small-diameter handlines (unless they are being used to directly protect exposures). This also diverts that water into master-stream devices that can apply large amounts of water directly on the fire and the exposures.

Many times, a defensive fire area will threaten exposures. These can be immediate exposures that directly connect to the fire area (apartments and strip malls) or they can be located in very close proximity to the fire area with little separation.

All direct exposures not in the defensive fire area must be searched and protected whenever possible. This exposure protection involves:

- Advancing handlines into the exposure(s).
- Clearing the exposure(s).
- Opening up and verifying the concealed spaces directly exposed to the defensive fire conditions.
- In some cases, direct exterior water application onto the exposure's exterior to stop the lateral spread of fire.
- In some cases, once extension is verified, write off and move to the next exposure to get ahead of the fire.
- In some cases, it will be necessary to write off the entire exposure(s) due to rapid fire extension through common concealed spaces.

Command must be very specific on separating the two (2) operating positions (Defensive vs. Offensive). The IC's radio traffic when operating in the overall defensive strategy, while being offensive in the exposures, should sound like; "Command to all units; we will be operating in the defensive strategy on the main fire occupancy and we'll be offensive in the Bravo 1 and Delta 1 exposures".

#### **4.23.4 - Defensive Water Application**

Rules of thumb for defensive water application:

- Master streams are generally the most effective tactic to be employed in defensive operations.
- Command must consider the effectiveness of aerial water application vs. ground operated master stream devices.
- A standard master stream flow of 500-750 GPM should be the guideline for all master stream flows.
- Small diameter handlines not directly protecting exposures should be shut down.
- When the exposures are severe and water is limited, the most effective tactic is to put water directly onto the exposure.
- Once exposure protection is established, attention may be directed to knocking down the main body of fire and thermal-column cooling.
- In the defensive strategy, fire under control means the forward progress of the fire has been stopped and the remaining fire can be extinguished with the current on-scene resources; it does not mean the fire is completely out.

#### **4.23.5 - Defensive Loss Control**

No member shall enter the Hazard Zone of a defensive fire area. Any structure that has defensive fire conditions over a short period of time shall not be entered by any personnel to perform any overhaul or loss control of any kind.

Loss control activities in the offensive exposures of a defensive fire will follow the same procedures as offensive control activities.

### **5.0 - Command Function #5 – Communications**

The major goal for Command Function 5 is for the IC to initiate, maintain, and control effective incident communications.

Effective incident communications provide the very practical connection between and among the 3 management levels of the organization; the strategic, tactical and the task levels. Incident communications are the information “carrier” that the team uses to connect, commit resources, and to create effective, coordinated action.

To be effective, the IC must somehow orchestrate an ongoing combination of the standard communications activities among the set of participants who are all actively involved with the incident and operate at different levels. Each level operates with its own special set of needs, capabilities, and challenges. These differences create a complex set of operational realities for the entire team. They require a strong, well-practiced, procedures-based communications plan and positive functional based relationships among the participants.

#### **5.1 - Keep Communications Simple: Use Plain Text**

We conduct incident operations using plain text communications that are directed toward the completion of the tactical priorities. The use of plain text (common English) is NIMS-compliant, as opposed to 10-code signals and other odd numbering-based systems.

Where multiple agencies/disciplines operate together, the participants must all use plain text to share incident information.

## 5.2 - Mix & Match Forms of Communications: Face-to-Face/Radio/Computers/SOPs

Face-to-face communication is the most effective form of communication. It should be the preferred form of communication on the task and tactical levels of the incident site. Face-to-face communications should be used whenever possible in the following circumstances:

- Company officers communicating with their crew members.
- Company officers communicating with other company officers in their work area.
- Tactical level bosses communicating with units assigned to their geographic location.

The entire purpose of placing an IC in a command post is to create the best possible communication environment. In the CP, the IC can more effectively monitor and control radio communications.

All members working on the fireground will avoid distracting the IC with face-to-face communications. Command must be the person to initiate this form of communication while an IDLH Hazard Zone exists.

Radio communications are the way that the tactical and task levels connect with the IC working on the strategic level. While radio communication, in and of itself, does not put water on the fire, in most cases, the overall outcome of the incident is directly connected to the quality of the radio communications among the participants.

Because everyone cannot talk on the radio at once, other forms of communications must be used to reduce the overall amount of radio traffic on the Hazard Zone tactical channel.

- Referencing Alarm/Box orders on mobile terminals eliminates the need for the Dispatch Center to transmit them over the tactical radio channel.
- Referencing aerial views on mobile terminals eliminates the need to get arrangement information that can't be seen from the command post.
- Comprehensive task, tactical and strategic level SOP's greatly reduces the time it takes to get companies into action, and it streamlines CAN reporting.

## 5.3 - Gear communications toward completing the Tactical Benchmarks

Communications should focus on the completion of the tactical priorities and firefighter safety. This will help keep communications short, to the point and effective. It also leaves airtime free for important tactical messages that affect everybody working in the Hazard Zone.

When the IC properly assigns Engine 2 to: *“Lay a supply line to the Alpha side, stretch an attack line to the interior of the Delta 1 exposure for a primary search and check for fire extension”*, it becomes the basis for Engine 2 to structure their CAN report back to command. *“Engine 2 to Command, we have a primary all-clear in Delta 1, we have opened up the ceilings and have a*



*working attic fire. We are applying water and opening up more ceilings. We'll need another company with a handline and hooks to assist in Delta 1 with fire control in the attic space".*

#### **5.4 - Upgrade the mobile command position as quickly as possible**

Most of the time, the operation will start out with the first arriving company officer on an Engine company. Initial arriving, mobile IC's (IC #1) have a narrow window of being able to produce clear and concise radio communications before putting themselves in the worst communications position possible, in full PPE, breathing from an SCBA while operating in a Hazard Zone.

Therefore, it is very important to use the very beginning of the event to transmit a complete Initial Radio Report (IRR) and Follow-Up Report before entering the Hazard Zone. The front seat of the cab and not being on air after performing a 360 are IC #1's best communication positions prior to going on air and entering a Hazard Zone. These two radio reports are the longest communications IC #1 will perform and it conveys to the other responding units exactly what's going on at the incident, what the first arriver is doing about it, and where they will be located on the incident site.

These two initial reports also allow a mobile IC to complete the 8 functions of command before they enter the Hazard Zone. This frees them up to then engage the problem while continuing to command the incident using a portable radio.

IC #1 from that point on the operation is in a position to quickly assign the next 2-3 responders to critical areas around the scene, but they are not in position to process lots of information or manage a large amount of resource. The entire response team must understand the communications position IC #1 is in and support the IC by properly following all Hazard Zone SOP's.

In rapidly expanding incidents, command must be transferred (or moved out of the Hazard Zone) to a later-arriving response chief who will operate inside of a stationary, remote command post as soon as possible in the incident.

Staying in the command post (CP) directly connects the IC to the communications process. A picture of an effective strategically placed IC would show a responder seated inside their response vehicle, listening to radio traffic (preferably on headphones), talking into a microphone, maintaining a tactical worksheet, and interacting face-to-face with any designated command helpers.

#### **5.5 - Listen Critically: Understand Communications Difficulties from Tough Operating Positions**

We put an IC in a strategic command post, so they have an ideal position to send and receive information. Companies operating in the Hazard Zone are in the worst positions for effective communications.

Many Hazard Zone distractions can cause communications problems. The IC needs to understand this when communicating with operating companies. Companies also must understand that their portable radios provide the only communications link to the outside world. The command system depends upon coherent communications between the IC and the operating units.

## **All Hazard Zone transmissions shall be carried out on one (1) tactical radio frequency.**

Some incidents may require the use of multiple radio frequencies in order to support operations outside of the Hazard Zone (Level 1 & 2 staging, Rehab, Safety, Planning, Logistics, etc.). Each additional channel activated for the incident must have a dedicated person assigned to manage that channel at all times. The IC must only be responsible for the operation of one (1) tactical radio frequency while an active Hazard Zone exists.

### **5.6 - Use the Organization Chart as a Communications Flow Plan**

Dividing the incident scene into S/Ds has a positive and profound effect on the communications process. When the IC assigns S/D Supervisor responsibilities to the officers initially assigned to the different key tactical positions, it starts to manage their span of control and enhances the entire communications process.

In cases where the IC hasn't implemented/assigned S/D Supervisors, they will have to communicate directly with each individual unit assigned to the incident scene.

Any time there are 2 or more units working in the same geographically area, Command should designate one of the units the geographic supervisor and all communications from that area will be from the tactical supervisor to the IC.

S/D Supervisors will communicate with their assigned companies over the radio or face-to-face depending on their proximity to one another.

Preferably, face-to-face. The S/D Supervisor will communicate with the IC over the tactical channel.

### **5.7 - Always Maintain Communications Availability—Answer on the First Call**

The IC shouldn't be in a tough communications position when they are operating in a strategic command position. An IC working from a command post must focus squarely on the unit's operating in the Hazard Zone. This is how we manage strategic-level safety and coordinate the work required to complete the tactical objectives.

The IC must always operate the system (build, expand, reinforce) in a way that allows them to stay connected to the companies operating in these hazardous positions.

### **5.8 - Utilize the Standard Order Model to Structure Communications**

The *Order Model* outlines the communications steps we follow to ensure messages are always received and understood despite the rushed, confusing and dangerous conditions we typically face during operations. The Order Model also standardizes how the incident's participants will exchange two-way radio communications. The Order Model's required steps are:

- When the sender is ready to transmit a message, they call the receiver to determine if they are ready to receive the message;
- The receiver then acknowledges the sender;
- When the sender receives the readiness reply, they can transmit the message;
- The receiver then gives a brief restatement of the message to acknowledge the receipt of the message; and
- The sender restates the message if misunderstood.

Using the Order Model will significantly decrease the amount of radio traffic on the emergency scene. It will also help eliminate; freelancing, order confusion and it enhances responder safety and accountability.

### **5.9 - The seven basic types of radio transmissions on a Hazard Zone:**

There are 7 basic communications we routinely perform on the fire ground. They are:

- Initial Radio Report
- Follow-Up Report
- Assigning Units
- Command Transfer
- CAN Reporting
- Roof Reporting
- Offensive to Defensive Strategic Shift

### **5.10 - Begin & control communications upon arrival with a standard Initial Radio Report**

The initial IC begins the command, control and communication process with an IRR. This report provides the Dispatch Center, as well as everyone else responding to the scene, with a size-up of conditions seen from the initial command position. It also provides an initial situation status report to those listening in, such as non-responding companies, bosses still in quarters, and staff officers.

The IRR is not an affidavit of absolute accuracy; it's just a quick snapshot of the incident that provides a "word picture" of what the IC can see from their command position when they first arrive on-scene.

The IRR must include the following reporting elements:

1. Clear Alarm, announce your arrival on the scene
2. Building/area description
3. Describe the problem
4. Action being taken – Initial I.A.P.
5. Declaration of the Strategy
6. Resource Determination
7. Assuming and Naming of Command

**1). Clearing alarm:** This accomplishes several things:

- It ensures that you deliver the IRR on the correct channel. If you clear Alarm on the wrong channel, they should immediately direct you to the correct tactical channel.
- It notifies all other responders you are about to deliver an IRR and assume command
- It automatically activates Level 1 Staging to go into effect.

**2). Building/area description:** Will be described in 3 different categories:

- Size
- Height
- Occupancy type

**Size:** the size of the structure should be defined by the overall area of a structure under roof. We should base our size description on how it relates to the areas we can cover with a 200 ft handline and the maximum depths that we can safely achieve inside the structure. Size will fall into 4 different categories:

- Small - A 200 ft line can access 100% of the potential fire area.
- Medium – A 200 ft line can access 75% of the potential fire area.
- Large – A 200 ft line can access 50% of the potential fire area.
- Mega, Huge, Gigantic - A 200 ft line can access less than 50% of the potential fire area.

**Height:** Identifying the height of a structure is very important to all responders. Every floor (or story) that is added to a structure makes it a more complex problem and tactically challenging for all the incident players.

Use the number of stories above grade to describe the height of a structure.

Use the number of Sub-levels (basements, parking garages, etc.) to describe the depth below grade of a structure.

**Occupancy type:** will many times drive our IAP. Identifying it on the IRR paints a picture to all other responders of the type of situation they're responding into. Here are some basic, common occupancy types:

Single family residence	Multi-unit residential	Apartments	Townhomes
Row Houses	Restaurant/Bar	Public assembly	Commercial
Big Box	High-rise	Institutional	Strip Mall

**Describing Multi-unit residential:** Apartments, town houses and row houses all fall into this category. Each of these occupancy types has a distinct set of characteristics that will affect the tactics that we use when operating on multi-unit residential. Therefore, it is critical for the first arriver to properly identify which category the occupancy type fits into.

Apartments must be separated into 1 of 2 categories on the initial report:

- A stand-alone apartment building
- Apartment complex

Apartment complexes gives us a much greater tactical challenge with arrangement as it relates to access, exposures, water supply, handline lengths, ladder/truck access, possible standpipe issues, master stream application, etc.

Complexes must be identified in the very beginning of the event and there must be a standard response to this information:

- No other unit should enter large complexes until the exact location of the problem is located and identified to units' level 1 staged.
- Placing pumper's in key tactical positions early on in the incident is critical as it relates to handline lengths and water application.
- Horizontal standpipes should be used to maximize the number of handlines off of one (1) forward pumper.

Apartments have a single floor arrangement. This means that the interior of each apartment is on a single floor and does not have access to the upper or lower floors. Access must be made on the floor the problem is on.

Most apartment buildings share a common attic space. This becomes a high priority check of item for the IC and rest of the team and coordinating a working attic fire can become very difficult with large apartment buildings.

Interior and/or exterior stairway access must be identified. Interior, common hallways pose additional tactical challenges and these features must be identified and transmitted very early on in the incident.

Town houses and row houses are described as having 2 or more floors, each unit is attached to other similar units via party walls, and some units can share common attic spaces. The only way to access the upper floors of these units is to enter the involved unit on the 1<sup>st</sup> floor and use the interior staircase of that unit to access the upper floor(s) with the problem.

Well known occupancy types should be by called their most common identified name. These include:

- St. Joes Hospital
- Washington Public Library
- Wal-Mart
- Home Depot, etc...

**3). Describing the problem:** For the fire service, this usually means we are describing “Fire Conditions”. The following are four (4) terms that are to be used when describing fire conditions:

- Nothing Showing
- Smoke Showing
- Working Fire
- Defensive Fire Conditions

The term “Working Fire” indicates a situation that will at least require the commitment of all responding companies. This report advises the Dispatch Center that the companies will be engaged in tactical activities and will be held at the scene for an extended period of time. The Dispatch Center will automatically dispatch support units and will monitor radio traffic to anticipate the needs of Command.

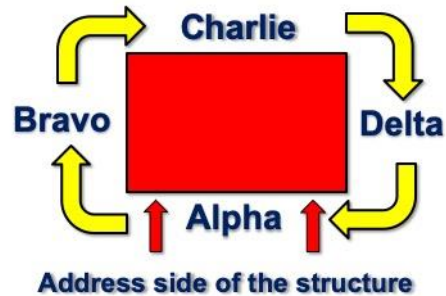
The Location of the problem must also be identified on the IRR. This includes reporting:

- What floor the problem is located on
- For longer buildings (apartments, strip malls, etc.) middle or what end (Bravo or Delta)
- For larger structures – What side of the structure is problem located on

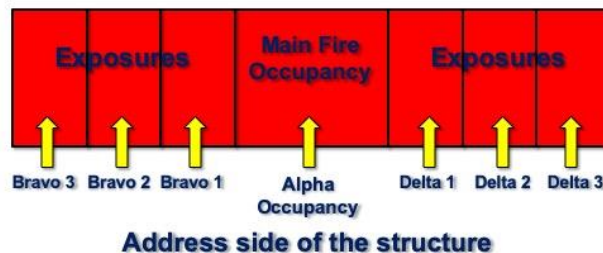
Describing what the problem is and where it is located paints a very good picture to everybody on what the scene looks like and where the subsequent arriving units will probably fit into the IC’s IAP.

### **Geographic Landmarks:**

Sides of a building will be described as:



The Alpha side of the structure is "usually" the address, street side. There will be many situations where it is not clear where the Alpha side is. In situations where there is any confusion on the incident's landmarks, initial arriving IC's must make it clear where the Alpha side is located.



**Exposures:** We identify exposed structures to the main fire occupancy by the side they are on starting with the closest, moving to the next exposure and so on. When the IC can give the exposure number and the occupancy type/apartment number it greatly enhances our directional sense of awareness.

**Floors:** Are identified by stories above and below ground level. Using Divisions, the individual floor will take on the same floor number as the Division (floor 2 becomes "Division 2"). Many systems just assign the floor number as the geographic designation (floor 2 becomes "2<sup>nd</sup> Floor").

<b>Floor 4 – Division 4</b>
<b>Floor 3 – Division 3</b>
<b>Floor 2 – Division 2</b>
<b>Floor 1 – Division 1</b>
<b>Sub-Floor 1 – Sub-Division 1</b>
<b>Sub-Floor 2 – Sub-Division 2</b>

Many systems just assign the floor number as the geographic designation (floor 2 becomes “2<sup>nd</sup> Floor”).

**4). Initial Incident Action Plan (IAP):** Incident action plans describe our operational plan for completing the tactical priorities. IAPs should be short and to the point. The initial IAP should include the following:

- The tasks of the initial arriving unit
- The location of the tasks
- The objectives of the tasks

Tasks: Some of the standard tasks that should be include in the IRR:

- Investigating (nothing showing)
- Establish a water supply
- Stretching handlines
- Searching an area
- Operating a master stream
- Performing forcible entry (takes a while)
- Performing a physical rescue

Location of those tasks should include:

- What floor will you be operating on
- What occupancy/exposure will operate in
- What side you’ll make entry on
- What side will you be operating on (defensive)

The tasks objectives should center on completing the tactical priorities for the chosen strategy. They are:



- Search/Rescue = Primary and Secondary “All Clears”
- Fire Control = “Under Control”
- Loss Control = “Loss Stopped”

**5). Declaration of the Incident’s Strategy:** Overall operational strategy is divided into only two categories: Offensive or Defensive.

- Offensive operations are conducted inside a Hazard Zone
- Defensive operations are conducted outside of the Hazard Zone - in safe locations

Declaring the incident strategy up front, as part of the Initial Radio Report will:

- Announce to everybody the overall incident strategy.
- Eliminates any question on where we will be operating on the incident scene (inside or outside the Hazard Zone).

**6). Resource determination:** 1<sup>st</sup> arriving IC’s must match the incidents problems with the resources required to solve the incidents problems. The request for the appropriate amount resource must happen at the beginning of the event, where our window of opportunity has the greatest chance for success. One of the following resource determinations must be made on the IRR:

- Cancel the original assignment
- Hold the original assignment (Lights/Sirens vs. Normal driving)
- Upgrade/Fill out the original assignment
- Strike additional Alarms/Boxes

**7). Assume and name command:** The absence of an effective IC is the most common reason for ragged incident beginnings and unsafe endings. Effective (and coordinated) action is the result of beginning (and ongoing) incident operations with an in place and in charge IC.

Use location/occupancy to name command. The radio designation "**COMMAND**" will be used along with the major crossroad, or the specific occupancy name of the incident site (i.e. "Main Street Command", "St. Joe’s Hospital Command").

The designation of "Command" will remain with the IC throughout the duration of the entire incident.

### **5.11 – Follow-Up Reports – 360’s**

The Initial Radio Report is usually performed from the front seat of an Engine Company. Once the report has been given and the alarm room acknowledges that report (using the Order Model) the Company Officer of the unit is probably out of the cab and has started to go to work.

Follow-up reports make the IRR a little shorter and they give the initial IC a little bit more time to size-up the situation. The follow-up report will probably be the last radio transmission a fast attacking IC gives before entering the Hazard Zone. This report gives the IC a "last chance" to give clear, concise information before they don full PPE and enter the Hazard Zone.

Follow-Up Reports should include the following information after a 360 has been performed:

1. Verify the fire's size, location, and extent (if different from the IRR)
2. Verify basement type (if present) and the stories from the Charlie side
3. Verify the life safety profile of the incident
4. Confirmation of the initial Strategy
5. Any changes to the initial IAP stated on the IRR (if necessary)

**Number of stories on the Charlie side:** The number of stories from the rear will need to be announced in the follow-up report if the stories don't match up to side Alpha. This does not include the basement.

Example: there is 1 story presenting on the Alpha side. On the 360 you have 1 story on the Charlie side with a walk-out basement. This would still be considered a 1 story structure and should be reported as "1 story on the Charlie side with a walkout basement".

**Basement type and conditions if known:** There are several different basement types across North America, some with very colorful or odd names. Local basement type descriptions must be identified and agreed upon by the local response agencies, so when someone states on their follow-up report "we have an English basement" it means the same thing to the entire response team.

Basement conditions must be identified before entering the structure whenever possible. Conditions in the basement will need to be reported on using the 4 standard narratives to describe smoke and fire conditions.

**Life Safety:** Immediate life safety issues are the primary reason we do 360's on residential occupancies. The first thing to note on the Charlie side is whether or not there are any immediate life/safety rescue concerns. If there are any rescue issues, the IC will need to announce it over the tactical channel and re-adjust their IAP to address the life safety issue(s) present.

**Confirmation of the initial Strategy after performing a 360-degree assessment:** The overall incident strategy must be re-confirmed as part of the Follow-Up Report.

**Changes to IAP:** Performing a 360 gives the initial IC a view of all sides of the fire to report on. Most of the time, the initial strategy stated on the IRR won't change. But there are times when the 360 size up will require a change in the initial strategy and/or the IAP stated on the IRR. These changes must be announced over the tactical channel in the Follow-Up Report.

\* Note – if there no changes to the IAP stated on the IRR – the initial IC does not need state this on the initial Follow-Up Report. The entire response team will assume the initial IAP has NOT changed from what was stated on the IRR.

**Accountability Location:** The initial arriving unit to a geographic location/area should become the initial accountability location for that location/area. Identifying the 1<sup>st</sup> accountability location of the incident (“E-1 will be the Alpha - side accountability location”) informs the troops (esp. the BC) which side of the structure that you’re making entry on (most of the time). It also identifies where later assigned units will drop off their passports if they are assigned to that location/side/area of the incident.

**Any immediate safety concerns:** This includes:

- Potential collapse area
- Hazardous roof structure
- Power lines down or arching
- Gas meter/tank exposed to fire
- Swimming pools

## 5.12 - Assigning Units

Incident operations are conducted around the completion of the tactical priorities. Incident communications should mirror this simple concept. This will help keep communications short, to the point and effective. It also maximizes the available free airtime. The IC must structure unit assignments around:

- Addressing the incident’s critical factors
- The completion of the tactical priorities
- Tactical reserve (On-Deck)

When subsequent arriving units arrive to Level 1 Staging locations, they will simply announce that they are Level 1 staged; “Engine 2 - Level 1 staged”. The Dispatch Center SHOULD NOT acknowledge any Level 1 staged units over the tactical channel. Command will then contact Level 1 staged units and assign them to the incident site based on their IAP.

Orders to Level 1 staged units should be structured in a T.L.O format:

- Tasks
- Location of the tasks
- Objectives of the tasks

Location of those tasks should include:

- What floor to operating on
- What occupancy/exposure to operate in
- What side to make entry on
- What side to operating on (defensive)

When assigning a unit to deploy a handline, the IC MUST designate the following:

1. What the company needs to do with their apparatus:

- Lay a supply line
- Pump a supply line
- Spot your apparatus out of the way (manpower only)

2. Where the company will get their handline from:

- Their own company
- Another forward pumper designated by the IC

3. The tasks objectives should center on the completion of the tactical priorities for the chosen strategy. They are (objective = completion benchmark):

- Search/Rescue = Primary and Secondary “All Clears”
- Fire Control = “Under Control”
- Loss Control = “Loss Stopped”

When assigning companies to areas that already have units assigned, the IC must inform the unit being assigned of who they will report to/work under. The IC must also contact the area supervisor and inform them of the unit being assigned to their location.

### **5.13 - Command Transfers**

Typically, when a mobile IC transfers command to a subsequent arriving command officer, they are physically located in the Hazard Zone, so the transfer will take place using a portable radio.

Command must be transferred in a standard manner (per SOP's). The following sequence represents a standard command transfer:

- Verify that all operating positions match the current incident conditions
- Announce your arrival to scene (Dispatch Center will acknowledge)
- Contact the current IC using the Order Model
- Verify, document and confirm the position and function of all resources located in the Hazard Zone with the current IC
- Obtaining a CAN report

- Inform the current IC that you'll be "Taking it from out here"
- Contact the Dispatch Center
- Announce that you'll be assuming command ("BC-1 will be assuming Main St. Command")
- Re-announce the overall Incident strategy
- Make a resource determination
- Announce the CP location

One of the following resource determinations must be made when transferring command:

- Cancel the original assignment
- Hold the original assignment (Lights/Sirens vs. Normal driving)
- Upgrade/Fill out the original assignment
- Strike additional Alarms/Boxes

The IC should designate a Level 2 Staging location when requesting greater alarms.

#### **5.14 - CAN Reporting**

CAN reporting gives operating companies a regular, consistent way to report back to the IC on their progress and needs. CAN reporting keeps things simple and it delivers the IC the information needed to keep the strategy and IAP current. The CAN acronym stands for:

- Conditions
- Actions
- Needs

All CAN reports should start with the tactical objectives that have been completed prior to giving the report. Here is a basic list of reporting items to choose from when providing a CAN report to command:

## Conditions

Where you are  
Any obstacles  
Smoke conditions  
Int. visibility  
Fire conditions  
Heat conditions  
Interior layout  
Fire separation  
Fuel loads  
What's burning  
What's not burning

## Actions

A/C progress  
F/C progress  
Can't find the fire  
Checking for ext.  
Concealed space info  
PAR's  
All Clears  
Under Controls  
Loss stopped

## Needs

Reinforcement  
Relief  
Support work  
Tools or Equip  
Cover other areas  
Urgent help

### 5.15 – Radio Discipline

When 3 to 4 units (and up) are assigned to the incident site, the tactical channel can start to fill up with unnecessary radio traffic. The 2 main reasons for this are:

1. Assigned units are communicating/contacting the IC with non-essential radio traffic.
2. The IC is communicating non-essential radio traffic.

The IC **MUST** control the radio traffic on the tactical channel, or they will not be able to control the overall incident site. The following radio guidelines are to be strictly adhered to when there are units assigned into a Hazard Zone:

- Know exactly what you're going to say before clicking the microphone to talk.
- Only communicate information to the IC on the tactical channel that pertains to the completion of the tactical priorities and firefighter safety.
- Always let communication loops close before clicking the microphone button to talk.
- Let the IC be the one to contact you.
- Always end every CAN report with a **NEED** assessment (or with "No Needs").
- Never get on the radio to give good news (All-Clears and PARs) unless it is request by the IC.

There are 4 major types of radio communications to the IC:

- Routine radio traffic
- Status Changes
- Roof reports
- Priority traffic

#### 5.15.1 - Routine radio traffic:

Routine radio traffic should be the most common communication performed on the emergency scene. In most instances, routine radio traffic should only be initiated by the IC.

Command must structure all routine radio traffic using the Order Model.

Once a Unit is assigned into the Hazard Zone, they should maintain radio silence unless they are contacted by Command.

All communications that details the routine work that units perform in their assigned work areas should be done face-to-face and must not be transmitted over the tactical channel. The purpose of this policy is to eliminate all “good news” reporting over the tactical channel. This includes:

- Knock downs
- No extension reports
- Primary all-clears
- PAR's

This policy does not eliminate a Unit's responsibility to contact the IC with:

- Fire control reports
- Status changes
- Roof reports
- Priority traffic

Command may also order a unit to “get back to them” as soon as an information target has been obtained or verified. Unit's contacting command with an IC information request that results in good news, should structure their report as a standard CAN report using the Order Model (example; “Command from E-1 with a CAN report”). Information requests that result in bad news to the IC should be structured as priority traffic (covered later in the section).

### **5.15.2 – Fire Control Reports**

Blue Card has a no-good news reporting policy – but a major offensive incident action planning benchmark for the IC is when the operation achieves the “Fire Control” benchmark. The fire control benchmark report represents a major shift in the overall focus of the operation going from a water application, fire control operation, to a focus on ventilating the structure followed by secondary searches.

“Fire Control” should be transmitted when the main body of fire has been extinguished and all 7 sides of the fire have been confirmed as having no fire extension (or when extension has been controlled) in an assigned unit's geographic/operational area.

### **5.15.3 - Status changes**

A status change is defined as: moving from an assigned work location to a different geographic work location or exiting the structure to recycle or rehab.

Status changes should be given as soon as possible, but the sender must use the Order Model to structure the report. When clearing the IC with a status change, the sender should start the communication with a “status change”. Example: “Command from E-1 with a status change”.

A status change report should be made as soon as possible if a unit is unable to gain access to an assigned work area (access or building arrangement). Example; “Command from E-2 with a status change” – “E-2 has it made it to the Charlie side and there is no access to the interior from the Charlie side. Our NEED is to be reassigned”.

#### **5.15.4 - Roof Reports**

Ladder/Truck Co.’s have the apparatus and equipment (aerial ladder/ground ladders/power tools) to access and operate on the roofs of most mid-level structures. These units can provide very valuable tactical information to the IC and the rest of the troops about what is going on above interior operating units.

A company assigned to the roof will make the following assessment (size-up) of the roof:

- Type of roof if not easily identified from the ground (peaked, flat, bowstrung, etc.)
- Stability of the roof (stable, unstable)
- Fire or smoke conditions and their location on the roof
- Location of any firewalls
- Unusual heavy roof loads (if present)
- Conditions in the attic (if known)
- Basic blueprint of the building if unusual

Any roof report containing significant tactical information should be given to the IC shortly after the roof company has made access to the roof and has obtained the information. The sender must use the Order Model to structure a standard report. When clearing the IC with a standard roof report, the sender should start the communication with; “roof report”. Example: “L-1 to Command with a roof report”.

Reports from the roof containing any of the following information should be structured as priority traffic and should be made as soon as possible:

- Unstable roof
- Eminent collapse potential
- A locally identified hazardous roof structure (bow stung, etc.)
- Working fire in the attic space



All Priority traffic reports are to be direct to and acknowledge by the IC or a company's S/D Supervisor. Having the Dispatch Center acknowledge priority traffic reports will greatly slow down the IC's ability to quickly readjust their IAP and/or strategy based on these reports.

Unit/members with priority traffic are allowed to break into the Order Model of routine radio traffic to deliver their priority traffic report. Once the IC has acknowledged the priority traffic report, they should conclude their radio transmission with the unit whose traffic was broken into.

All communications that details the routine work we perform in our assigned areas should be done face-to-face in the work area and must not be transmitted over the tactical channel. Wait for the IC to contact you if you don't have bad news (the above list). Mayday communications are in a separate category and will be covered in the Tactical Operations section of the manual.

### **5.16 - Emergency Traffic**

Emergency traffic should only be used for true emergencies. The improper, overuse of emergency traffic at emergency scenes tends to diminish the overall effect it has on the operation.

The IC is the only person who can initiate an emergency traffic report. Companies operating in and around the Hazard Zone will contact the IC with priority traffic reports and the IC will determine the need for emergency traffic and the corresponding tones. When emergency traffic is given, the IC will contact the Dispatch Center directly to initiate the report. Once emergency traffic has been requested, the Dispatch Center will immediately activate the emergency traffic tones. It is very important to get the emergency traffic tones transmitted as soon as possible. The sooner they are activated, the sooner the IC and all other affected units can initiate corrective action(s).

The emergency traffic report should be structured in the following manner:

- The IC will contact the Dispatch Center directly and ask for emergency traffic
- The Dispatch Center will sound the emergency traffic tones
- The IC will deliver the emergency traffic radio report
- Once the report has been given, the Dispatch Center will repeat the emergency traffic report verbatim on the channel it was given on

Example:

- IC - "Main St. Command to the Dispatch Center, emergency traffic"
- Dispatch Center sounds the emergency traffic tones
- Dispatch Center - "Go ahead with your emergency traffic Command"
- IC - "Main St. Command to all units, we are going defensive on this structure. All units operating in the fire structure, exit the structure and report PAR's upon exiting"
- Dispatch Center – repeats Command's radio traffic verbatim

Emergency traffic will receive the highest communications priority from the Dispatch Center and the IC. All other units operating at the incident site will maintain radio discipline until the emergency traffic has been cleared by the IC.

Once the situation that caused the Emergency Traffic has been mitigated (PAR's obtained, power shut off, etc.) the IC should contact the Dispatch Center and clear the Emergency Traffic with a brief report stating why. Example; "Alarm from Command", "Alarm go Command", "Command to all Units 456 Main St. all interior units have exited the structure with PAR's. Command is clearing Emergency Traffic and will remain in the defensive strategy. All Units return to routine radio traffic".

### **5.17 - Offensive to Defensive Strategic Shift**

When the offensive strategy is chosen on our initial arrival, most of the time, a well-placed initial attack solves the incident's problem. But there are many times (for many reasons) that our initial, and sometimes re-enforced attack efforts, do not solve the incidents problems and conditions continue to deteriorate to the point where the critical factors indicate switching from an offensive to a defensive strategy.

IC's must be very pessimistic in these types of situations, especially if the structure has a primary "All Clear". Command must change strategies before the building is disassembling itself due to structural damage. When this happens, Command is very late in the strategy shift and on the receiving end of the building's decision governing the new strategy. The IC must be the single person to make the defensive decision, NOT the building coming apart.

The announcement of a change to a defensive strategy will be made as follows:

- Clear Dispatch Center – Ask for Emergency Tones/Traffic
- Emergency Tones transmitted
- Announce to all Hazard Zone units:
- Shifting to the Defensive Strategy
- All Unit's "Exit" or "Abandoned" the structure
- All Units report PAR's upon exit
- Dispatch Center repeats Emergency Traffic report - verbatim

"Exit the Structure" will be defined as: an orderly withdrawal where interior lines and equipment will be withdrawn and repositioned/shut down when changing to a defensive strategy.

"Abandoned the Structure" will be defined as: an emergency retreat where all hoselines and heavy equipment will be left in place and all members in the Hazard Zone will exit the structure as quickly and as safely as possible.

A PAR (Personnel Accountability Report) shall be obtained for all units exiting the Hazard Zone after any switch from an offensive to a defensive strategy.

Commands greatest priority once a strategic shift has been initiated is the safe exit of all units located in the Hazard Zone. Level 1 Staged units and other units working outside the Hazard Zone shall maintain radio silence until all PAR's have been tallied (unless they have priority traffic).

Company officers will account for their crews and advise their S/D Supervisor or Command on the status of their crew upon exiting.

S/D Supervisors will notify Command of the status of the individual crews assigned to their S/D upon their exit.

## **6.0 - Command Function #6 – Organization**

Major Goal of Command Function 6 - Organization: To develop an effective incident organization using the S/D system to decentralize & delegate tactical responsibilities.

Function 6 - Organization will focus primarily on managing and expanding the Tactical level (hot/Warm Zone) of the organization.

Function 8 – Continue, Support, and Terminate Command will focus primarily on managing, supporting and expanding the strategic level (command post) of the organization.

### **6.1 - Organizational Levels**

There are 3 operational levels that function at the scene of every Hazard Zone. They are:

- Strategic level
- Tactical level
- Task level

Each level is distinct, each is managed in a different way, and they each have their own set of roles and responsibilities.

**Strategic Level** - This organizational level is designed around the IC (and Command Team) operating in the strategic command position, working out of a stationary command post. The strategic level involves coordinating the activities necessary for overall operational control, determining the incident's strategy, and developing an IAP that completes the incident's tactical objectives.

**Tactical Level** - The first management "subdivision" of the incident scene is done by assigning Sector/Division (S/D) responsibilities. S/D Supervisors are responsible for the completion of the tactical priorities in their assigned area and the supervision of all of their assigned resources

**Task Level** - Is where the work is performed by assigned companies. The strategic and tactical levels are in place to support the task level. Task level activities are supervised by Company Officers working with the members of their companies directly in the Hazard Zone.

The task level is the most important level on the incident site because it solves the incidents problems while taking place in an IDLH atmosphere that can kill the workers. All activities outside the Hazard Zone are in place to support units working on the task level.

## 6.2 - Mobile IC's (IC#1)

For the majority of the local incidents we respond to, the responsibility for managing all 3 organizational levels is handled by the officer of the first arriving Engine Company and they will become the initial IC for the incident, IC #1.

A mobile Company Officer IC is the only person on the entire response team who will operate on all 3 organizational levels.

- Strategic level – IC #1 will size up the incident's critical factors, declare the incident strategy and assume command of the incident.
- Tactical level - IC #1 will implement and execute an IAP that addresses the incidents critical factors in order to facilitate the completion of the tactical priorities
- Task level – IC #1 will directly supervise and assist their crew members with the tasks required to bring the incident's problems under control.

The Command system also calls on the mobile IC to assign their Unit, and the next two (2) arriving Units that Level 1 stage to support the initial IAP and the completion of the strategy's tactical priorities (size-up plus 3).

In most cases, this initial, well-coordinated attack wave eliminates the incident hazards and there is no urgent need to upgrade the positions on the strategic or tactical levels.

Incidents that are not quickly controlled, are escalating, or are significant in scope and size upon our arrival, must have the strategic and tactical operational levels upgraded as required.

The strategic level of command on these types of incidents will usually be the 1<sup>st</sup> operational level that is upgraded. When the initial arriving Command Officer, IC #2, arrives on scene and transfers command from a mobile IC, they assume responsibility for the strategic level of the operation.

This command transfer significantly improves the IC's position and ability to perform and manage the 8 Functions of Command and the corresponding strategic safety requirements for the entire incident operation.

### **6.3 – Subdividing the Incident Scene**

An IC must have a system in place where the rate of assigning companies to the emergency scene doesn't exceed their span of control. The IC accomplishes this by forecasting and establishing geographic and functional responsibilities that divides the incident scene into smaller, more manageable tactical sub-divisions.

**Tactical Subdivisions:** on Type 4 and 5 local incidents are typically referred to as; Sectors, Divisions, or Groups (S/D/G). The IC must correctly name the different work areas on the incident site to help eliminate any confusion on the fire ground.

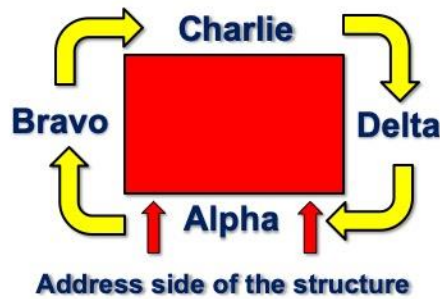
Departments in the US operating under NIMS guidelines, should exclusively use the terminology of Divisions and Groups to identify incident subdivisions:

- Division is a geographical subdivision of the incident site
- Group is a functional work group that is not tied to a specific location

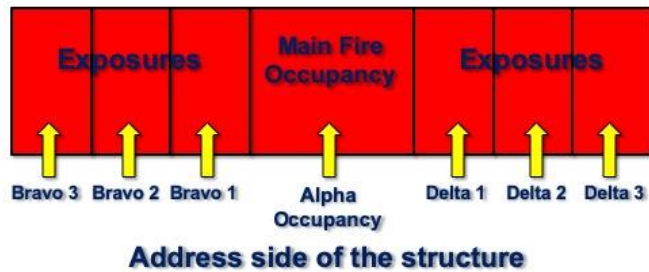
Sector is a term that is still widely used in the English-speaking fire service (outside the US). In settings outside the US, the term sector is commonly used to encompass both geographic and functional work groups.

IC's manage strategic level accountability by controlling both the position and function of all Hazard Zone units using a tactical worksheet. Therefore, **Groups shall not be utilized inside of the Hazard Zone.** All units assigned into the Hazard Zone must be assigned to a specific geographic location where they will be responsible for the completion of all tactical priorities (S/R, F/C, L/C) in their assigned area.

**Geographic Landmarks:** The Alpha side of the structure is "usually" the address, street side. There will be many situations where it is not clear where the Alpha side is. In situations where there is any confusion on the incident's landmarks, initial arriving IC's must make it clear where the Alpha side is located.



**Exposures:** We identify exposed structures to the main fire occupancy by the side they are on starting with the closest, moving to the next exposure and so on. When the IC can give the



exposure number and the occupancy type/apartment number it greatly enhances our directional sense of awareness.

**Floors:** Are identified by stories above and below ground level. Using Divisions, the individual floor will take on the same floor number as the Division (floor 2 becomes "Division 2"). Many systems just assign the floor number as the geographic designation (floor 2 becomes "2<sup>nd</sup> Floor").



#### **6.4 - Forecasting and establishing Geographic & Functional responsibilities:**

The IC must forecast where the overall event is going, subdivide the Hazard Zone into manageable tactical units and then assign geographic responsibilities for the incident in order to build an effective incident organization.

Geographic subdivisions are most effective when they are assigned in anticipation of their need, rather than in a crisis because it is very difficult to play catch-up in fast paced, escalating incidents.

Subdividing the incident site provides tactical supervision, direction and support to units assigned and operating in a Hazard Zone. This delegated management also helps the IC to achieve the incidents tactical objectives much more safely and effectively. Utilizing the appropriate subdivisions will:

- Reduce the IC's span of control.
- It streamlines and creates more effective incident scene communications.
- They allow the IC to focus on the strategic elements of the incident from a stationary command post.
- SDG's give the IC an array of functions to choose from and match to the particular needs of each Incident.
- It greatly improves the accountability system
- It places strong tactical supervision where the work is actually taking place.
- Improves firefighter safety by having dedicated Officers directly manage and control the position and function of the operating companies assigned to them.

Offensive fires usually don't last very long. We either put the fire out in the limited time frame we have (less than 20 minutes) or we don't put the fire out, we exit the structure and then get away from the incident problem.

Building large incident organizations on offensive fires doesn't happen very often. But there are many situations that can facilitate long duration, over 30-minute, offensive operations with several work cycles. Some of these offensive situations include:

- Multi-Unit residential structures where the fire has extended into the concealed spaces or into adjoining units.
- Other highly compartmentalized structures with fire extension in concealed and common attic spaces
- Sprinkler controlled, large area cold smoke fires
- Defensive fire situations where we operate in offensive positions in the exposed structures
- Compartmented Mid & High-Rise Structures

The IC must automatically, instinctively, and quickly develop and compare the event vs. response profile and then call for the additional resources that will be required to bring the response model up to effectively engage and overpower the problem the event is creating.

As the resource required to bring the incident under control escalates, the strategic level (the IC) and the tactical level (S/D Supervisors) must also be supported. This support needs to be included in the regular dispatch system. The standard response elements of additional staff and response chiefs on greater alarms will give the IC the needed resource to implement an organization that keeps up with and outlasts the event.

## **6.5 - Assigning Hazard Zone Tactical Supervision**

For offensive operations, the Company Officer and his or her crew will make entry into the Hazard Zone. Company Officers become the initial evaluation and reporting agents for the IC and will transmit condition reports in the Hazard Zone. These reports provide the IC the information required to:

- Forecast and stay ahead of the incident conditions
- Adjust the overall strategy
- Adjust the current IAP

ICs should avoid giving companies S/D management responsibilities when they are working in IDLH. The Blue Card accountability system utilizes a company's identity (i.e., Engine 21, Ladder 2) throughout the incident, not their assigned function or geographic location. The Blue Card system requires individual company accountability to be maintained at all times. This standard provides for increased accountability on the task, tactical and strategic levels.

Blue Card utilizes Company Officers as task level supervisors who complete the work needed to control the incident hazards. Company Officers should NOT be utilized as S/D Supervisors when working on air in IDLH. These are all upper management, Chief Officer roles.

IC's who assign 2 or more companies to an active S/D can't expect a Company Officer to appropriately supervise all assigned resource while they are working in their assigned tactical area. IC's should use the rule of thumb that an active S/D should be upgraded with a Command Officer, who will assume Division Supervisor responsibilities. This supervision should be upgraded with at least command level Officer, Safety Officer, Training Officer, or IDLH qualified Staff Responders to manage the entry point.



## 6.6 - Command Officer – Hazard Zone Tactical Supervision

Upgrading S/D supervision to a Command Officer needs to be a well-practiced and regular occurrence on the incident site. When S/D supervision is upgraded to a Command Officer, it elevates S/D management with a true tactical level boss. This greatly facilitates the completion of the S/Ds objectives and enhances firefighter safety.

As the IC assigns subsequent arriving Chief's to assume S/D responsibilities it quickly builds and embeds powerful tactical and safety elements across the entire incident scene. This places the IC in the strongest strategic position to manage the position and function of all assigned resources.

Subsequent arriving Chief Officer's should Level 1 Stage over the tactical radio frequency. Subsequent arriving Chief Officer's must avoid doing face-to-face communications with the IC when an active hazard still exists.

When assigning a Chief Officer to assume S/D responsibilities, the IC needs will need to transmit:

- The location of the S/D
- The S/D appropriate name
- The tactical objectives to be addressed in the S/D
- The units currently assigned to the work area
- The current S/D Supervisor they will be replacing (if any)

Chief Officers who are assigned S/D responsibilities must:

- Park their response vehicle in a manner that won't block apparatus access into the scene/work area
- Don their full protective gear
- Gather the necessary Accountability and RIC equipment
- Report to their assigned S/D
- Implement the Passport Accountability and Air Management system (SOP 1.8.6)

The S/D Supervisor will need to position themselves just outside of the Hazard Zone in their assigned S/D. Entering into the Hazard Zone would place the S/D Supervisor at the same disadvantage as interior companies working in the S/D and entry should be avoided.

The best position to manage the S/D is in the Warm Zone of the S/D at the entry point. This location puts the S/D Supervisor in the most ideal position to manage, coordinate, and account for all the S/D resource.

There are 2 main functional areas a S/D Supervisor must manage in their assigned S/D. They are:

- The **Tactical** level requirements to run the S/D
- The **Embedded Safety** requirements to run the S/D

S/D Supervisors are responsible for the following basic **Tactical** functions:

- Size-up the S/Ds critical factors
- Apply the risk management plan making sure that the S/Ds actions are always matching the conditions
- Develop the S/D's Incident Action Plan within the IC's overall Strategy and IAP
- Supervise the work in the S/D
- Redirect the S/Ds activities as required
- Request additional resource from the IC as required, always maintaining a tactical reserve within their assigned S/D whenever possible.
- Coordinate with other S/D's as required
- Provide progress reports to the IC
- Monitor personnel safety, accountability, and welfare in their S/D, and
- Deccommit companies as operations are completed

The deployment of units into an IDLH Hazard Zone **must** be managed around crew accountability and the times directly connected to the air supply of working firefighters. S/D Supervisors are responsible for the following basic **Embedded Safety** functions for the work area are:

- Managing the S/D accountability (using the passport system)
- Track and manage the work times of interior crews around SCBA air management
- Assist with the rotation of companies in and out of the Hazard Zone
- Manage on deck crews
- Manage the recycle and the rehabbing of crews
- Monitor the S/D for any significant safety hazards

Departments that pair their response Chiefs with Chief's Aides have a significant incident management and safety advantage. When the IC assigns a Chief working with an Aide to assume S/D responsibilities, the Chief Officer becomes the S/D Supervisor responsible for the **Tactical** functions in the S/D, and the Aide will assume the **Embedded Safety** responsibilities for that particular S/D.

One (1) Command Officer can routinely manage both the **Tactical and Embedded Safety** requirements for an assigned area. Depending on the situation, supervising 4 to 5 companies usually maxes out the span of control for 1 person managing the S/D and supervision should be reinforced with subsequent arriving IDLH qualified supervisors (Chief Officers, Safety Officers, Training Officers, qualified Staff Officers).

IC's must maintain an awareness of how many companies are assigned to a S/D and try not to "over assign" to one area.

Other attack positions must be considered and/or established when this occurring.

When assigning resource to a S/D Supervisor, the IC must include:

- The location of the assignment
- Identify the S/D Supervisor that they will be reporting to/working under

Command must then contact the S/D Supervisor and inform them what additional resource has been assigned to their area. It will then be the S/D Supervisor's responsibility to contact the assigned unit and deliver any orders required to get the company into action in the S/D.

When formal supervision has been upgraded in the S/D, a unit assigned to that S/D will need to deliver their passport and check in directly with their assigned S/D Supervisor before going to work.

### **6.7 - Offensive Hazard Zone Tactical Level Supervision General Guidelines**

The S/D Supervisor's plan always needs to fit into the IC's plan. They will need to continually size-up the S/D critical factors and apply the RMP by making sure that the S/D actions are always matching the conditions in the S/D.

S/D Supervisors must develop the Incident Action Plan for their S/D that facilitates the completion of the tactical priorities for their assigned area.

Company Officers and S/D Supervisors need to balance the amount of air we bring into the Hazard Zone with the amount and duration of the work that must be performed and completed in the Hazard Zone. S/D Supervisors must make an early resource size up and call for the resources that will be required to perform the necessary tasks while safely managing the workers air supplies.

The goal of the deployment and S/D system is to always have enough workers **assigned performing the work**, to have enough workers **that are assigned to On Deck positions within the S/D that are ready to go to work**, and then have enough of a tactical reserve **in staged positions, waiting to be assigned to go to work**.

The IC must use the "3-deep" deployment model to supply a steady, adequate stream of companies to the various S/Ds.

This approach to deployment places ready-to-go resources in all the key operating positions around the incident site and it greatly enhances firefighter safety and effectiveness.

As working companies properly manage their air supplies and cycle out of the Hazard Zone, On Deck companies should be positioned within the S/D to quickly take their place. This deployment model also allows exiting companies to actually have a face-to-face briefing with the

S/D Supervisor and the companies that are relieving them. This reduces the amount of radio traffic on the tactical channel and streamlines the communication process for the entire incident.

The communications flow chart should overlay and reflect the organization the IC has implemented. The IC gives orders and makes assignments to establish the overall organization and to implement an effective IAP. After the organization is in place, the IC should shift from primarily ordering units into position, to requesting, listening and reacting to critical working area(s) CAN reports.

The IC should avoid automatically assigning more resources to established S/Ds. Once the organization is implemented, these S/D Supervisors should report to the IC on the conditions in their area, the actions they are taking and any necessary resources or support (Needs). This allows the IC to operate on the strategic level, serving as a resource allocator to the S/Ds based on each tactical area's needs.

S/D Communications Model:

- Company Officers should communicate with their individual crew members face-to-face
- Company Officers should communicate with other Company Officers in their work area face-to-face whenever possible
- Company Officers should communicate with their S/D Supervisor face-to-face whenever possible
- There will be occasions when Company Officers will need to communicate with their S/D Supervisor or Command over the assigned Hazard Zone tactical radio frequency
- S/D Supervisors will communicate directly with the IC over the assigned Hazard Zone tactical frequency

S/D Supervisors become the central reporting agents for their assigned area, and they should give more encompassing and complete progress reports on the S/D conditions, actions, and needs.

In some cases, a S/D Supervisor may be assigned to an area/function initially to evaluate and report conditions and advise the IC of needed tasks and resources. The assigned Supervisor will proceed to the S/D area, evaluate and report conditions to the IC, and assume responsibility for directing resources and operations within his/her assigned division.

S/D Supervisors along with Company Officers are responsible to monitor the welfare of their personnel at all times and determine if S/D recycle can be done within the S/D or if a formal rehab is appropriate.

S/D Supervisor's may need to request additional resources to replace On Deck crews, recycling crews or crews that have been assigned to a Rehab S/D.

## **6.8 - Hazard Zone – Defensive Tactical Level Supervision General Guidelines**

A defensive situation is where the incident problem has evolved to the point that lives and property are no longer savable, and offensive tactics are no longer effective or safe. The entire defensive strategy is based on protecting firefighters.

**Firefighter safety is the No. 1 defensive priority. No firefighter should be injured on a defensive fire.**

Arrangement becomes a major critical factor with defensive fires. The way the main fire compartment/area is arranged to its neighboring exposures will dictate our operating positions on a defensive emergency scene.

All exposures, both immediate and anticipated, must be identified, searched and protected. The first priority in defensive operations is personnel safety; the second is exposure protection.

The defensive perimeter and collapse zone must be identified, and all operating units will remain behind those defined boundaries —*this perimeter must not be crossed*. S/D Supervisors who are in charge of defensive operations should use Hazard Zone tape to identify the defensive fire perimeter and collapse zone that must not be crossed by firefighting forces. This tape perimeter will greatly assist the S/D Supervisor in managing firefighter "creeping".

Water supply becomes a critical factor when managing defensive operations. S/D Supervisors will need to coordinate with the IC in establishing uninterrupted water supplies with sufficient enough flows to control the problem and/or protect exposures.

S/D Supervisors should also shut down all small-diameter handlines (unless they are being used to directly protect exposures). This diverts that water into master-stream devices that can apply large amounts of water directly on the fire and the exposures. These actions also reduce creeping.

No member shall enter the Hazard Zone of a defensive fire area. Any structure that has defensive fire conditions over a short period of time shall not be entered by any personnel to perform any overhaul or loss control of any kind.

On defensive fires with exposures, S/D Supervisors managing exposure protection in the offensive strategy, will follow the same offensive strategy guidelines in Function 5 - Strategy and IAP.

## **7.0 - Command Function # 7—Review, Evaluate, Revise**

Major Goal: To confirm the current Strategy and IAP meets the incident's tactical requirements & adequately provides for worker safety.

The biggest reason we continuously perform size-up, evaluation and revision is so our workers can operate safely, complete the tactical priorities, and go home unharmed after the event.

A standard front end ensures our incident operations remain under control from the beginning of the event and assures those operations occur within a structured plan. When the IC performs the standard command functions from the very beginning of the incident, it provides a basis for any revisions required to match the Strategy and IAP to the current incident conditions.

The ongoing evaluation of the incident's critical factors is the basis for managing the current Strategy and IAP *and* keeping it current (positions always match conditions).

### **7.1 - Carry out all Command Functions in a standard order**

The initial IC (IC#1) performs the first five functions of command during the first minute(s) of incident operations. The functions are arranged in the natural order the IC performs them. This provides a standard system for managing the emergency scene.

The command system is designed to achieve the tactical priorities in a regular fashion. The IC uses the system to:

- Control the incident (assume command)
- Determine the appropriate strategy and IAP
- Manage incident communications
- Request and assign resources
- Decentralize the management process by assigning S/D Supervisors
- Review and evaluate operations and make the required changes
- Transfer command to a later-arriving Command Officer
- Complete the Tactical Priorities
- Support the IC when necessary
- Terminate command when the event is complete.

### **7.2 - Strategic Decision-Making Model**

The strategic decision-making model gives the entire organization an evaluation/action system that takes the mystery out of initial and ongoing emergency operations.

Everyone working at the incident scene must be constantly evaluating incident conditions while matching our position and actions on the current incident conditions. By continually evaluating these factors, we keep the plan current and the workers safe.



### 7.3 - Implement Command Elements Early to Enable Midpoint Review & Revision

When we implement the regular command-system elements from the beginning, they provide the framework for midpoint review and revision:

- SOPs
- Size-up/risk-management plan
- Standard strategy/action planning
- Strong, standard command positioning
- Strong communications
- Strong S/D's

The review process is nothing more than a continuation of the system we used to commence operations. If the IC didn't perform the first five functions of command during the initial stages of operations, it is almost impossible to make necessary changes and adjustments as the incident progresses.

The communications flow chart should overlay and reflect the organization the IC has implemented. The IC gives orders and makes assignments to establish the overall organization and to implement an effective IAP. After the organization is in place, the IC should shift from primarily ordering units into position, to requesting, listening and reacting to critical working area(s) CAN reports.

The response and arrival of additional command officers strengthens the overall command organization.

As the incident escalates, the IC should use the subsequent arriving Command Officers to fill S/D Supervisor or Command support positions. Filling these different command/tactical roles:

- Improves safety
- Decreases the span of control
- Improves communication
- Improves accountability
- Improves management of the S/Ds created

#### **7.4 - Receive & Evaluate CAN Reports using the Order Model**

The IC uses visual size-up and progress reports as the basis for Command Function 7. The visual information is limited to the IC's physical command position. If the IC is operating in a mobile command position (a Company Officer), their view is limited to their current work area. If the IC is operating in the strategic command position, they should have a pretty good overall view of the two most critical sides of the incident scene.

The goal of the system is to place an IC in the Command position as quickly as possible. The IC can then monitor the overall operational effect on the incident problem.

The IC receives IAP information from operating S/Ds. This information should include a description of the critical factors, the tactical priorities completed, and should start to reveal any critical unknowns on the emergency scene. The IC can see overall conditions from the command post and can determine whether conditions are getting better or worse.

#### **7.5 - Use Strategy & Action-Plan Review as the Revision Checklist**

- Firefighter safety
- Does the current strategy match the current conditions?
- 1, 2, 3 priority progress reporting
- Location of attack
- Size of attack
- Effect of the attack
- All affected areas searched
- Timing and support
- Adequate back up
- Adequate resources
- Have a Plan B?
- Correct actions to the current conditions (Fire Control, All Clears, Loss Stopped)

IAP No. 1 is given during the IRR; it states that someone has arrived on scene, it describes the incident problem, it explains the incident strategy, describes the action taken, the resource needed to control the problem, and it identifies the IC in charge of the incident scene.

The minute or so that IC#1 spends making a good initial and follow up report, wraps together the 8 functions of command and serves as the foundation for the first Strategy and IAP. In many cases, this initial IAP and the effective assignment of 2-3 other units into the incident scene solves the incident problem.



The typical Offensive Strategy and IAP looks like this:

- We put out the fire
- We search the occupancy
- We revise the IAP from one that targets search, rescue and fire control to one that focuses on checking for fire extension, removing smoke, controlling the loss.
- After achieving these operational targets, we shift the IAP again, focusing on recycling/rehabbing personnel, fire investigation, securing the property, turning it back to the RP, and making sure the customer has the necessary after-fire support.

### **7.6 - Quickly Make Strategy Transitions and IAP Revisions Based on the RMP and Changing/Forecasted Conditions**

Once an attack is in place, **all fire conditions behave in 1 of 2 ways:**

1. They are getting better, or
2. They are getting worse

After assigned resources have had a chance to assume their key tactical positions and begin operations, the IC must quickly determine their effectiveness on controlling the incident problems.

- In general, a well-executed, offensive fire attack will quickly control the fire.
- If the fire continues to grow despite control efforts, it is a sure sign the current plan is not working.
- The IC must quickly determine whether they can solve the problem by:
  1. Reinforcing current positions or
  2. Establishing key attack position/s that aren't yet covered
- If the fire is too big to control with handlines from interior positions, a strategic change from offensive to defensive is required.
- This decision must take into account how long it will take to get required resources into position, as well as how long it will take to evacuate and account for interior crews if conditions continue to worsen.

When the current IAP doesn't solve the incident problem(s), the IC must revise it based on the bullet points listed above.

### **8.0 - Command Function #8 – Continue, Support & Terminate Command**

Major Goal of Command Function 8: To provide enough command and the required support to manage the incident resources for the necessary length of time in order to achieve the tactical priorities and provide protection to all of the Hazard Zone workers.

The IC's ability to conduct command operations over this time period determines the entire operation's overall effectiveness. Every tactical situation involves a different combination of elements that affect the operation's length and intensity.

### **8.1 - Assume, Maintain & Upgrade an Effective Command Position**

Offensive incident operations usually begin with a Company Officer IC (IC#1) operating in the mobile command position. This ends when the incident problem is solved or when command is transferred to an IC who will operate in the strategic command position (IC#2). Command is then reinforced as later-arriving Chiefs arrive on the scene and support the IC.

Depending on arrival order, rank and SOPs, later-arriving Chief Officers can be assigned to the following standard Command support positions:

- S/D Supervisors
- Support Officer (S/O)
- Senior Advisor (S/A)
- Branch positions
- Section positions

As the command requirements for the incident grow, so should the command post. The Command Team will usually operate from a larger "command van" command post.

The system must expand progressively and naturally to improve the IC's position and the level of support given to the IC.

### **8.2 - Use Standard Command Transfer (Both Ways)**

To a major extent, command effectiveness is directly connected to regular command positioning; the entire command system revolves around the rapid establishment of a stationary, remote IC, operating in a standard CP.

The 1<sup>st</sup> arriving Chief Officer will respond directly to the scene. If an active Hazard Zone still exists, or if there are still tactical benchmarks to coordinate, Command should be upgraded to the strategic command position.

This command transfer significantly improves IC #2 position and their ability to perform and manage the 8 command functions and the corresponding strategic safety requirements for the entire operation. Placing the IC in a standard CP position where they can focus exclusively on incident management enhances and facilitates both the completion of the tactical priorities and firefighter task-level safety.

If this level of command doesn't bring the incident under control, the IC will need support. This support comes when subsequent-arriving Chief Officers fill the standard Command support positions.

As the hazards subside and incident operations wind down, command will be transferred from the current IC to a Company Officer or other person who will remain on scene until the very end.

- Normally done at the end of the incident
- All the tactical priorities have been achieved
- No Hazard Zone present

We use the same system to de-escalate command that we used to escalate it, always matching the level of command to the current situation.

### **8.3 - Develop & Maintain Effective Fireground Communications**

Command positioning plays a big part in effective fireground communications:

- Mobile IC will run the incident over a portable radio. Worst communications position, can only operate 1 radio channel.
- IC working in a Command position unsupported. Much better communications position, can only operate 1 radio channel.
- IC working in a Command position supported. Best command position, can operate two or more radio channels.

The IC requires a support system that allows them to stay in constant, undistracted contact with all the companies/S/Ds operating in the Hazard Zone.

### **8.4 - Share All Pertinent Information Up & Down the Chain of Command**

Sharing information is how we keep the IAP current and make sure our actions match conditions. The goal of the system is to place an IC in the strategic command position as quickly as possible. The IC can then monitor the overall operational effect on the incident problem.

The IC then receives IAP information from operating S/Ds. This information should include a description of the critical factors, the tactical priorities completed, and should start to reveal any critical unknowns on the emergency scene. The IC can see overall conditions from the command post and can determine whether conditions are getting better or worse.

We must share with everyone any critical information that affects all operational areas and/or has an impact on firefighter safety. The best way to do this is through the use of priority and emergency traffic reports.

### **8.5 Consider the time it takes to complete each Tactical Priority**

The tactical priorities represent the core of the IAP at any given point during incident operations.

The IC begins incident operations by estimating the total length of time it will take to complete incident' tactical priorities. This estimate allows the IC to break the entire incident operation into smaller pieces and time frames that correspond with the strategy and IAP that the IC implements, manages and revises throughout the incident.

Estimate how long each tactical priority will take, along with how many people or crews it will take to accomplish them. This should give the IC a general idea of how many command officers they will need to manage to the scene effectively.

These forecasted additional command elements need to be estimated and call for when requesting additional resources.

### **8.6 - Estimate the Duration of Command**

The IC should forecast how long incident operations will last and how large the command organization needs to be based on the critical factors of the incident. This determination should occur very quickly in the operation.

Time and intensity determine how long the IC and the rest of the Command Team can remain in charge of an event. Long, slow-moving events (burning debris piles with no exposures, defensive fires with no exposures, etc.) are not as stressful as more complex incidents with personnel operating in a Hazard Zone.

If the incident is going to last beyond the time a Command Team can reasonably manage, a schedule should be developed. This schedule should manage command-team rotations, as well as rotations for any other staffing positions filled throughout the event.

### **8.7 - Develop & Support an Organization that Outlasts the Event**

The response and arrival of additional command officers strengthens the overall command organization. As the incident escalates, the IC should use the subsequent arriving Command Officers to fill S/D Supervisor or command support positions. Filling these different command/tactical roles:

- Improves safety
- Decreases the span of control
- Improves communication
- Improves accountability
- Improves management of the S/Ds created

### **8.8 - Build a Command Team**

The system is built from the ground up. We must transfer command before IC #1 becomes overwhelmed; this usually occurs when the incident's problems aren't eliminated quickly.

Command is typically transferred from a Mobile IC to the first-arriving response Chief. This should be the only command transfer that takes place during the incident. From this point on, a strategically positioned IC requires the support and reinforcement of a Command Team.

These are all terms used to describe a quickly assembled, local incident-management team that provides support for the IC. The team members include:

- Incident commander (IC)
- Support officer (SO)
- Senior advisor (SA)

Command Teams are an organizational response to significant, local incidents. They provide enough command support to bring these situations under control rapidly. Command Team Members include:

- The Incident Commander
- The Support Officer
- The Senior Advisor

**The Incident Commander:** Command shall be formally declared on all incidents where two (2) or more Units are dispatched. Typically, the Company Officer of the first arriving Engine Company will become the initial IC for the incident, IC #1.

There are two command positions that a Company Officer can place themselves in, depending on the situation. These three command positions are:

- Mobile Command position – Around and inside of the Hazard Zone
- Strategic Command position - Stationary, inside of a Command Post (CP)

Command must be quickly transferred to a subsequent arriving Chief Officer on incidents that are not quickly controlled, are escalating, or are significant in scope and size upon our initial arrival.

A strategically placed IC is responsible for:

- | Overall safety boss and manage the Hazard Zone
- | Perform 8 Functions of Command
- | Evaluate the incident's critical fireground factors
- | Risk management analysis
- | Develop and manage the strategy
- | Coordinate the IAP with S/D's
- | Manage the completion of the tactical priorities
- | Resource deliverer based on S/D requirements

If the Incident continues to escalate, a strategically positioned IC requires the support and reinforcement of a Command Team to manage all of the above bullet points.

**The Support Officer:** IC#2 will need to assign subsequent arriving Chief Officers to either:

- Forward positions on the Hazard Zone site as S/D Supervisors.
- Command support roles to assist the IC in directly managing the incident.

The first command support position is the Support Officer (SO). The SO's roles and responsibilities include:

- Evaluate and recommend changes to the incident action plan—the IC and the SO continually engage in a “challenge-and-verify” exchange;
- Provide direction relating to tactical priorities, specific critical incident factors and safety;
- Evaluate the need for additional resources;

- Assign logistics responsibilities;
- Assist with the tactical worksheet for resource control, accountability and tracking; and
- Evaluate the incident organization and span of control.

Many times, plugging a SO into the command post is all it takes to bring a fast-moving, an almost out-of-control incident back into balance. A SO also serves as the IC's "shield" by keeping the attention-diverting distractions away from them. This allows the IC to stay on the tactical channel and to focus continually on the critical factors, firefighter safety and the tactical priorities.

Departments that pair their response Chiefs with Chief's Aides have a significant incident management and safety advantage. If the first arriving Chief Officer assumes command, they have a built in Support Officer. When the IC assigns a Chief working with an Aide to assume S/D responsibilities, the Chief Officer becomes the S/D Supervisor responsible for the **Tactical** functions in the S/D, and the Aide will assume the **Embedded Safety** responsibilities for that particular S/D.

### **Command Team Members—Senior Advisor**

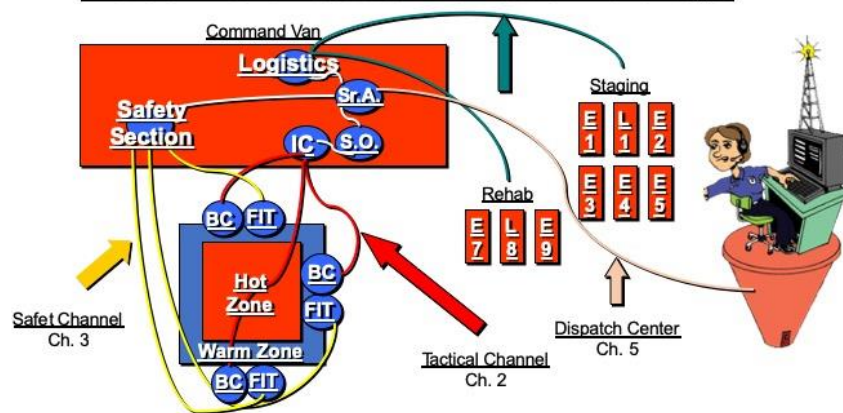
The third member of the Command Team is the Senior Advisor. The SA is normally the highest-ranking member of the Command Team and the highest-ranking response chief should assume the role of SA, e.g., the shift commander, duty chief, etc. Their major responsibility is to look at the entire incident and its impact from a broader perspective and to provide direction, guidance and advice to the rest of the Command Team and Support Staff. The SA manages and is in charge the command post. The SA's Roles & Responsibilities:

- Review and evaluate the incident action plan, and initiate any needed changes (more challenge and verify);
- Provide ongoing review of the overall incident (the big picture);
- Review the organizational structure, initiating change or expansion to meet incident needs;
- Recommend section and branch functions as required;
- Manage appropriate Sections as needed;
- Provide management and coordination between the key radio operators in the command post (IC/SO, safety, logistics);
- Serve as liaison with other city agencies and officials, outside agencies, property owners and tenants; and
- Forecast (and react to) the effect this incident will have in tomorrow morning's newspaper (front page, above the fold).

When a SO and SA are supporting the IC in the command post, you have an integrated, three-person team working together to perform the functions of command.

The IC should use the radio designation "Command" and will generally be the only member of the Command Team communicating over the tactical radio frequency (the Hazard Zone channel). The IC and Command Team remain effective only when they operate on the strategic level. If they get bogged down in tactical- and task-level details, incident operations as a whole will suffer. The Command Team must use the different pieces of the incident organization to escalate operations and delegate detail management.

## The Command Post Communication Advantage



The Command Team's main goal and focus is managing the workers operating in the Hazard Zone. This includes providing whatever technical support necessary (e.g., special operations, hazmat, technical rescue, etc.).

Large, complex incident operations require a larger command staff to manage any additional organizational positions.

### 8.9 - Implement Management Sections & Branches as Necessary

The Command Team's main goal and focus is managing the workers operating in the Hazard Zone. This includes providing whatever technical support necessary (e.g., special operations, hazmat, technical rescue, etc.).

Large, complex incident operations require a larger command staff to manage any additional organizational positions. These positions provide logistical, planning and administrative support; they also fill safety and branch officer roles where needed.

#### 8.9.1 - Section Positions

As incident operations escalate in time, size and complexity, the strategic-level responsibilities can overwhelm the Command Team. To avoid this command "overload," we can quickly expand the incident organization by assigning section-level positions. These positions include:

- Logistics
- Planning
- Operations
- Admin
- Safety

One of the keys to effective incident management is building the properly sized incident organization and support staff. The Command Team uses the Section positions to delegate functional and support responsibilities. This allows the IC and the Command Team to focus solely on managing the resource in the Hazard Zone.

**The Logistics Section** is the support mechanism for the organization. Logistics provides services and support systems to all the organizational components involved in the incident. The Logistics Section will operate on its own radio channel. Roles and Responsibilities:

- Provide rehab.
- Manage staging
- Provide and manage any needed supplies or equipment.
- Forecast and obtain future resource needs (coordinate with the Planning Section).
- Provide any needed communications equipment.
- Provide fuel and needed repairs for equipment.
- Obtain specialized equipment or expertise per Command.
- Provide food and associated supplies.
- Secure any needed fixed or portable facilities.
- Provide any other logistical needs as requested by Command.
- Collect and provide information for an After-Action Review.
- Supervise assigned personnel

**The Planning Section** is responsible for gathering, assimilating, analyzing, and processing information needed for effective decision-making. The Planning Section serves as the Incident Commander's "clearing house" for information. This allows the Incident Commander to have a single person provide him/her with information instead of having to deal with dozens of information sources. Information should be used to make long-range plans. The Planning Section Chief's goal is to plan ahead of current events and to identify the need for resources before they are needed. Roles and Responsibilities:

- Evaluate current strategy and plan with the Incident Commander.
- Refine and recommend any needed changes to plan.
- Evaluate incident organization and span of control.
- Forecast possible outcome(s).
- Evaluate future resource requirements.
- Utilize technical assistance as needed.
- Evaluate tactical priorities, specific critical factors, and safety.
- Gather, update, improve, and manage information with a standard systematic approach.
- Facilitate an After-Action Review and After-Action Report.
- Liaison with any needed outside agencies for planning needs.

**The Administration Section** evaluates and manages the risk and financial requirements for the Fire Department's involvement in the incident. Roles and Responsibilities:

- Procurement of services and/or supplies from sources within and outside the Fire Department or City as requested by Command (coordinates with Logistics).
- Documenting all financial costs of the incident.
- Documenting for possible cost recovery for services and/or supplies.
- Analyzing and managing legal risk for incidents such as, hazardous materials clean up.



- Serves as the Incident Commander's liaison with: City officials, Litigators (and other lawyer types) regulatory agencies (EPA, OSHA, DOT, FBI, etc.).
- Monitors and coordinates emergency service delivery to the rest of the community during major incidents to ensure adequate coverage.
- Serves as the E.O.C. representative in the Command Post and provides briefings to the E.O.C. staff.
- Manage investigations (arson, etc.).
- Collect and provide information for an After-Action Review.

The Administration Section is responsible for obtaining any and all needed incident documentation for potential cost recovery efforts, or litigation, including criminal charges.

**The Operations Section:** is responsible for the tactical priorities, accountability, and the safety and welfare of the personnel working in the Hazard Zone. The Operations Section Officer uses the tactical radio channel to communicate strategic and specific objectives to S/D Supervisors and/or Branch Officers. Roles and Responsibilities:

- Coordinate activities with the Senior Advisor.
- Implement the Incident Management Plan.
- Assign units to S/D/Branches based on Tactical Objectives and priorities.
- Build an effective organizational structure through the use of S/D's and/or Branches.
- Provide Branches and S/D Tactical Objectives.
- Manage Operation Section activities.
- Personnel Accountability.
- Provide for life safety.
- Determine needs and request additional resources.
- Consult with and inform other Sections and the Incident Command Staff as needed.
- Collect and provide information for an After-Action Review.

The IC can assume the designation (Ops) when a full Command Team is assembled. The Senior Advisor will take over the role of IC and will manage the command-post operation. At no time does this designation mean that the Ops should leave the command post and place themselves around the Hazard Zone. The Ops Section in these instances remains responsible for managing the units in the Hazard Zone, they will remain in the CP, and will still go by the designation of "Command";

### **8.9.2 - Implement the Appropriate Branches When Required**

Rarely on the local level will an incident require most, if not all, of a community's resources (and the neighbor's community as well). These big-time, major incidents can quickly overwhelm Command with multiple S/Ds.

The next subdivision between command and S/Ds is a **Branch**. Branch Officers operate on the coordination level and manage several S/D Supervisors that command assigns to them. (The S/Ds are typically grouped in the standard branches shown above). Command should consider implementing branches when:

- The incident is forecasted as a major event that will eventually need many S/Ds

- The incident has two or more large, distinctive components (e.g., haz-mat, evacuation and medical)
- The incident covers a large geographical area
- Anytime the number of S/Ds starts to overwhelm command

The activation of branches signifies that the incident is going to be split into large, separate pieces. Each Branch should operate on its own radio channel when managing and directing the activities of S/D Supervisors. Branch Officers will communicate with Command on a separate radio channel designated by the IC. The radio designation of Branch Officers should reflect the function or geographic area of the Branch.

When Command implements Branch Officers the IC will assign a separate radio channel (not the tactical channel) for communications within the Branch. S/D Supervisors should be notified by Command of their new supervisor. This information should include:

- What Branch the S/D's is now assigned to.
- The radio channel the branch (and S/D's) is operating on.

Branch Officers operate in forward positions. They should utilize a Command Officer's vehicle as a forward Branch Command Post (when feasible). In these situations, Command must assign Officers in the Command Post to monitor each Branch radio channel.

Branch Officers are not limited to Operations. Any of the Section Officers may implement Branches within their individual sections as needed.

### **8.10 - Provide Rehab, Rotation & Relief for the IC & Command Staff**

This should be a regular part of extended operations. The IC, Command Team, S/D Supervisors, Section Chiefs and everyone else operating at the incident scene will need periodic rehab, rotation and relief during the course of the incident.

Extended fire-incident operations are generally slower-moving, defensive events. During these types of operations, where no one operates within a Hazard Zone, a well-supported IC may be able to stay in command for several hours. Incidents that last many hours or days require some type of rotational roster requires for the cycling of companies in and out of incident operations as well as the command staff required to control operations.

### **8.11 - Reduce the Command Structure as Part of the Ending Stages of Incident Operations**

We use the same system to conclude incident operations that we use to expand the command structure for escalating events. As we complete the tactical priorities, obtain PARs and wrap up incident operations, the IC needs to develop a plan for the closing phases. At this point, the IC needs to get out of the command post and tour the incident site. During this "walk about," the IC gets a firsthand look at the incident scene, talks with crews, decides what remains to be done and formulates a plan for scaling back the operation.

The command transfer is generally accomplished by transferring command back to an officer of a unit who will remain on the scene until the event is complete.

### **8.12 - Ensure that an Adequate Critique Process is Underway Before De-Commitment**

The critique process is how we figure out what went well and what we could have done better. This is a key piece of the action-management cycle—develop SOPs, training, application, critique and revision. Revision (and improvement) is only possible if we conduct regular critiques.

Small-scale incidents generally end pretty quickly. This facilitates conducting the critique prior to everyone leaving the scene. The IC should lead this process and base the critique on the department's SOPs, the incident conditions upon arrival (critical factors), the actions taken, communications and the overall incident outcome.

It is more difficult to conduct on-scene critiques at incidents that require large amounts of resources. These events tend to last longer, and the initial-arriving companies have often times been released from the scene by the time the operation ends. These incidents should be critiqued at a later date and the lessons learned distributed throughout the entire department.

The most important goal of any critique, regardless of the incident size, is to improve our operations. Any significant lessons learned, both good and bad, should be shared with the rest of the organization. These lessons learned should be incorporated into department SOP's and training.

### **8.13 - Place Resources Back into Service with a Demobilization Plan**

The IC's demobilization plan should begin with replacing the most fatigued companies first. If it will take some length of time to get these ready for service, they can remain unavailable until they get their rig restocked (hose loaded, fluids topped off, tools and equipment restocked, etc.).

For large-scale incidents where lots of units will be going back into service, the IC needs to ensure that the correct number and type of units will remain on scene until all the incident's needs have been met. This includes making sure the customer(s) have any needed after-incident support (Red Cross, social services, insurance company, family support, etc.).

### **8.14 - Provide Required Critical Incident Support**

Incidents that involve trauma, death and loss can be very difficult on responders. The critique offers an excellent forum for the IC to sit down with all the incident players to find out how well they are coping with the event.

The post incident review with your boss and co-workers to help make sense of what just happened can be therapeutic. The IC needs to use this time to make sure that everyone is stable, both physically and mentally, before placing them back into service.

The best critical incident support happens before we respond to emotionally charged incidents. Working for an organization that cares about its members is the best preventive medicine. The organization shows its regard for the members in everything it does. The main areas include:

1. How the bosses treat the workers
2. How the workers treat one another
3. How everyone treats the customer
4. The training and skill level of the workers
5. The apparatus and equipment (is it adequate?)

6. The systems (IMS, safety, accountability, etc.) that we use when we deliver service

Running an organization in a manner where the members and the customers (our work) come first is worth much more than a hospital full of mental-health professionals when it comes to taking care of people and keeping them mentally fit.

**Special thanks and credit to:**

**Alan Brunacini – ASU 1972 & 1975**

**Nick Brunacini**

**John Brunacini**

**Fire Command 2<sup>nd</sup> edition**

**Command Safety**

**Fire Command Instructor Guide**

**Blue Card On-line Training Program**

**Phoenix Fire Dept, AZ**

**Clay Fire Territory, IN**

**UL-FSRI**

**NIST**



## Section 1

# Managing Maydays

All Maydays are not created equally nor are the conditions in which they occur. Each Mayday will come with its own unique set of critical factors. The IC must use the same critical factor-based command system to manage a Mayday that is used to manage all of our other IDLH Hazard Zone activity (Blue Card).



The best way to run a Mayday incident is to operate in a manner that eliminates them from occurring in the first place. This is done by:

- Following all SOP's
- Having all initial and subsequent alarms dispatched with enough task, tactical, and strategic level resources to:
  - Control the problem
  - Manage the work rest cycle
  - Maintain a tactical reserve (3 deep)
  - Embed safety operations as required (Division Supervision/Entry Control)
  - Support the IC as required
- Performing a thorough size-up and always operating in the correct strategy
- Putting water on the fire as safely and as quickly as possible (**PUT THE FIRE OUT!**)
- Covering all key tactical positions (around the 7 sides of the fire) as early as possible
- Managing air supplies so that all members always exit the Hazard Zone with at least a 33% air reserve

The #1 way to prevent Maydays from happening is for the IC to always operate in the correct strategy based on the current critical factors of the incident. "Strategic Maydays", caused by personnel operating in offensive positions during defensive fire conditions, are generally more severe in scope and nature and are very hard to recover from.

On the other hand, Maydays that occur during offensive fire conditions are generally much less severe in their scope and nature. Maydays that occur under offensive fire conditions also give the IC and the rest of the team enough time to react to resolve the firefighter emergency.

Always operating in the correct strategy eliminates Maydays and it is the tool the IC uses to maintain safe and effective incident operations.

## **General Mayday Guidelines**

### **Mayday Defined**

A Mayday is defined as: Anytime a firefighter cannot safely exit an IDLH Hazard Zone.

A Mayday will also be declared for any unit operating inside of an IDLH Hazard Zone who does not answer their portable radio after 3 attempts.

### **Declaring a Mayday**

Maydays must be declared/transmitted as soon as the person or crew(s) affected knows that they cannot safely exit an IDLH Hazard Zone. This is especially true for a person or crew who are experiencing a Mayday with a diminished air supply. The sooner the Mayday is transmitted, the sooner the IC and operating crews can react to resolve the Mayday.

### **Resources**

Resource becomes a big critical factor in managing any Mayday. The Mayday emergency traffic report to the Dispatch Center should include a resource determination that can adequately address the Mayday as well as all of the other critical factors that are occurring at the incident site. Mayday dispatch protocols that are “pre-determined” and are automatically initiated on the declaration of a Mayday will greatly assist the IC in getting these additional resources to the scene as quickly as possible.

Based on the Mayday CAN report, the IC will need to get the proper EMS resources deployed to the scene to treat and transport any injured firefighters. These units should be deployed to the Warm Zone of the incident scene where the Mayday firefighter(s) will be exiting the structure. This facilitates the treatment of the firefighter(s) as soon as they exit. Prior to the Mayday firefighter(s) exiting the structure, EMS crews need to be far enough away from the entry point, so they do not interfere with the rescue operation. Cross-trained EMS/Fire units assigned EMS responsibilities on a Mayday incident must avoid becoming part of the rescue operation.

### **Fire Control**

Controlling and extinguishing the fire gives the entire team the time needed to resolve the Mayday. IC's and S/D Supervisors must address and coordinate controlling the fire if any active fire exists during a Mayday. Operating interior crews that are actively addressing fire control when a Mayday occurs should continue with their fire control efforts. **Put the fire out!**

### **Communications**

All Hazard Zone operations and Mayday operations will remain on the same tactical channel when a Mayday has been declared. This connects all Hazard Zone companies to the Mayday operation and it also helps the IC and/or S/D Supervisors facilitate the “Help Order” (covered later in the SOP).

A “NO-PAR” policy will be in effect once a Mayday has been transmitted. This means that unless an operating Unit DOES NOT have a PAR, PAR information is NOT to be transmitted over the tactical channel. This policy greatly reduces the amount of radio traffic transmitted in the first few minutes of a Mayday and it allows the IC the airtime needed to react to the Mayday traffic.

Some types of Maydays (collapses, extreme fire behavior, etc.) will require the IC to perform a roll call to determine the scope of the problem and what Units were affected by the conditions. Roll calls must be driven by the IC. This will greatly reduce the confusion and the time it takes to obtain PAR’s on all IDLH units. When performing a roll call, the IC should announce to all Units that a roll call is going to commence and to stand-by to be counted off.

All operating units will maintain radio silence once a Mayday has been transmitted. All operating units will ONLY transmit Mayday announcements (you’re having a Mayday), Priority traffic, and status change reports during a Mayday.

Mayday CAN reporting becomes very critical when declaring a Mayday. The sender must be very specific on the NEEDS required to help resolve the Mayday. Always base Mayday actions on the NEEDS given in the Mayday CAN report. This will prevent everybody on the incident scene from over-reacting when there is a report of a Mayday.

### **Deployment of On-Deck Units as RIC Crews**

IC’s and/or S/D Supervisors MUST NOT flood the interior with On-Deck companies acting as RIC crews after a Mayday has been declared. On-Deck crews where no tactical level Supervisor is assigned MUST NOT self-deploy into the Hazard Zone unless ordered to by the IC. The IC must revise the existing IAP to include the Mayday. All future assignments must consider the NEEDS given in the Mayday CAN report.

On-Deck crews acting as RIC crews must equip themselves with any required equipment based on the Mayday CAN report prior to making entry. Crews calling the Mayday should include any equipment and personnel requirements as part of the Mayday CAN report. RIC crews prematurely deploying into the Hazard Zone without the proper equipment needed to help solve the Mayday will lengthen the rescue time, it creates more radio traffic, and it adds to the potential of having additional Maydays occur during the rescue operation. On-Deck crews must properly equip themselves, have a rescue plan, and be ordered into the Hazard Zone by the IC and/or S/D Supervisors before making entry.

### **Air Supply**

Managing air supplies is a major IAP consideration during Mayday operations. This includes the air supply of the Mayday firefighter(s) as well as the air supplies of any other unit(s) assigned into the Hazard Zone.

Most air supply Maydays that occur after the original Mayday, come from units who were assigned to Mayday RIC duties after the Mayday was declared. While previously assigned unit(s) are in the best position to quickly start addressing the Mayday, but because these units were already on air, any rescue situation that is not quickly resolved, will require these units to exit and be back-filled with other rescue companies before their air supplies are compromised.



Any unconscious or downed Mayday firefighter (unable to move on their own power or assist in the rescue in any way) will require extra time and resources to remove them from the Hazard Zone. Many times, Maydays of this nature will require the rescue to be performed in stages:

- Locate the firefighter(s)
- Air trans filling
- Packaging
- Extrication of the firefighter(s) from the Hazard Zone

IC's and S/D Supervisors must be prepared to deploy RIC crews in the stages that are needed, based on the air limitations of the rescue workers. RIC companies should be given clear, realistic goals that don't compromise their air supplies or create additional Maydays.

### **The Help Order**

Mayday studies and national statistics show that approx. 80% of Maydays are resolved by:

- The firefighter having the Mayday performs self-rescue
- The firefighter's own crew members perform the rescue
- Another company already working in the Hazard Zone performs the rescue
- Or a combination of all three of the above

Based on this information and the natural reactions of other firefighters working in and around the Hazard Zone to come to the immediate aid of firefighters who are in trouble, the IC and the rest of the Command Team will utilize the "Help Order" during a Mayday operation.

The Help Order is the order in which an IC or a S/D Supervisor will try to assist a firefighter who is experiencing a Mayday. This order is:

1. Communicating to a lost firefighter self-rescue technique to assist with the rescue
2. Using a Mayday firefighter(s) own company to assist with the rescue
3. Using a company already located inside of the Hazard Zone to assist with the rescue
4. Using an On-Deck company located outside of the Hazard Zone as a RIC crew

1.) A lost firefighter who is able to talk on a portable radio should be able to provide a standard Mayday CAN report (covered later in the SOP). The IC should acknowledge the Mayday CAN report and respond back with the following to the Mayday firefighter(s):

- Verbally state to the Mayday firefighter(s); "calm down and control your breathing"
- Maintain radio contact long enough to get a sufficient amount of information in order to implement an adequate rescue IAP
- Have them activate their PASS unit (shut the PASS unit off when talking on the radio)
- Mayday firefighter(s) may be difficult to clear/communicate with once they have activated their PASS unit

2 & 3.) When communicating with a Mayday firefighter's own crew or with another crew who can assist with the rescue, the IC or S/D Supervisor must consider 3 things when using the Help Order:

- a) The air limitations of the interior working crews
- b) The possibility of interior crews lacking the tools required to make the rescue
- c) The fire control efforts required to maintain interior tenability - other operating interior crews that are actively addressing fire control when a Mayday occurs should continue with their fire control efforts. Put the fire out!

4.) When deploying On-Deck crews as RIC crews, they must properly equip themselves, have a rescue plan, and be ordered into the Hazard Zone by the IC or S/D Supervisor before making entry. Outside On-Deck crews that are deployed to perform rescue activities should always bring the air transfill equipment along with any other equipment needed to solve the Mayday.

### Mayday Communication Algorithm

Once a member or Unit determines they cannot safely exit the Hazard Zone, declare a Mayday over the incident's assigned tactical channel by announcing Mayday 3 times



Mayday, Mayday, Mayday



While still keying the microphone, the Mayday FF or Unit will provide a CAN report that includes:

**Who** - The identity of who is having the Mayday. Unit, Unit riding position, or entire name

**What** - Caused the condition(s) of the Mayday

**Where** - Identify your current location/surroundings or your last know location

**Provide** - the NEEDS that will help resolve the Mayday (critical)



IC will provide any necessary self-help information required to the Mayday firefighter or Unit



If required, quickly make any necessary Unit deployment(s) to start addressing the Mayday



Contact the Dispatch Center and ask for Emergency Traffic Tones (critical)



- After the Emergency Traffic Tones have been transmitted – transmit:
- Brief Mayday update that includes the who, what, and where of the Mayday
  - Tell all units operating at the scene to maintain radio silence
  - Request any additional resources that are required to completely resolve the Mayday



Dispatch Center will repeat the Emergency Traffic report using the Order Model



The IC will then manage the Mayday based on the NEEDS report given in the Mayday CAN report, or they will push the management of the Mayday down to the S/D Supervisor who is having the Mayday in their S/D

## **Mayday Operational Guidelines (Task, Tactical, & Strategic Levels)**

### ***Task/Company/Firefighter level Mayday responsibilities***

Firefighter or interior Unit having the Mayday must:

- Call for a Mayday as soon as you realize you cannot safely exit the Hazard Zone
- Declare a Mayday (x's 3) to ensure priority radio traffic, DO NOT un-key the microphone
- Give a CAN report that includes:
  - Who - your identity – Unit, Unit riding position, or entire name
  - What – caused the condition(s) of the Mayday
  - Where - identify your current location/surroundings or your last know location
  - NEEDS – the needs that will help resolve the Mayday (critical)
- Calm down and begin self-help/self-rescue techniques
- Conserve your air
- Activate your PASS unit if appropriate
- Maintain radio contact with the IC or the S/D Supervisor as required

Other Companies operating in the Hazard Zone during a Mayday must:

- Maintain radio silence
- Mayday announcements, Priority traffic and status reports ONLY
- Be prepared to assist with the rescue if you are able to do so
- Interior crews that are actively addressing fire control when a Mayday occurs should continue with their fire control efforts. Put the fire out!

### ***Tactical level Mayday responsibilities (if in place)***

A S/D Supervisor that is in place at the entry point when a Mayday occurs in their S/D must perform the following:

- Take strong control of entry point
- Resource assessment in the S/D
- Request enough resources to get the job done
- Support the fire fight when necessary – Put the fire out!
- Consider the critical factors in the S/D
- Develop the S/D's rescue IAP
- Utilize the Help Order when possible
- DO NOT flood the interior with resource
- Organize, properly equip, and brief On Deck Units before deployment
- Clear, realistic objectives to the rescue teams
- Implement, assess, and reinforce the rescue efforts as required in the S/D

### ***Strategic level Mayday responsibilities***

When a Mayday is declared on the fireground, the IC must:

- Confirm the critical factors – the risk management plan – and the overall strategy
- Take STRONG control of the communications process
- Follow the Mayday communication algorithm
- Change the IAP to high priority rescue effort
- A No Par policy will take effect
- Assign BCs (i.e. Warm Zone Supervisors) into S/Ds if not already assigned
- Coordinate and support the rescue efforts with the S/Ds as required
- Expand the command organization
- Support the fire fight when necessary – Put the fire out!
- Provide the required support work
- Establish Treatment
- Consider the medical and technical requirements for the rescue

If there are S/D Supervisors in place when a Mayday is declared on the incident, once the IC has completed the Mayday communication algorithm, their next action should be to push control of the rescue operation down to the S/D Supervisor where the Mayday is occurring. The S/D Supervisor is in the best position to manage the rescue activities that need to take place in the S/D to resolve the Mayday. The IC is then in the best position to coordinate and support the rescue, firefighting, and treatment efforts with the other S/Ds and Units as required by the incident's critical factors.

If there are no tactical level S/D Supervisors in place when a Mayday is declared on the incident scene, the IC must continue to manage the entire tactical rescue effort required to resolve the Mayday after completing the Mayday communication algorithm.

On-Deck companies must use great discipline when there is no S/D Supervisor in place during a Mayday. On-Deck crews must properly equip themselves, have a rescue plan, and be ordered into the Hazard Zone by the IC before making entry.

The IC should assign S/D responsibilities as soon as possible into the event (when none are in place when the Mayday is declared). This could be a subsequent arriving chief officer, safety officer, or a company officer that will operate at the entry point of the S/D. Once assigned, quickly brief the S/D Supervisor on the details of the Mayday and have them continue to manage the Mayday directly in their assigned S/D.

### **Clearing Mayday operations**

Once all effected firefighters have been removed from the Hazard Zone, the IC must ensure that they are handed over to treatment and there are enough resources on-scene or responding to adequately treat and transport all of the injured firefighters. Many times, in EMS/Fire cross-trained departments, the rescue workers will be required to help treat the injured firefighter(s) once they have been extricated.

After all Mayday firefighters have been extricated from the structure, the IC will have to use the Strategic Decision-Making Model to formulate a new strategy and IAP. IC's should be very pessimistic when continuing to conduct offensive operations in a building that just hosted a Mayday.

Resources available for suppression or overhaul activities must be balanced with the resources required to treat and transport all effected firefighters.

The suitability of personnel to continue to work in IDLH atmospheres will be directly impacted by the severity of the Mayday. Company and Command Officers must evaluate the mental and physical wellness of any deployed member working on the Mayday prior to sending them back to work on the incident's problems. In some instances, the IC may be required to assess crews using Peer Team members. The status of crews being formally assessed after a Mayday (or any other incident requiring mental health intervention) should be considered "out of service".

Once the Mayday(s) have been controlled and there is adequate treatment under way, the IC should contact the Alarm room/Dispatch center and clear the Mayday radio traffic. This announcement should include:

- A brief Mayday conclusion report
- The strategy and IAP for the next operational period in the incident
- Resource determination

Example: "Alarm from Command – The Mayday firefighter has been extricated from the building and is currently in treatment for fall injuries. I'm clearing the Mayday radio traffic at 456 Main St. All units resume normal radio traffic. We will remain in the offensive strategy; we have primary and secondary all-clears and fire control in the fire structure. On-scene units will continue to overhaul and perform loss control. I am holding the current assignment" - Order Model



# Section 2

## Managing Multi-Patient EMS Incidents

The purpose of the Blue Card EMS SOP is to integrate and manage a multi-patient EMS incident within the framework of the Blue Card incident management system. This SOP is designed to manage the local, every day, multi-patient incidents that represent over 99% of our routine activity. This is NOT a mass casualty (MCI) SOP.

The number of patients that defines the difference between a multi-patient events vs. an MCI event is based on the local EMS resource profile of the agency(s) involved and their ability to treat and transport multiple pts without being overwhelmed.

This procedure is intended for a **Multi-Patient EMS Incident** involving up to 6 to 8 seriously injured pts. While the same basic organization and command principles outlined in this SOP will apply to both multi-patient and mass casualty incidents, managing an IC's span of control as the pt. count continues to rise; requires more resource, expanded incident organizations, and more command post support.

The EMS SOP is the first Blue Card procedure that manages an event where all of the incident activities are likely to occur outside of an IDLH environment. Because of this, many of the Blue

Card mandatory IDLH safety systems are not implemented on an EMS scene. However, the same command system must be applied to the overall incident scene and the IC remains responsible for performing the 8 functions of command.

Major differences for an IC managing a multi-patient incident vs. running a structure fire using Blue Card are:

IC Considerations	Structure Fire Incident	Multi-Patient EMS Incident
Overall Incident Stabilization Goal	Put water on the fire as quickly and as safely as possible	Treatment and Transporting all pt.'s to a treatment facility as quickly and as safely as possible
Organization	Divisions only used in IDLH	Groups are used
Tactical Priorities	Offensive strategy: Fire Control, Life Safety, Loss Control	Triage, Extrication, Treatment, Transportation
Attack Position Management & Apparatus Placement	Forward Pumper anchored with a water supply and placed in a manner that puts water on the fire as quickly and safely as possible	Units are placed for scene protection, Ambulance avenue for safe access to the scene and the safe transportation of all pt.'s
Resource Management	Based on the Hazard Zone work/rest cycle task math vs. the incident's problems	Based on the number and severity of the pts involved and the number of agencies required to safely treat and transport all pts
Communications	Radio Discipline Procedures	Mostly Face – to – Face
Work / Rest Cycles	12 minute IDLH work/rest cycles apply	Work cycle drastically increased based on PPE requirements

The 8 Functions of Command will be used to describe the operational differences of managing an EMS incident vs. a structure fire.

### Function 1 - Deployment

The major goal of the local dispatch center is to dispatch the appropriate amount and type of resource(s) to the scene of an emergency immediately after the receipt of the appropriate information.

The call taker must make an initial determination of the appropriate Nature Code, based on the information received from the caller.

All dispatched resource should be dispatched using pre-determined dispatch packages. These standard dispatch packages should also include the command and tactical support required to manage the different amounts and types of resource responding.

Additional EMS alarms or box requests from the IC should also come in the form of pre-determined dispatch packages. This takes a great deal of stress off of the IC when calling for additional resource and it will also greatly reduce the overall amount of incident radio traffic.

### Standard EMS Dispatch Packages

EMS systems across the country vary widely from one another. Predetermined EMS dispatch packages should be based on the overall EMS resource levels of:



- Local FD(s) resources
- Transportation ambulance options (dept., private, helicopters)
- Local extrication capabilities
- Responders medical capabilities (1<sup>st</sup> Responder, EMT, I-EMT, PM, Nurse, Physician)
- Privately based EMS providers
- Hospital based EMS providers
- Hospital locations and their treatment capabilities

All resource packages/alarms must consider and provide the built-in organizational support for IC's to maintain an effective span of control. 1st Alarm/Box EMS dispatches should include a sufficient amount of resource to initiate the incident operation without overwhelming an IC's ability to manage and track them. For an EMS incident, this would be approximately 6 to 8 units.

Subsequent Alarms dispatched to EMS incidents should include the appropriate number of managers (Chief's/Safety Officers/Medical supervision) to safely complete the incident's tactical priorities while properly supporting the IC.

### **Multi-patient medical resource dispatch guidelines**

Dispatch/Alarm will dispatch an assignment to multi-patient medical incidents according to the reported scale and severity of the situation. The assignment will be upgraded by Command, as necessary, based on the actual situation encountered.

#### Medic Units (ALS) – Ambulances (BLS)

- Dispatch Fire Department Medic Units/Ambulances to the staging location. This location shall be designated by Command and should provide the best access to and from the incident scene.
- Dispatch private/mutual aid/automatic aid Medic Units/Ambulances as required
- Determine ETA and number of Medic Units/Ambulances available
- Advise Command of number of Medic Units/Ambulances responding
- If necessary, activate reserve Fire Department Medic Units/Ambulances

#### Helicopters (ALS transport)

- Place any available medical helicopters on stand-by
- Determine number and availability to respond
- Dispatch as requested by Command
- Advise the helicopter crew and the IC of the designated radio channel for Landing Zone coordination

#### Buses

- Ask Command if buses are needed
- All buses should be dispatched to the Level 2 Staging area

### **EMS-Hospital liaison responsibilities**

Dispatch/Alarm should be responsible for notifying and activating other agencies, including hospitals, to provide the needed support for management of the incident. These responsibilities can be delegated to another person who is on the scene and working with the IC and/or the Transportation group supervisor. These responsibilities include:

- Determine approximate number and triage classification of patients
- Place medical helicopters on stand-by if necessary
- Contact Level 1 hospitals when requested by Command. Advise the hospital(s) of the situation, location, and number of patients involved
- Determine the hospital(s) current ability to receive patients
- Communicate hospital availability to Command or Transportation
- Dispatch rescues and helicopters as requested by Command
- Managing hospital notifications
- Call all Level 1 hospitals and specialty hospitals first
- Call Level 2 facilities according to their geographic proximity to scene
- Level 1 and 2 medical facilities should be notified according to their specific categories as they relate to the incident (i.e., trauma, burns, pediatric, poisoning, etc.)
- Advise the hospital(s) and/emergency centers of the situation, location and the approximate number of patients involved
- Determine the number and types of pts each hospital can receive
- Advise the IC or Transportation supervisor when ready to receive hospital availability information
- When the IC or Transportation supervisor advises that all patients have been transported, confirm the number of patients sent to each hospital. Advise each notified hospital of the total patients transported or enroute, including those that did not receive any patients, and that no more patients are expected to be transported

Alarm Room/Dispatch should provide the IC with 10-minute elapsed time notifications. These notifications are made to make responders aware of how critical pts fit into the “Golden Hour” of arriving to the appropriate treatment facility(s).

### **Level 1 Staging**

The first arriving company will respond directly to the scene, as well as the first paramedic unit (this could be the same unit), first ladder, first chief officer, and first medic/ambulance unit. All other companies will use Level I staging upon their arrival.

Companies need to determine their Level 1 Staging location based on access into the incident scene. Under grid lock traffic situations, the IC should announce the best staging location(s) that

will provide the quickest response to the incident scene. In some instances, these locations will be located downstream from the incident site.

## **Level 2 Staging**

Level 2 Staging becomes critical on multiple-patient incidents, especially when there are multiple agencies involved in the incident. A Level 2 Staging location should be identified as early as possible in the incident.

All outside agencies dispatched to a medical incident should be sent to a Level 2 Staging area that is designated by the IC. This area should be a sufficient distance away from the incident site that keeps the scene clear and maintains good access to the incident site. The Level 2 Staging Manager will assign units as directed by Command or Transportation.

## **EMS Accountability guidelines**

Although Units will not be working in an IDLH atmosphere, the IC is still responsible for tracking all resources assigned to the incident scene. General EMS accountability guidelines:

- The IC will use a tactical worksheet to track resources and the incident's patients
- Group supervisors can use a tactical worksheet or passports to manage accountability in their assigned group. Using a tactical worksheet allows group supervisors the ability to track assigned Units as well as the patients assigned to the group
- Task level Units that are already in place and working when a group supervisor is assigned should report to the supervisor face-to-face and provide an update on work progress and needs
- Task level Units assigned to a group with a supervisor already in place will need to report to their group supervisor face-to-face when arriving at the work location
- Group supervisors should contact Units at their staging location as soon as they are assigned to them and advise them what equipment/apparatus is needed at the work location
- Because the work/rest cycle is so improved working in a non IDLH environment, resource commitments typically follow the same path as the patients, until all pts have been transported (workers go from triage to extrication, extrication to treatment, treatment to transportation for pt. loading)
- This type of Unit movement through the different EMS groups requires a high amount of accountability coordination between the different group supervisors and the IC

## **Function 2 - Assume, Confirm, and Position Command**

The first Unit or member to arrive at the scene of a multi-unit dispatched incident will assume command of the incident by transmitting a standard Initial Radio Report (IRR), (Function 5 – Communications).

There are three command positions that a Company Officer can place themselves in, depending on the situation. These three command positions are:

- Investigating Command position

- Fast-Attacking Command position
- Strategic Command position - Stationary, inside of a Command Post (CP)

Most multi-patient EMS incidents are the result of vehicle accidents. A first arriving, 3-4-person company will typically have the officer of the Unit assume a “fast-attacking” command position. The IRR will be delivered from the cab of the apparatus, the officer will then dismount and will operate as the IC using a portable radio while assisting their crew with triage and obtaining an overall pt. count.

The follow-up report on an EMS incident usually includes the triage report, an updated resource determination, designated staging location(s), and any important information concerning access to the scene (Function 5 – Communications).

On any incident that involves more than 3 to 4 immediate pts, Command should be transferred to a standard command post as soon as possible in the incident.

After completing the triage report, a fast attacking IC will need to determine if they should continue to operate in the fast attacking command position or make a transition back to the apparatus and assume a stationary, remote, command position. This decision should be based on:

- How many pts are there?
- What are their treatment priorities?
- Will overall pt. care suffer if you don’t engage in treatment?
- Will overall pt. care suffer if you don’t tightly manage the front-end deployment of the incident, actually improving overall pt. care and outcomes?
- Are you a Paramedic IC or an EMT IC?
- Local resource and response profile – how many more units will arrive before the first response chief arrives to the scene and transfers command? If it’s several, you should assume a command position

### Function 3 – Situation Evaluation

The information-management phase, known as *size-up*, involves the systematic, yet rapid and deliberate consideration of all the incident’s significant critical incident factors.

Standard conditions are identified as the incident’s **Critical Factors**. For Multi-patient EMS incidents, there are 7 standard categories that the IC will need to consider:

#### Incident trigger

- Vehicle accident
- Hazardous material exposure
- Poisoning
- Environmental
- Structural collapse
- Explosion (structural FF safety rules may apply to certain areas of the incident)
- Shootings/stabbings/human violence/riot

## **Pt. environment**

- Are there any pts exposed to any immediate danger?
- Are the rescuers exposed to any immediate danger delivering pt. care?
- What is the scope/size of the impact area/environment?
- Are there any pts trapped in a; car, bus, semi, train, plane, pipe, silo, machinery, debris, collapse, etc.?
- Pts located in difficult topography (on mountains, ditches, steep grades, ravines, in water, etc.)?
- How much resource and equipment will be required to extricate all pts from their current environment and deliver them to a treatment/transportation area?

## **Arrangement**

- Apparatus/ambulance/EMS personnel ability to access the actual pt. location
- Access and arrangement to and from the incident scene
- Traffic conditions around the incident scene
- Identifying the best locations for Level 1 and Level 2 Staging
- Unit travel times from staging to work/pt. locations
- Pt travel times from extrication to the treatment area
- Pt travel times from the treatment area to the transportation area
- Pt transport times from the scene to the local hospital(s)

## **Life safety**

- As quickly as possible, remove patients from any immediate danger or protect them in place (patients requiring extrication)
- Triage of all patients involved
- Obtain an accurate patient count and the level of pt. care required
- Determine the appropriate level of resources required to extricate, treat and transport all patients involved based on the number of patients and the severity/nature of their injuries
- Extrication of all patients to a treatment area (or casualty collection point)
- Deliver the appropriate level of treatment to all patients involved
- Transportation of all patients to the closest appropriate medical facility to continue care

## **Resources**

- Staffing and equipment on scene
- Staffing and equipment responding
- Staffing and equipment available in reserve
- EMS capabilities of responding personnel
- Pt. transport capabilities of the responding agencies
- Extrication capabilities of the responding personnel
- Estimate of response times for personnel and equipment
- Local hospital medical control

- Hospital locations and treatment capabilities
- Law enforcement required to help manage/maintain/document the scene
- Managing other agencies as required; tow trucks, DEQ, Red Cross, media, etc.

### **Action**

- Effect current action is having
- Things that need to be done
- Stage of operation (triage, extrication, treatment, transportation)
- Is there an effective organization in place?
- Has the IC forecasted effectively?
- Are there enough resources and qualified medical personnel on-scene and/or responding (EMT, I-EMT, PM's, apparatus/equipment, and tactical/command support)?
- Have hospital notifications been made?
- Are the troops operating safely?
- Is there a safety plan/organization in place that can react in case someone gets in to trouble?

### **Special circumstances**

- Time of day/night (critical on how it effects traffic conditions and transport times)
- Day of week
- Season
- Special hazards by virtue of holidays and special events
- Weather (wind, rain, snow, heat, cold, humidity, visibility)

## **Function 4 – Strategy and Incident Action Planning (IAP)**

### **Determine the overall incident Strategy**

An IC properly managing the incident's strategy has the #1 – GREATEST overall impact on responder safety.

Overall operational strategy is divided into only two categories: Offensive or Defensive.

- Offensive operations are conducted inside of a Hazard Zone
- Defensive operations are conducted outside of the Hazard Zone - in safe locations

Because the great majority of multi-patient EMS incidents occur in a non-IDLH environment, the incident strategy will be offensive a great majority of the time. The level of PPE worn by the responders will be driven by the specific incident hazards.

Any incident with any offensive activity that occurs in an IDLH Hazard Zone will be managed with the same Blue Card structural firefighting/IDLH firefighter safety requirements (standard company work cycle, entry control, tactical level supervision, etc.).

### **Multi-patient Incident Action Planning**

A standard multi-patient IAP includes:

- Protecting the incident scene
- Immediately removing any endangered occupants from the incident's hazard(s) (or remove/eliminate the hazard(s) while protecting in place)
- Ensure the function of triage is performed
- Obtain an accurate pt. count that includes pt. treatment and transportation priorities
- Ensure the function of extrication is performed
- Ensure the function of treatment is performed
- Ensure that all pts are transported to closest/appropriate hospital or treatment facility

### **Protect the incident scene**

The IC's primary responsibility on any incident is to provide for the safety, accountability and welfare of rescue personnel and patients.

The IC must manage apparatus placement at the scene of emergencies in a manner that best protects the work area and personnel from vehicle traffic and other hazards.

The IC must also manage apparatus placement in a manner that not only protects personnel working at the incident site, but always maintains a lane (or avenue) for ambulances to safely access the scene and then safely transport pt.'s to the appropriate medical facility.

All personnel must be highly aware of the dangers of working in areas with moving vehicle traffic (this includes FD/EMS vehicle movements). Apparatus should be parked in a manner that protects the incident scene from traffic. Always consider moving vehicles as a threat to personnel safety.

*A future Blue Card SOP will address; general vehicle response guidelines, freeway response and interacting with DPS guidelines, EMS apparatus placement, tow truck guidelines, and managing a helicopter landing zone.*

### **General EMS scene safety guidelines**

At least 1 FF must be in full PPE, including SCBA on (face piece off, but immediately available) with a charged hoseline for any incident scene that has the following conditions:

- Moderate to severe vehicle accidents with any potential for combustion
- Any vehicle accident with any serious fluid leaks
- Any vehicle accident that requires any kind of extrication or power tools to be used

On incidents where pts are located in area(s) with serious fuel leaks, or other potentially hazardous conditions, the following guidelines should be followed:

- The IC shall manage this area as an IDLH atmosphere
- All personnel working in the area shall be in full PPE
- Covering fuel spills with Class B foam should be implemented as soon as possible
- Initial actions of the rescuers shall be to extricate all pts in the contaminated area to a safe treatment area and then decontaminate the workers and pts as soon as possible
- Continue to contain and foam the spill area as necessary

As stated earlier, most multi-patient responses do not occur in an IDLH environment.

The IC must size-up the incident scene and manage the level of personal protection that the incident requires, while always keeping in mind; delivering ALS treatment is severely hampered when wearing full thermal PPE and it should be avoided whenever possible. If the event/impact area containing the pts has any IDLH environment (or the potential to become IDLH) the IC's main priority must be extricating all pts involved to a treatment area that is safe from all of the incident's hazards.

### **EMS Tactical Priorities**

The tactical priorities that an IC must manage for a multi-patient incident are:

- Triage
- Extrication
- Treatment
- Transportation

The IC will manage these tactical priorities by assigning Group supervisor responsibilities for each separate function/tactical priority as the incident requires.

Additional S/D/G's may be assigned depending on the situation, consistent with the Blue Card Incident Management System.

The IC must manage completing 2 of the most important EMS incident benchmarks:

1. Triage completed with an accurate pt. count with treatment priorities identified (Immediate, Delayed, Minor)
2. The transport of all Immediate pts

### **Triage**

The purpose of triage is to categorize patients based on the severity of their injuries, prioritize their need for treatment and transportation, and to stabilize life-threatening injuries before additional resources arrive on-scene.

If a formal triage system (triage tags) is utilized, triage should generally be performed before patients are extricated from their environment/impact area (this decision is typically based on the level of hazard the patients rescuers are exposed to).

Units assigned to Triage must ensure that patient triage is done within standard operating procedures. There are many different triage systems used around the globe. The most predominant triage system used in the U.S. is the S.T.A.R.T. (Simple Triage And Rapid Treatment) triage system. The S.T.A.R.T. triage system uses the following terms to describe the severity of injury/illness of the pts involved and the order in which pts should be treated and transported:

- Immediate



- Delayed
- Minor
- Deceased

Unit(s) assigned to Triage should provide Command with a "Triage Report" as soon as possible after triage is completed. The triage report gives the IC the critical information necessary to make an accurate resource assessment and hospital notifications. The initial triage report should come sooner than later. It is preferable for the IC to estimate this number if a thorough triage of the incident scene will be delayed.

For most multi-patient vehicle accidents, a company officer and his/her crew can adequately triage the incident scene. As the pts counts rises, or if the incident covers a large geographic area, the IC will need to assign triage teams and a Triage Group supervisor as the incident requires.

Many triage systems have a set of associated tags and/or stickers that identify the pts involved along with their treatment priority. When using this type of triage system, the tags reporting the pts treatment priority will need to be given to the IC or the Transportation Group supervisor to assist tracking pts through the different phases of the incident.

Minor pts (walking wounded) should be grouped together and assembled at a safe location close to the incident site. A member or Unit working with Triage or Extrication should stay with the Minor group of pts until their needs can be assessed and/or addressed after all Immediate and Delayed pts have been transported.

## **Extrication**

The purpose of Extrication is to physically extricate pts (using tools when necessary) from their current environment and to transport them (using backboards, stokes, gurney's, etc.) to an appropriately located treatment area. The IC is responsible to assign extrication teams and an Extrication Group supervisor as the incident requires.

Extrication teams using any kind of extrication equipment or power tools in the process to extricate pts must be dressed in the appropriate level of PPE and be protected with a charged hoseline.

Units assigned to Extrication usually work in close contact with both Triage and Treatment (when set up close to the event/impact area). Extrication will report to the IC when all pts have been extricated and delivered to the treatment area.

In many instances (when it is safe to do so) treatment will take place directly inside of the event/impact area. In these instances, Extrication should report to Command that all pts have been extricated and are currently being treated in the event/impact area.

## **Treatment**

The purpose of Treatment is to first determine whether patient treatment will occur in place (inside of the event/impact area) or in a designated treatment area that is safely located as close as possible to the event/impact area. The IC is responsible to assign treatment teams and a Treatment Group supervisor as the incident requires.

A Treatment area should be set-up using the following guidelines:

- Located in a safe location for both the pts and the workers
- Located in a manner that delivers the fastest possible medical care to all pts
- Located in a manner that safely and quickly facilitates the transport of all pts

Generally, a centralized treatment location is preferred as the number of pts rises (over 5 to 6 Immediate pts). The IC (and Treatment) should avoid setting up a treatment area that will require long extrication times from the event/impact area. If this cannot be avoided, Extrication will require a large amount of resource based on the number of pts that need to be extricated and transported to a distant treatment area.

Whenever possible, all resources should be devoted to treating and transporting the most critical patients in their order of severity, working down to the less critical pts, until all pts have been treated and transported.

### **Transportation**

The purpose of Transportation is to manage all of the pt. transportation vehicles required to deliver patients to hospitals and/or other appropriate treatment/care facilities. Transportation is one of the most critical groups on a multi-patient EMS incident. The IC and all other functional groups working at the incident site must always operate in a manner that supports transporting pts from the scene as quickly and as safely as possible.

Transportation should determine, in conjunction with Command and Treatment, the most suitable locations for:

- Staging area(s)
- Pt. loading area(s)
- Routing information to and from the treatment/pt. loading area(s)
- Helicopter landing zone(s)

It is critical that the IC and Transportation coordinate maintaining ambulance access in and out of the scene. All apparatus/ambulances/vehicles that are; placed, parked, spotted, positioned, staged, or are in motion at the incident site must be centered on protecting personnel and maintaining ambulance access in and out of the incident scene.

Transportation communicating directly with the Staging Officer to coordinate ambulance movements from staging to the pt. loading area(s) will greatly streamline and reduce radio transmissions on the incident site.

Transportation will work closely with Dispatch/Alarm on coordinating the following activities. These activities should be delegated to specific person assigned to Transportation and should be performed on a separate radio channel working with Dispatch Center.

- Ambulance availability
- Hospital availability
- Pt. hospital destinations

- ETA's of pt. arrivals to hospitals and their condition
- The landing of helicopters

Transportation must advise the IC:

- When all Immediate pts have been transported
- When all Delayed pts have been transported
- When all pts involved in the incident have been transported

## **Function 5 – Communications**

Effective incident communications provide the very practical connection between and among the 3 management levels of the organization; the strategic, tactical and the task levels. Incident communications are the information “carrier” that the team uses to connect, commit resources, and to create effective, coordinated action.

All EMS incident communications will mirror the Blue Card Hazard Zone standard communication forms. The only changes made to the system is the verbiage we use to manage an EMS incident that is described in this section of the SOP.

### **Order Model**

The Order Model will be used on all incident communications.

### **Initial Radio Report (IRR)**

On multi-patient EMS incidents, the IRR is not an affidavit of absolute accuracy; it's just a quick snapshot of the incident that provides a “word picture” of what the IC can see from their command position when they first arrive on-scene. Much more accurate information on the number of pts and their treatment priority will be given in the follow-up/triage report. A multi-patient EMS incident IRR must include the following reporting elements:

- Clear Alarm, announce your arrival on the scene
- The Incident's exact location
- Description of the event trigger – incident scene
- Estimation of the number of pts involved
- Action being taken – Initial I.A.P.
- Declaration of the strategy
- Resource determination with routing information
- Assuming and naming of Command

### **The Incident's exact location**

It is extremely important to provide the responders and Dispatch/Alarm the exact incident location as early as possible in the incident. This is especially true for multi-patient incidents involving vehicle accidents.

Direction of travel and the event location as it relates to the roadway is extremely important routing information to provide subsequent arriving units.

Example: “E-1 is on the scene on Interstate 10, west bound, ½ mile west of the 59<sup>th</sup> Avenue on ramp, in the 2 right lanes...”

### **Description of the event trigger**

The initial arriving IC will need to describe what triggered the event that caused the multi-patient incident. The following is a list of the most common triggers that create multi-patient incidents:

- Vehicle accident (all types)
- Hazardous material exposure
- Poisoning
- Environmental
- Collapse
- Explosion (structural FF safety rules may apply to certain areas of the incident)
- Shootings/stabbings/human violence/riot

On vehicle accidents, the IC should describe the approximate number and type of vehicle(s) involved in the event:

- Bicycle
- Motorcycle
- Passenger vehicle
- Passenger Van
- Bus
- Delivery truck
- Commercial vehicle
- Semi-Truck
- Train
- Airplane
- Etc.

For vehicle accidents, the IC should also describe the extent of damage done to the vehicle(s). Vehicle damage should be described in the following terms:

- No damage
- Minor damage
- Moderate damage
- Significant damage
- Extreme damage (little possibility of survival)

Example: “E-1 is on the scene on Interstate 10, west bound, ½ mile west of the 59<sup>th</sup> Avenue on ramp, in the 2 right lanes. We have a 4-vehicle accident involving a delivery truck and 3 passenger vehicles, all with moderate to significant damage...”

## **Estimation of the number of pts involved**

The total pt. count is the most important piece of information needed by the IC to determine the amount and type of resources required to stabilize the incident.

Because the IRR will typically be delivered from the cab of the apparatus, it will be very difficult for the IC to determine the exact pt. count or the extent of pt. injuries until they dismount their rig and start the triage process.

The initial IC should give a rough estimate of the pt. count in the IRR. The triage report will provide responders with an accurate pt. count and their treatment priority.

Example: "E-1 is on the scene on Interstate 10, west bound, ½ mile west of the 59<sup>th</sup> Avenue on ramp, in the 2 right lanes. We have a 4-vehicle accident involving a delivery truck and 3 passenger vehicles, all with moderate to significant damage, with approximately 10 pts involved..."

## **Action being taken – Initial I.A.P.**

Incident action plans describe the operational plan for completing the tactical priorities associated with multi-patient incidents. IAPs should be short and to the point. The initial IAP should include the following for multi-patient incidents:

- The immediate removal of any pts threatened by the incident's hazards if necessary
- Personnel protection handline deployed if necessary
- Triage process initiated
- Any immediate treatment needing to be rendered

The most important objective in the front end of any multi-patient incident is to get an accurate pt. count and the priority of their treatment (Immediate, Delayed, or Minor). All front-end actions by the IC need to support obtaining and providing an accurate Triage report as soon as possible in the incident.

Example: "E-1 is on the scene on Interstate 10, west bound, ½ mile west of the 59<sup>th</sup> Avenue on ramp, in the 2 right lanes. We have a 4-vehicle accident involving a delivery truck and 3 passenger vehicles, all with moderate to significant damage, with approximately 10 pts involved. E-1 is deploying a handline and starting triage..."

## **Declaration of the Strategy**

Overall operational strategy is divided into only two categories: Offensive or Defensive.

- Offensive operations are conducted inside a Hazard Zone
- Defensive operations are conducted outside of the Hazard Zone - in safe locations

Declaring the incident strategy up front, as part of the Initial Radio Report will:

- Announce to everybody the overall incident strategy.
- Eliminates any question on where we will be operating on the incident scene

Most multi-patient incidents will be in the offensive strategy because they occur in a non-IDLH environment.

Example: “E-1 is on the scene on Interstate 10, west bound, ½ mile west of the 59<sup>th</sup> Avenue on ramp, in the 2 right lanes. We have a 4-vehicle accident involving a delivery truck and 3 passenger vehicles, all with moderate to significant damage with approximately 10 pts involved. E-1 is deploying a handline and starting triage. **We will be in the offensive strategy...**”

### **Resource Determination with routing information**

The initial arriving IC must match the incidents conditions with the resources required to solve the incidents problems. The request for the appropriate amount resource must happen at the beginning of the event, where our window of opportunity has the greatest chance for success.

The IC will need to consider the following when requesting resource for multi-patient incidents:

- Staffing and equipment on scene
- Staffing and equipment responding
- Staffing and equipment available in reserve
- EMS capabilities of responding personnel (1<sup>st</sup> responder, EMT, I-EMT, PM's)
- Pt. transport capabilities of the responding agencies
- Extrication capabilities of the responding personnel
- Estimate of response times for personnel and equipment
- Hospital locations and treatment capabilities
- Law enforcement required to help manage/maintain/document the scene

The IC should also give detailed routing information (if required) to units already responding to the incident. This information should also be given/repeated on the Follow-up report if additional resources was requested on the IRR. This ensures that the newly responding units also receive the routing information.

Example: “E-1 is on the scene on Interstate 10, west bound, ½ mile west of the 59<sup>th</sup> Avenue on ramp, in the 2 right lanes. We have a 4-vehicle accident involving a delivery truck and 3 passenger vehicles, all with moderate to significant damage with approximately 10 pts involved. E-1 is deploying a handline and starting triage. We will be in the offensive strategy. **Upgrade this to a 2<sup>nd</sup> Alarm medical with at least 8 ambulances. The best access for all units is the west bound I-10 on ramp at 59<sup>th</sup> Avenue. All ambulances stage at the west bound I-10 and 59<sup>th</sup> avenue intersection...**”

### **Assuming and Naming of Command**

Use location/occupancy to name command. The radio designation "**COMMAND**" will be used along with the major crossroad, or the specific occupancy name of the incident site

Example: "E-1 is on the scene on Interstate 10, west bound, ½ mile west of the 59<sup>th</sup> Avenue on ramp, in the 2 right lanes. We have a 4-vehicle accident involving a delivery truck and 3 passenger vehicles, all with moderate to significant damage with approximately 10 pts involved. E-1 is deploying a handline and starting triage. We will be in the offensive strategy. Upgrade this to a 2<sup>nd</sup> Alarm medical with at least 8 ambulances. The best access for all units is the west bound I-10 on ramp at 59th Avenue. All ambulances stage at the west bound I-10 and 59th avenue intersection. **E-1 is assuming Interstate 10 (I-10) command.**" No Main St.!

## Follow-Up Reports

The Initial Radio Report is usually performed from the front seat of an Engine Company. Once the report has been given and Dispatch/Alarm acknowledges that report (using the Order Model) the company officer of the unit is probably out of the cab and has started to triage the incident scene.

The Follow-up report for a Multi-patient incident should include the following information:

- The number of pts involved in the incident
- Pt treatment priority (Immediate, Delayed, Minor)
- The number of pts that may require de-entanglement/extrication (the use of hydraulic rescue tools to extricate)
- An updated resource determination
- Unit routing information (if necessary)
- Staging location(s) identified

Example: "Command to Dispatch/Alarm...There are a total of 10 pts involved in the incident. We have; 4 Immediate, 3 Delayed, and 3 Minor pts. With 1 pt. requiring extrication. Holding the 2<sup>nd</sup> Alarm/Box EMS dispatch along with the 8 ambulances. All units responding to Interstate-10, the best access for all units is the west bound I-10 on ramp at 59th Avenue. All ambulances stage at the west bound I-10 and 59th avenue intersection. 1<sup>st</sup> Alarm/Box units Level 1 stage 50 yards behind E-1 on the shoulder of the road. Level 2 Staging will be located at the west bound I-10 and 51<sup>st</sup> avenue intersection. All ambulances stage Level 2."

## Assigning Units

Incident operations are conducted around the completion of the tactical priorities. Incident communications should mirror this simple concept. This will help keep communications short, to the point and effective. It also maximizes the available free airtime. The IC must structure unit assignments around:

- Addressing the incident's critical factors
- The completion of the tactical priorities

Orders to Level 1 staged units should be structured in a T.L.O format:

- Tasks

- Location of the tasks
- Objectives of the tasks

Tasks: Some of the standard tasks that can be assigned at a multi-patient incident:

- Apparatus placement required to protect the scene
- Establish or support a water supply
- Stretching handline(s)
- Equipment required to perform the assigned task(s) EMS/extrication related
- Manpower

Location of those tasks should include:

What vehicle is the pt. located

Other pt. location (event area vs. treatment area vs. pt. loading area)

The assignment objectives should center on the completion of the tactical priorities for a multi-patient incident:

- Triage
- Extrication
- Treatment
- Transportation

### **Command Transfers**

Command must be transferred in a standard manner (per SOP's). The following sequence represents a standard command transfer for a multi-patient incident:

- Announce your arrival to scene (Dispatch will acknowledge)
- Contact the current IC using the Order Model
- Verify, document and confirm the position and function of all resources located on the incident site
- **Verify the number of pts and their treatment priority**
- Obtain a CAN report from the current IC
- Acknowledge the CAN report and inform the current IC that you'll be "Taking it from out here"
- Contact Dispatch
- Announce that you'll be assuming command ("BC-1 will be assuming Main St. Command")
- Re-announce the overall Incident strategy
- Make a resource determination
- Announce the CP location

The IC should designate a Level 2 Staging location if one has not already been designated.



## CAN Reporting

Multi-patient incident CAN reports should center on the completion of the incident's tactical priorities. The following are the completion benchmarks for each EMS tactical priority.

<b>Tactical Priority</b>	<b>Benchmark</b>
Triage	All pts identified with their treatment priority
Extrication	All pts are extricated to a treatment area
Treatment	All pts delivered to transportation
Transportation	All Immediate pts transported
Transportation	All Delayed pts transported
Transportation	All pts transported

## Function 6 – Organization

An IC must have a system in place where the rate of assigning companies to the emergency scene doesn't exceed their span of control. The IC accomplishes this by forecasting and establishing geographic and functional responsibilities that divides the incident scene into smaller, more manageable tactical sub-divisions.

Groups are used on an EMS scene as opposed to using a Divisions only system when working in IDLH atmospheres. A group is a functional work group that is not tied to a specific geographic location. The functional work groups created on a multi-patient incident are:

- Triage
- Extrication
- Treatment
- Transportation
- 

### Triage tactical responsibilities

The purpose of triage is to categorize patients based on the severity of their injuries, prioritize their need for treatment and transportation, and to stabilize life-threatening injuries before additional resources arrive on-scene.

A standard triage system should be used on any multi-patient incident where the pt. count will exceed the initial IC's ability to safely track pts through the different phases of the incident. Blue Card uses the S.T.A.R.T. pt. treatment priority terminology of; Immediate, Delayed, Minor and deceased.

The following items represent the standard operations that will normally be performed by the Triage Group supervisor:

- Determine the location, number and condition of all patients
- Determine if triage will be performed in place or at the entrance to the treatment area
- Determine the resources required to triage all pts
- Assign and supervise triage teams as required
- Face-to-face communications should be used within the group
- Ensure that patient triage is done within standard operating procedures

- Ensure the safety and accountability of all assigned personnel
- Provide frequent progress reports to Command
- Coordinate activities with other groups as required
- When triage is complete, provide Command with a final "Triage Report."
- Forward triage tracking tags to Command or Transportation
- Terminate triage activities and inform Command what personnel are available for reassignment

The Triage Group supervisor should wear a vest for identification purposes.

As a general rule, patients should be triaged and tagged in the impact area. However, depending on the safety of the site and the arrangement of the patients, there may be instances when triage is performed at the entrance to the treatment area. Regardless of where triage is performed, the triage process requires close coordination between triage, extrication and treatment.

When possible, IMMEDIATE patients should be moved first, followed by DELAYED patients.

### **Extrication Tactical Responsibilities**

An Extrication group is utilized in multiple patient incidents that require physical disentanglement and/or the removal of trapped victims. Extrication is responsible for removing pts from the impact area and delivering them to a treatment area. Extrication will assist triage with any patient treatment that is necessary prior to disentanglement.

The following items represent the standard operations that will normally be performed by the Extrication group:

- Determine the location, number and treatment priority of all patients (coordinate with Triage)
- Determine the resources required to extricate all pts to the treatment area(s)
- Assign and supervise extrication teams as required
- Extricate and deliver patients to the treatment area(s) or to a casualty collection point
- Face-to-face communications should be used within the group
- Provide frequent progress reports to Command
- Ensure safety and accountability of all patients and assigned personnel
- Coordinate activities with other groups as necessary
- Notify Command when all patients have been removed and what companies are available for reassignment

The Extrication group supervisor should wear a vest for identification purposes

The first priority for removal to the treatment area will be IMMEDIATE patients followed by DELAYED patients. In some cases of confined entrapment, removing "DELAYED" patients may occur before access can be gained to "IMMEDIATE" patients.

Once extrication activities have been completed, extrication teams can be reassigned to Treatment.

## Treatment Tactical Responsibilities

A Treatment group is utilized to provide an appropriately located site to manage the treatment of multiple IMMEDIATE and DELAYED patients. Treatment is responsible to provide pt. stabilization and continuing care of patients until they can be transported to a medical facility.

The following items represent the standard operations that will normally be performed by the Treatment group:

- Treatment typically requires the heaviest commitment of personnel
- Identify whether patient treatment will occur in place or in a designated treatment area
- Coordinate early on with Triage and Extrication
- Determine the resources required to treat all pts on the incident scene
- Identify and establish an appropriately sized treatment area(s)
- Assign and supervise treatment teams as required
- Face-to-face communications should be used within the group
- Ensure that all patients have been triaged, assessed and re-triaged as needed
- Treatment and rapid packaging of patients to transportation
- Provide progress report to Command as required
- Ensure safety and accountability of all patients and assigned personnel
- Coordinate with Transportation as pts are being packaged
- Verify transportation priorities and hospital destinations with Transportation
- Notify Command when all patients have been treated and have been delivered to transportation

The Treatment group supervisor should wear a vest for identification purposes.

If treatment will occur “in place,” companies should be directed by Treatment to a specific patient(s) or vehicle (e.g., “E20, you have the patients in the red sedan. R17 will assist.”). The goal will be to assign one ALS or BLS Company and one Rescue to each patient, resources permitting.

Crews should initially focus their effort on treating and transporting IMMEDIATE patients whenever possible.

If patient treatment will occur in a designated “treatment area”, Treatment will be responsible for establishing an appropriately sized treatment area and prepare for the arrival of patients from Extrication. The treatment area should be located as close as possible to the event/impact area to facilitate patient entry and transportation loading, but safely away from any hazardous conditions associated with the incident.

If the incident is large enough, Treatment should set up and designate separate "IMMEDIATE" and "DELAYED" treatment areas.

If the incident scene is very large, it may be necessary to establish more than one treatment area in different locations. Branch operations may be required to coordinate these efforts.

First arriving patients should be placed near the exit point. Rescuers should first fill from exit towards the entrance as patients are delivered to treatment. Patients in the treatment area should be arranged in an orderly manner with adequate space provided between patients to allow working room for treatment personnel.

Non-triaged patients arriving to the treatment area must be triaged and tagged at the entrance. If necessary, a triage team should be located at the entrance for this purpose. As these new patients are tagged, Triage or Treatment should update the IC on any new pts and their treatment priority.

A variety of ALS personnel, BLS personnel, medical staff and other agencies may be assigned to Treatment. Non-fire department medical personnel should be closely supervised by the Treatment group supervisor or other designated personnel.

Once all IMMEDIATE patients have been treated, DELAYED patients who have significant mechanism of injury should be reevaluated and upgraded to IMMEDIATE as necessary

Treatment must manage the treatment and packaging of patients with an emphasis on rapid transport. The only time extended treatment should be considered is when immediate transportation is not available. When transportation is immediately available, the transportation of the patients becomes a priority over extended on-site treatment. Close coordination with the Transportation must be maintained to ensure rapid transportation.

Treatment will coordinate with Transportation the allocation of patients to various medical facilities based on their treatment priority and any specialized treatment required (i.e.; burns, neuro, pediatric, poisoning/exposures, etc.).

Incidents that have an arrangement where the transportation area is located a significant distance away from the treatment area may require assigning an Extrication group to assist moving pts from the treatment area to the transportation area.

Treatment should provide progress reports and triage updates to Command as required. Treatment will also provide the following benchmarks to the IC:

- When all Immediate pts have been delivered to transportation
- When all Delayed pts have been delivered to transportation
- When all remaining pts have been delivered to transportation

### **Transportation Tactical Responsibilities**

Transportation is responsible for coordinating all of the transportation needs for a multiple-patient incident and for allocating those patients to the appropriate medical facilities.

The following items represent the standard operations that will normally be performed by the Transportation group:

- Determine/request resources as required
- Determine (with Command) the rescue loading area and helicopter landing zone
- Determine hospital availability status with Dispatch/Alarm as required
- Coordinate patient allocation and hospital destinations with Treatment

- Supervise the movement of patients from the treatment area to the ambulance loading area or helicopter landing zone
- Maintain an accurate accounting of all patients and their hospital destinations
- Provide progress reports, allocations, ETA's, to receiving hospitals
- Face-to-face communications should be used within the group
- Ensure the safety and accountability of all assigned personnel
- Provide progress reports to Command as required
- Coordinate activities with other groups as required
- Notify hospitals of estimated arrival time of ambulances or helicopters

Transportation group supervisor should wear a vest for identification purposes.

Transportation must size up the transportation needs, including ambulances, air ambulances or other transportation modes, as well as staffing needs and communicate those needs to the IC. Additional personnel and tactical frequencies may be required to coordinate:

- Medical communications
- Hospital notifications
- Pt. loading area
- Record keeping
- Air medical transport coordination
- Requesting ambulances from Staging

Transportation should determine the best location to establish a patient loading area. This area should be located as close as possible to the Treatment area. Ambulances should be staged off site and brought into the loading area as needed, no more than two at a time. Transportation must coordinate closely the preparation of patients with Treatment and have ambulances immediately ready in the loading area. Ambulances should have a separate entry and exit point into the loading area to eliminate the need to back ambulances.

Transportation must coordinate with Dispatch/Alarm contact with the appropriate medical facilities as soon as possible in order to determine individual hospital capabilities to receive patients. Transportation should initiate medical facility inventory using a separate tactical channel.

Treatment will normally advise Transportation when patients are ready for transport. Transportation will allocate patients to the appropriate medical facilities according to patient priority, hospital capacity, and specialty treatment required (i.e.; burns, neuro, pediatric, poisoning/exposures, etc.).

Transportation of IMMEDIATE patients will receive priority followed by the transport of DELAYED and MINOR patients. If needed, transport of MINOR patients to a medical facility may be accomplished by using busses or vans.

Treatment and Transportation must maintain close coordination to determine the most appropriate resource allocation for each patient.

Prior to pt. transport, the Transportation group supervisor (or designee) will remove a transportation tracking slip from each triage tag and write in the transport unit and hospital

destination on the slip. These tracking slips are kept by Transportation to maintain an accurate accounting of all patients leaving the scene.

When rescues or helicopters have left the scene, Transportation should advise Dispatch/Alarm of the estimated arrival time and patient status (i.e., "Ambulance 209 is enroute to Good Samaritan, ETA of 5 minutes, with one IMMEDIATE patient. Male, 25 years old, with head and chest trauma"). The Dispatch Center will relay this information to the identified medical facility.

Transportation should forward progress reports to Command as required. Transportation will also provide the following benchmarks to the IC:

- When all Immediate pts have been transported
- When all Delayed pts have been transported
- When all of the incident's pts have been transported

### **Function 7 – Review and Revise**

Standard multi-patient incident action planning considerations:

- Effect current action is having
- Things that need to be done
- Stage of operation (triage, extrication, treatment, transportation)
- Is there an effective organization in place
- Has the IC forecasted effectively
- Are there enough resources and qualified medical personnel on-scene and/or responding (EMT, I-EMT, PM's, apparatus/equipment, tactical/command support)
- Have hospital notifications been made
- Are the troops operating safely
- Is there a safety plan/organization in place that can react in case someone gets in to trouble
- How much IC/Command Post support is required

### **Function 8 – Continue, Support, and Terminate Command**

Supporting the IC will follow standard Blue Card procedures.

Before terminating command on a multi-patient incident where hospital notifications have been made, the IC and Transportation (working with Dispatch/Alarm) will coordinate:

- A final pt. count
- Final pt. treatment priority numbers
- Final pt. hospital destinations
- Hospital pt. arrival confirmations
- Hospital notifications advising that all pts have been transported and the incident is terminated
- Verify the incident scene is clear of all pts (i.e. secondary all clear) and turn the incident scene over to the appropriate agency (PD, DPS, tow truck drivers, utility companies, etc.).





## Section 3

# Managing Violent Incidents

### **Responding to violent incidents**

The purpose of the Blue Card violent incident SOP is to integrate a Fire Dept response that will support what is primarily a Law Enforcement (LE) event.

Violent incidents where weapons are being used can expose firefighters to higher risks than a structural firefighting incident. Structure firefighting is based around the predicable laws of



physics, while incidents involving violence include a wide range of human emotions and the actions that are occurring with the attacker(s) along with those who are trying to survive the attack. This generally creates high levels of chaos and totally unpredictable incident scenes.

The actual violence that occurs on any violent incident typically happens in a short time frame, usually 5 minutes or less. These are extremely fast paced and potentially deadly events for both the public and public safety responders. The chaos that could also potentially occur during the event, **coupled with a traditional lack of any formal LE command being established early on in the incident, provides unique challenges for managing firefighter and EMS personnel safety.**

All Fire/EMS resource dispatched to known violent incidents (VI) must understand:

- The incident is a Law Enforcement (LE) event
- LE will be the overall IC for the event
- Fire/EMS will always respond in a DEFENSIVE manner

Because the main service we deliver on a Violent Incident (VI) is EMS, the Blue Card EMS procedure will be used to manage the medical requirements of the incident.

## **Deployment**

A majority of the law enforcement (LE) agencies in the US use the following terms to classify their response to violent incidents:

- Code-1 – an available officer following all traffic laws
- Code-2 – an assigned officer responding to a dispatch following all traffic laws where the scene is believed to be stable
- Code-3 - an assigned officer responding with lights and sirens to a dispatch where the scene is believed NOT to be stable
- Code-4 – an incident scene (or part of an incident scene) that has been secured by LE where there is little chance of further violence occurring
- 

## **Managing Code-4s**

Initially, the Fire/EMS dispatch/alarm will liaison with the LE dispatch/alarm on the status of the incident scene. Depending on the arrangement/topography of the incident site, a Code-4 could be given all at once (for a small house) or they can be split up and given for separate areas of the incident scene until the entire scene is placed into a Code-4 status (shopping mall or school).

Fire/EMS dispatchers must not confuse radio traffic on a VI scene that has a partial Code-4, from an entire incident scene that has been declare Code-4 by the LE IC.

It is critical for Fire/EMS to establish an onsite liaison with the LE command post to coordinate Code-4s for VIs that have larger scenes that will require partial Code-4s until the entire scene is placed into a Code-4 status.

## Call Taking and Dispatch

Most VI FD resource requests are generated directly from a Law Enforcement Dispatch Center. When receiving a resource request for a violent incident directly from LE, the call taker must obtain, and pass on, the following information to Fire/EMS responders:

- Incident type – assault, stabbing, shooting, active shooter, barricaded shooter, riot, bombing, terrorism, etc.
- Number of possible patients involved and the severity of their injuries
- Is the assailant(s) still on the scene
- Is violence still occurring
- Level of the LE response (is a supervisor responding?)
- Is LE on the scene
- If LE is not on the scene, what are their estimated response times
- Does LE have the scene secured (Code-4)
- Location of the LE command post (if established)
- Radio channel(s) used by LE

911 violent incident (VI) calls that come directly to a FD Dispatch Center from the public should be routed to the appropriate LE Dispatch Center as quickly as possible.

### Standard violent incident dispatch packages

The biggest critical factor to size-up when dispatching Fire/EMS units to a VI is to consider if there is a potential for further violence to occur at the incident site. Violent incident responses should be coded to reflect the status of their current situation and the potential of fire/EMS units being exposed to further violence. Dispatch codes for Violent Incidents (VI) should be structured similar to the following:

VI-20 responses – represents a violent incident where the incident scene has been secured by LE (Code-4) and there is little to no chance of further violence occurring. The call notifications of VI-20 dispatches usually come directly from LE units who are currently on the scene with the injured person(s).

VI-30 responses - represent violent incidents where the incident scene has NOT been secured by LE, or LE is not yet on-scene, there is currently no violence occurring, but there is a possibility that further violence could occur. VI-20 and VI-30 responses are typically 1 to 2-unit responses for assaults, stabbings, shootings, etc.

VI-40 responses - represent violent incidents where there is credible information that violence is still occurring at or around the scene and there is a high threat to both civilians and LE/Fire/EMS personnel. VI-40 incidents include:

- Violence still occurring on a small scale (bar fight, domestic violence, etc.)
- Violence still occurring on a large scale (like a biker shootout or riot)

- LE serving high risk warrants
- Barricaded shooter settings
- Active shooter settings
- Suspected terrorist events

All VI responses can be upgraded and downgraded as the situation dictates (i.e. while responding to a Level 2 Staging location for a VI-30 incident, Dispatch Centers informs the unit enroute that LE is advising the scene is now secure and the incident has been downgraded to a VI-20 incident).

VI dispatches should reflect a department's medical alarm dispatches. All resource packages/alerts must consider and provide the built-in organizational support for IC's to maintain an effective span of control. Subsequent Alerts should also include the appropriate number of managers (Chief's/Safety Officers/Medical supervision) to safely complete the incident's tactical priorities while properly supporting the IC.

Some VI-30 and all VI-40 dispatches will require the dispatch of senior ranking chief officers and any LE crossed trained personnel to respond to the scene. This includes Terrorism Liaison Officers (TLO), specialized HAZMAT, Bomb Squad, TRT and USAR teams as required.

The initial dispatch information for a violent incident is rarely complete. Violent incidents evolve rapidly, and it is necessary to assume that the information initially received, has changed. On incidents where there is widespread violence with multiple patients, FD Dispatch Center should maintain continual, open lines of communication with the LE Dispatch Center until the incident has been stabilized.

Any subsequent, important information gathered from the LE Dispatch Center must be passed on immediately to Fire/EMS personnel assigned to the incident.

### **Staging on violent incidents**

It is important to approach all violent incidents in a defensive manner. These are LE incidents where we provide medical support. Over-committing resource can pose significant danger to Fire/EMS personnel.

#### **Level 1 Staging**

All 1<sup>st</sup> Alarm/Box units on VI-20 incidents will follow standard Blue Card Level 1 Staging procedures. This includes the 1<sup>st</sup> arriving unit and BC responding directly to scene to liaison with LE while all subsequent responding units stage one block away in their direction of travel.

VI-20 incidents represent responding directly to a secure scene. Dispatch Center should obtain and pass on the identity of the LE IC and where they are located on the scene.

#### **Level 2 Staging**

The Authority Having Jurisdiction (AHJ) at all violent incidents will be the LE agency who has jurisdiction for the event (local, county, state, or federal LE). LE becomes the IC for the event because they are trained and equipped to mitigate these types of incidents. Fire and EMS personnel are neither trained nor equipped to handle violent incidents. Therefore, it is Blue Card's policy for **LE to arrive on-scene FIRST** for all known VI dispatches.

**All dispatched Fire/EMS units responding to VI-30 and VI-40 incidents will have Level 2 Staging implemented immediately upon dispatch.**

This includes incidents where:

- LE is not yet on-scene
- LE has NOT yet secured the scene
- There is a significant chance that violence is still occurring on-scene

Level 2 Staging for all responding companies shall be implemented from the time of dispatch until it can be determined that the scene is safe for Fire/EMS personnel. Most often times, responding Fire/EMS personnel will verify/coordinate through the local FD and LE dispatch centers when a VI scene is secure enough for an on-scene Fire/EMS response.

Until LE has declared the scene secure (or an area or portion of the scene is secure enough for a Fire/EMS response) companies must stage out of sight at a safe distance and turn off emergency lights, so they do not attract attention.

If the incident is located within one mile of the closest company's station, dispatched companies should Level 2 stage at the closest fire station's quarters.

When Level 2 staged at a fire station, all crews must stand by their apparatus and be ready to respond to the scene. Crews must also monitor their assigned tactical channel while in Level 2 staged positions. If a department has the ability to monitor the associated LE tactical radio channels, they should do so whenever possible.

If the scene is further than one mile from the closest fire station, companies should start their response and Level 2 stage within 1 mile of the scene while not exposing themselves to any unnecessary risk. The first due unit will coordinate with responding units, Dispatch Center, and LE the best Level 2 Staging location for the incident.

When advised by Dispatch Center or LE that the scene is secure enough for a Fire/EMS response, the 1<sup>st</sup> arriving unit and BC will respond directly to scene to liaison with LE while all other Units remain in Level 2 Staging until assigned by the Fire/EMS IC.

When Level 2 Staging on VI-40 incidents, secondary explosive devices must be considered when spotting apparatus. Avoid parking close to parked cars or unsecured buildings. Also report to LE all suspicious packages observed during the course incident.

**Command on Violent Incidents**

When multiple public safety agencies deploy to the same incident scene, the agency who has the AHJ will assume overall command and control for the event. LE agencies have the legal obligation and jurisdiction to be in charge of any incident site where violence is currently being committed or has been committed. As stated earlier, LE agencies are trained and equipped to mitigate these types of incidents. Fire and EMS personnel are neither trained nor equipped to control violent incidents.

### **VI Fire Command Guidelines:**

- LE will be in overall command of any known VI
- Fire/EMS will play a support role only
- Fire's major goal early on in a VI is to establish a liaison directly with the LE IC or with a liaison at the LE/Fire Command Post as quickly as possible in order to coordinate safe and effective action
- The Fire/EMS chain of command will follow Blue Card command SOPs while fitting into the LE IC's IAP
- The major management objective of the Office-in-Charge of the Fire/EMS resources on a VI is the safety and welfare of all assigned personnel
- At no time shall any Fire/EMS personnel operate within an active law enforcement Hazard Zone

It is Blue Card's policy for **LE to arrive on-scene FIRST** and to assume command/control on all VI incidents prior to any commitment by Fire or EMS personnel.

When initially arriving on scene and sizing up a VI, a **Law Enforcement Officer** will consider:

- If active violence is still occurring. This creates a "Dynamic Situation" that requires a rapid officer deployment to stop the violence using the force necessary to take the suspect(s) into custody
- If no active violence is occurring but the suspect(s) is isolated and/or barricaded and still hostile. This creates a "Static Situation" and a traditional SAU/SWAT deployment will be used to take the suspect(s) into custody
- If no active violence is occurring and the suspect(s) has fled the scene, is cooperative, or is taken into custody/control of LE. This creates a stable "Code-4 situation", meaning the scene is secured

After an initial scene size-up – the first arriving LE officer will most likely:

- Communicate an assessment of the situation and their initial IAP
- Communicate any injuries that have occurred and their nature
- Request appropriate resources
- Is the situation Dynamic, Static, or Code 4?
- If Dynamic, deploy as soon as possible
- If Static, wait for the appropriate resource, secure the perimeter and continue to gather intel

- If Code-4, have Fire/EMS respond to the scene to provide medical/logistical support (if necessary)

### **Fire Command on VI-20 events**

- Most VI-20 responses involve 1 to 2 units
- On single unit VI responses, no formal establishment of command is required. The officer of a single unit response will still be responsible for performing the 8 functions of command
- On a multiple unit VI-20 response, the first due unit will respond directly to the scene and announce their arrival over the tactical channel and assume command of all Fire/EMS resources
- If dispatched, the first due BC will also respond directly to scene and transfer command of all Fire/EMS resources if necessary
- All other dispatched resource will Level 1 stage
- The first arriving Office-in-Charge of Fire/EMS will make face-to-face contact with the LE Office-in-Charge of the incident to receive a situation report and LE's orders/directions
- Once contact has been established with LE, a situation update report should be transmitted over the Fire/EMS tactical channel
- Continue to follow Blue Card command SOPs

### **Fire Command on VI-30 events**

- All units will be originally/initially dispatched to a Level 2 Staging location on all VI-30 and VI-40 incidents
- The first due unit will coordinate with responding units, Dispatch Center, and LE the best Level 2 Staging location
- For a multi-unit response, the first due unit will announce their arrival to the Level 2 Staging location and will assume command of all Fire/EMS resources
- If dispatched, the first due BC arriving to the Level 2 Staging location prior to IC #1 being deployed to the scene should perform a standard command transfer with IC #1 and assume command of the incident
- After receiving a Code-4 notification, IC #1 will respond to the scene as directed by LE
- If dispatched, the first due BC will also respond directly to scene and transfer command if they have not already done so at the Level 2 Staging location

### **Fire Command on VI-40 events**

- Code-4s on VI-40 incidents are typically not obtained early on in the event. This is usually coupled with having multiple patients that require immediate extrication, treatment and transportation
- The mission of LE operations on VI-40 incidents is to mitigate and/or eliminate the threat as quickly as possible
- In the front end of these events, there will be very little interaction between the first arriving LE officers and Fire/EMS units

- Most information early on in the incident will be gathered through the connection between the Fire and LE Dispatch Centers
- All units assigned to a VI-40 incident will follow all VI-30 Level 2 Staging procedures

The major goal of Fire/EMS on a VI-40 incident is to make direct contact with an on-scene LE agent in order to coordinate safe and effective action.

### **Situation Evaluation – Size-Up**

Because most Fire/EMS personnel are not LE trained, we have to rely on LE's ability to effectively size-up the situation and choose the proper tactics to stabilize/mitigate the event. We also have to rely on LE NOT to put Fire and EMS units into hazardous situations where crews cannot protect themselves, becoming victims themselves.

Fire/EMS size ups on VI's rely heavily on the information and intelligence provide by both the LE Dispatch Center and officers who are physically located on the scene.

VI scenes must be heavily scrutinized before committing any Fire/EMS resource. Critical items to consider on a VI are:

- Scope of the incident
- Determine appropriate escape routes, safe staging locations and working zones
- Are law enforcement officers present and actively engaged
- The patients may also be suspects
- Unsecured weapons
- Secondary devices
- Uncontrolled/hostile/panicked crowd
- Fire suppression and alarms possibly activated
- Ambush style attacks possible
- Hostile family members and friends
- Initially non-threatening individuals becoming hostile or dangerous
- No or minimal police presence on the scene
- Previous history of violence at the incident location
- Assess threat level at scene (if it is deteriorating, implement an immediate retreat)

The major management objective of the Office-in-Charge of the Fire/EMS resources on a VI is the safety and welfare of all assigned personnel.

### **Strategy and Incident Action Planning**

A great percentage (98%+) of the Violent Incidents Fire/EMS respond to:

- Are VI-20 and VI-30 responses
- Have less than 2 patients
- The incident scene is quickly placed into a Code-4 status by on-scene LE
- Generally, they turn into a routine EMS incident for Fire/EMS personnel

- Largest threat to Fire/EMS personnel becomes biological

Responses to VI-40 events are quite different than responses to V-20 and 30 events. VI-40 events can present more of a threat to fire personnel than fighting a structure fire and great caution must be used when deploying units into these incident scenes.

As covered earlier in the document, LE has 3 different strategic categories for a VI with the corresponding tactics that will be deployed for the chosen strategy:

- Dynamic – violence is currently occurring at the scene. LE Tactic - engage immediately, apply the necessary force to stabilize the situation
- Static – no current violence is occurring on the scene, but there is a very high potential and the suspect is barricaded/isolated in one location. LE Tactic – secure the perimeter, continue to gather intel, traditional SAU/SWAT deployment to stabilize the situation
- Code-4 - The scene is secured and there is little threat of further violence occurring. LE Tactic – mitigation and documentation

#### Dynamic Situation Incident Action Planning

LE Dynamic situations include:

- Violence is currently occurring. Small scale – domestic violence in progress. Large scale - biker shootout or riot in progress
- Active shooter settings
- Suspected terrorist events

Most EMS aspects on a VI will be managed with the same system outlined in the Blue Card EMS procedures. Fire/EMS will need to coordinate the following critical items with LE during Dynamic situations:

- Safe staging locations
- Information about victim location and their injuries
- Safe extrication routes in and out of the Hazard Zone
- Safe treatment areas within and surrounding the Hazard Zone
- Safe transportation avenues in out of the scene

The biggest (and most hazardous) management difference between a regular EMS incident and a VI is managing the extrication of patients to safe treatment and transportation areas.

Fire personnel WILL NOT become directly involved in law enforcement assault operations. Fire personnel WILL NOT enter into an area that is not secure by LE and/or safe to enter (Code-4). **If the area is not safe, LE will have to deliver patients to Fire personnel at secured treatment sites located as close to the incident scene as safely possible.**

There may be situations in which the hostile activity is taking place within a large area or has transitioned from one building (or floor) to another. Extrication operations during an active event



may be carefully considered for areas on the scene that are placed under a Code-4 status by the LE IC. These extrication operations **CAN ONLY TAKE PLACE** when there is an in place Fire liaison in the LE command post and there is a clear and precise plan communicated between all involved LE and Fire/EMS personnel.

Once the decision has been made to deploy extrication teams into a Code-4 area during a Dynamic situation, the following guidelines must be strictly adhered to:

- Police and Fire liaisons shall be in place with good communication between both parties prior to any Fire/EMS entry
- The officer in command of the Fire/EMS response will consider the risk to Fire/EMS members and all information available will be sized up before deploying units into a Dynamic VI scene
- The immediate threat in the extrication area must be Code-4 and neutralized or contained. Examples include; suspect(s) is dead, in custody, fled the scene/area, or has been reasonably contained or barricaded
- Fire and LE Commands will designate specific entry and exit paths for extrication teams
- Warm Zone boundaries are clearly identified to ensure personnel do not enter the Hot Zone.
- Accountability must be in place and tracked throughout incident

Extrication teams must adhere to the following guidelines:

- Route in to and out of the designated extrication area is predetermined and discussed with all extrication personnel prior to making entry
- Identification of secondary egress routes are made prior to entry
- At least 2 Fire/EMS personnel for each patient extricated
- A LE member must be assigned to each entry team as the safety officer of the team where their only responsibility is to monitor the team's surroundings and their assigned LE tactical channel
- Only bring in small amounts of trauma focused medical equipment (avoid being slowed down by large and heavy EMS boxes. Bring in only what's needed to treat and go)
- Gurneys provide the fastest method to extricate patients to safer treatment areas
- If gurneys are not available, bring in backboards or human drag bags (using these extrication methods will require more manpower)
- Rapidly identify patient triage priorities
- Minimal treatment in the event area. Plug holes, seal chest wounds and go
- Minimize exposure time. The goal is to scoop and go. Get out of the Warm Zone as soon as possible!
- If the situation appears to have the potential to become hostile, stop the extrication operation and quickly evacuate to a safe location IMMEDIATELY!

### **Static Situation Incident Action Planning**

LE Static situations include:

- Unplanned Static situations
- Planned Static situations

### **Unplanned static situations**

Most Static situations give responders the discretionary time needed to coordinate safe and effective operations.

All Planned and Unplanned Static situations shall follow all of the Dynamic deployment guidelines until the scene has been placed into a Code-4 status by the LE IC.

As with Dynamic situations, during Static situations, Fire personnel WILL NOT become directly involved in law enforcement assault operations. Fire personnel WILL NOT enter into an area that is not secure by LE and/or safe to enter (Code-4).

Any crossed trained FD/EMS personnel assigned to a SAU/SWAT team that will actively become involved in an assault operation to provide medical support to the SAU/SWAT team members will be considered to be a part of LE working under their command.

### **Planned Static situations**

Should a planned arrest/assault be scheduled by SAU/SWAT, the appropriate stand by resources should be requested by LE prior to the assault action. Coordination of these resources are best handled by a Terrorist Liaison Officer (TLO) in cooperation with the Battalion Chief and company officers of the crews who will be responding to the operation.

### **Terrorist Liaison Officer (TLO) Program/Operations**

The following is a basic overview of the TLO program that was implemented in several states across the country shortly after 9/11 occurred. The program has evolved over the years into very valuable tool that both LE/Fire have used to coordinate safe and effective action at VI scenes. Blue Card realizes that most FDs across the country will not have the resources to have fulltime TLOs on their dept. But, the TLO overview will provide all departments with a set of guidelines that will assist members who are assigned these roles and responsibilities during a VI.

TLO's operate from a Counter Terrorism Information Center (ACTIC). The TLO program provides a platform for public safety to share information related to local and global terrorist, criminal threats and potential incidents. The TLO Program provides an expansive statewide network of personnel by combining law enforcement and fire service personnel resources linked to Federal, State, Local and Tribal information and intelligence, which provides an effective and viable communication flow to and from the Counter Terrorism Information Center.

TLO Response Types

Terrorism Liaison Officers respond to incidents that are grouped into three general categories, distinguished by the complexity of the incident and the level of resources required. These types apply to both planned and spontaneous calls.

#### TYPE III - Preplanned Search Warrants

These incidents are the most common and least complex level of TLO response. They usually center on a local event or incident that does not require additional TLO's or outside resources. In these incidents, resources demanded for the TLO response are already in the TLO on-scene toolbox or can be obtained remotely using internet, secure radio or telephone communications. Examples of this level of response include a suicide/barricade situation without any hostages, a police-involved shooting investigation, or any incident that includes one public safety agency supporting another with specific medical or rehabilitation resources

#### Type II - Bomb Threat with suspicious device

These incidents are those that require additional resources beyond the simple deployment of the nearest, most appropriate Fire Service and Law Enforcement TLO. These incidents require multiple TLOs and demand complex task support. Type II incidents usually arise when there is a need for (1) field intelligence collection, (2) criminal investigative research (3) counter terrorism intelligence support, (4) jurisdictionally specific resources or (5) subject matter experts. All incidents that require activation of an emergency operations center or technical operations center are Type II incidents.

#### Type I - MASS CASUALTY or LARGE PRE-PLANNED OPERATIONS

These incidents are the most complex levels of TLO intervention. These incidents require that multiple TLO functions—intelligence collection, terrorism intelligence, criminal investigation, and others—be executed simultaneously, possibly at multiple scenes and/or at one or more Multiagency (unified) Command Centers. Incidents at this level may have originated as smaller types that evolved into a larger scale incident. For example, what may have begun as a simple Hazmat call may escalate when it is determined there are multiple “people down,” evidence of aerosol disbursement and a possible secondary device. When an Area Command is established for any incident, it becomes a Type I TLO response

#### TLO On-Scene Operations

The Terrorism Liaison Officer unit functions as a Field Intelligence Unit in support of Police Tactical, Hazardous Material, Explosive, Special Operations and extraordinary incident types. Incidents requiring TLO assistance may initiate from a variety of sources and agencies depending on the specifics of the incident. **The standard deployment model places one law enforcement and one fire department TLO on-scene.** Such a dual presence is required for any multi-discipline or multi-jurisdictional incident.

TLOs respond to many types of law enforcement calls - both planned and unplanned.

An important distinction among law enforcement calls rests between planned versus unplanned responses. A planned response is one that involves preparations in advance of the action, including the assembly, briefing and joint deployment of one or more teams. The two most common of these calls involve.

#### PLANNED STATIC OPERATIONS

- Clandestine drug laboratories
- Search Warrants
- Each is potentially a “violent” incident. When a TLO is assigned to such an incident, it is critical to attend the briefing prior to deployment. Virtually all planned responses will involve special law enforcement teams or units.

#### UNPLANNED STATIC OPERATIONS

An unplanned response is anyone that arises spontaneously or as a deployment from the relevant Dispatch and Deployment Center. Common law enforcement calls that may require TLO response:

- Hostage/barricade
- Barricade (no hostage)
- Bomb threat
- Bomb disposal/investigation
- Suicide/barricade
- Police shooting (injured officer)

When a TLO is involved in either a planned or unplanned response, early attention must be given to determining whether the law enforcement activity requires a fire department **restricted response area designation**.

Consideration is given to the nature of the law enforcement action (especially the level of violence or potential for violence), circumstances (time of day; location relative to residences, schools, businesses, etc.) and the likely duration of the action.

***If these factors indicate that routine 911 responding fire personnel may be endangered or may interfere with police operations, then the TLO should contact the appropriate Dispatch/Deployment Center to request a “restricted response” designation for an identified area around the “Static” incident scene.***

If there is a need to have Fire/EMS units dispatched inside of a restricted response area for a 911 event unrelated to the LE deployment (example; an EMS call from a nearby neighbor) Dispatch/Deployment would then contact the TLO operating at the scene to coordinate moving Fire/EMS units into the restricted response area to deliver emergency services.

If the call is one judged to be immediately necessary (for example, heart attack, etc.) the TLO will specify routing for fire units to the Command Post or a Staging Area. Once fire units are in place, the TLO will complete a risk assessment under LE’s command. If the call is medical, the

TLO may arrange for police personnel to extract and deliver the patient, arrange for fire personnel to be accompanied by police to extract the patient, or arrange for safe routing for fire personnel to complete the call. The on-duty TLO will notify the Dispatch and Deployment Center when the restricted response area should be discontinued.

#### Pre-Planned Search Warrant Overview

- Attend Pre-Meeting for particulars of Warrant, time & place of service, staging instructions
- Set Premise Alert/Restricted Response
- Evaluate Fire Resource Needs (Minimum ALS company + ambo)
- Set Staging Area
- Meet/Brief Fire Resources for incident
- Brief Fire Service/EMS on procedures for appropriate EMS response or other entry [Risk Assessment dictates if: (1) patients can wait until the scene is safe enough for fire personnel to enter or (2) police personnel must enter the Hot Zone to transfer patients to fire personnel into a Cold Zone.
- Consider Med Helicopter on standby thru AHQ (pre-establish landing zone)
- Provide Liaison and communications between LE and Fire
- Escort Fire as needed for access
- Assist IC until incident close
- Withdraw Premise Alert and/or Restricted Area

#### Examples of Other Mandated TLO Deployments

- Special response: unknown substance calls
- Barricade without hostage
- Unknown substance, no explosive suspected
- Barricade with hostage or drop house with entry
- Police shooting involving wounded officer
- Search Warrant: Planned
- Jumper at overpass or building
- Bomb Callout: Disposal
- Bomb Callout: Suspicious Package
- Bomb Callout: Threat

In most large incidents (TLO Type II and Type I), an Intelligence Section is established. The Intelligence Section officer is responsible for determining what human, physical and support resources may be required to achieve incident objectives. This may include additional subject matter experts, additional jurisdiction- or agency-specific TLO's to respond to the scene. The ICS mission of the Intelligence section is to ensure that all intelligence operations, functions, and activities within the incident response are properly managed, coordinated, and directed.

#### TLO response vehicle levels

- 'A' Level TLO (Vehicle): Includes vehicle, laptop computer, air card, printers and numerous other hand-held equipment. Requires a minimum ten (10) hour/week commitment or 40 hours a month. Requires signature on non-disclosure agreement and security clearance adjudication. Serves as the Intelligence Officer for their agency and has direct communications to the ACTIC. Also serves as the ACAMS provider for their agency, and requires regular availability for on-scene call out
- 'B' Level TLO (Backpack): Includes: backpack with a laptop computer, air card, digital camera and GPS. Requires a minimum five (5) hour/week commitment or 20 hours a month. Requires signature on non-disclosure agreement and security clearance adjudication. Serves as the Intelligence Officer for their agency and has direct communications to the ACTIC. Also serves as the ACAMS provider for their agency.
- 'C' Level TLO (Connectivity): Agency self-purchases required necessary TLO equipment which allows performance of duties as a TLO. This allows the agency's TLO access to all Intelligence from the ACTIC and ACAMS provider access. No time commitment is required
- 'D' Level TLO (Dissemination): Once successfully completing TLO training course, and upon formal request with a need to know, required to read and sign the ACTIC non-disclosure agreement and will then be placed on the Intelligence distribution list which is sent from the ACTIC Intelligence Section

There are also many private companies that have been determined to need trained TLO's. These companies include; nuclear generating stations, major US corporations, the oil and gas industry, transportation industry, and many hospitals across the US.

For more information on the TLO program, visit: <http://tlo.org/index.html>

### **Terminating a VI (for Fire/EMS resources)**

Prior to terminating Command, a face-to-face meeting with the appropriate law enforcement representative should take place. Before leaving the scene:

- Consider contacting both Dispatch Centers and adding a premise alert in the event a routine call turned violent. This will alert companies on future dispatches that there may be safety considerations.
- Provide LE with the identity of the Fire/EMS units on scene and their unit roster information if necessary
- Provide any patient transportation information including unit transporting, receiving hospital, along with the patient name/injuries.
- Discuss any possible disturbance of the crime scene by Fire Department personnel
- Terrorist Liaison Officer (TLO) can remain on-scene to provide support to LE

Managing a routine incident that suddenly becomes violent

Even the most routine call can suddenly become violent. All crew members must be alert for the threat of violence at all times. The company officer of the unit should be the person who

continually sizes up the crew's general work area while the other crew members are focused on pt. care.

Routine incidents that may become violent:

- Mentally unstable patients
- Environments with highly stressed or grieving people
- Angry patients or their family members
- Patients or bystanders that have used drugs or alcohol
- A medical condition that causes aggressive/violent behavior

The best way to handle a violent situation is a proper assessment of the incident scene and not placing yourself into a potentially violent situation.

In the event of a member or crew coming under a violent attack, all FD/EMS personnel are authorized to use the reasonable amount of force that is necessary to defend themselves. The best tactic to use often times is to retreat from the hostile area and upgrade the incident to VI-30 situation.

The radio code "999" is a common term used in our service for a member or crew who is in a violent situation and are requesting immediate LE assistance. When using the 999 distress call, it should be followed with a brief report of the situation if possible.

If not possible due to the situation, the tactic should be; retreat from the hostile area and provide more information about the situation as soon as possible.

Dispatch Center operators who receive a 999 distress call should only acknowledge that the 999 report was received. If the person calling the 999 is in a position to provide more information, they should do so. Trying to solicit more information from the 999 caller could exasperate what is already a hostile situation.

If a Dispatch Center operator has any indication that a FD/EMS crew is in trouble they are empowered to initiate the appropriate LE response (especially if the crew is not communicating after a 999 announcement).

Some medical conditions present themselves with aggressive pt. behaviors (diabetes, brain injuries, etc.). Crews must try to recognize and attempt to rule out a medical issue when dealing with aggressive/violent patients (i.e.; avoid restraining a pt. because their blood sugar is low. This looks really bad when it's captured on the family iPhone).

Transporting patients in custody

- Custody: person who has been arrested or detained by a peace officer for a specific reason or offense.
- Under Arrest: action by a peace officer which may be based either on directly witnessing a crime or pursuant to a warrant issued by a judge whereby an individual is taken into

physical restraint and taken to jail or some other area of confinement as authorized by the law.

- APOWW or APOWW'd "Apprehension by a Peace Officer Without a Warrant." In order to make such an arrest the peace officer must have probable cause to believe that the subject arrested is an immediate threat to him/herself or others and requires mental health services.

In EMS, "Custody" most frequently involves persons who are either "Under Arrest", or "APOWW'd".

Transportation guidelines for patients who are in LE custody:

- If a LE official requests that Fire/EMS evaluate a person who is in custody by definition, that person is a PATIENT
- The evaluation of patients who are in custody should be no different from the evaluation of any other patient, assuming the patient consents to the evaluation and it is safe to evaluate the patient
- Persons who are simply "detained" have the right to refuse BOTH evaluation and transport
- Patients who are under arrest DO NOT have the right to refuse ambulance transport. If police request that one of these patients be transported by ambulance, Fire/EMS shall transport the patient to a receiving hospital emergency department
- If transporting an incompletely assessed patient because the patient would not allow assessment OR because it was unsafe to assess them, notify your base hospital/medical director as early as possible so that appropriate resources can be ready and available at the receiving hospital
- ONLY a physician in a hospital emergency department OR jail medical staff can "medically clear" a patient who is in custody
- Patients who are assessed to be a potential harm to themselves or others shall be restrained in the safest, least restrictive manner possible
- When transporting a patient who is in the custody of law enforcement, a law enforcement officer shall accompany the patient in the back of the ambulance
- At no time shall a handcuffed patient be transported without the presence of a law enforcement officer who has the key to release those handcuffs in the back of the ambulance





# Section 4

# Managing HAZMAT Incidents

The purpose of the Blue Card HAZMAT SOP is to integrate and manage a HAZMAT incident within the framework of the Blue Card incident management system using the 8 Functions of Command.

A Haz Mat incident is defined as: An emergency response that involves any hazardous substance that is creating an exposure that results in, or may result in, adverse effects on the health or safety of humans, property, or the environment in which they live.

Unlike a fast paced, offensive structural firefighting incident, a HAZMAT incident should start out in the defensive strategy. Following all the OSHA rules and regulations on a HAZMAT deployment cultivates a very slow and methodical operation. Here are some of the major IC considerations when comparing a HAZMAT event to a structure fire:

IC Considerations	Structure Fire Incident	HAZMAT Incident
Overall Incident Stabilization Goal	Put water on the fire as quickly and as safely as possible	Identify the product(s) involved, mitigate the hazards per OSHA 1910
Organization	Divisions only used in IDLH	Groups are used
Tactical Priorities	Offensive strategy: Fire Control, Life Safety, Loss Control	Recon/Research, Medical, Entry, Back-Up, and Decon
Attack Position Management & Apparatus Placement	Forward Pumper anchored with a water supply and placed in a manner that puts water on the fire as quickly and safely as possible	Defensive in nature, spot far enough away from the scene to safely identifying the product(s) involved
Resource Management	Based on the Hazard Zone work/rest cycle task math vs. the Incident's problems	Based on the material involved, the scope of the problem, and the specialized HAZMAT resources required to mitigate
Communications	Radio Discipline Procedures	Mostly Face – to – Face
Work / Rest Cycles	12 minute IDLH work/rest cycles apply	Will depend on the required PPE needed for incident control

All HAZMAT emergency operations are controlled and regulated by OSHA Standard 1910 – Subpart H – Hazardous Materials. The subpart H series of the 1910 standard contains 1910.120 – Hazardous waste operations and emergency response. 1910.120 provides direction on:

- Training requirements and the different levels of HAZMAT team member certifications
- Command – IDLH management requirements on HAZMAT incidents
- Minimum incident scene size-up requirements
- PPE levels required for HAZMAT entry
- HAZMAT entry requirements and mitigation/stabilization requirements (recon, medical, entry, back-up)
- Decontamination requirements on HAZMAT incidents

The 8 Functions of Command will be used to describe the operational differences of managing a HAZMAT incident.

## **Function 1 - Deployment**

OSHA mandates that employers shall develop and implement a written safety and health program for their employees if there are any operations involving hazardous materials operations (as defined by OSHA). These programs shall be designed to identify, evaluate, and provide for emergency response for hazardous waste operations.

OSHA categorizes two (2) different emergency response methods used by HAZMAT employers to protect their employees when there is a hazardous materials release:

- Emergency Action Plan (EAP)
- Emergency Response Plan (ERP)

1. Emergency Action Plan (EAP): DO NOT include the actual containment and control of the hazardous materials release. EAPs require the employer to deliver a minimal amount of awareness training to their employees on the dangers of hazardous materials. All EAPs direct all employees to evacuate to safe locations in the case of an uncontained hazardous material release.

Facilities who have EAPs in place are directed to activate the Authority Having Jurisdiction (AHJ) to control/mitigate the hazardous material release. Most of the time, this comes in the form of the local fire department(s).

2. Emergency Response Plan (ERP): includes the actual containment and control of the hazardous materials release. Elements of an Emergency Response Plan must include:

- Pre-emergency planning and coordination with outside parties
- Personnel roles, lines of authority, training, and communication
- Emergency recognition and prevention
- Safe distances and places of refuge
- Site security and control
- Evacuation routes and procedures
- Decontamination
- Emergency medical treatment and first aid
- Emergency alerting and response procedures

- Critique of response and follow-up
- PPE and emergency equipment

Per OSHA, only a Hazardous Materials Response (HAZMAT) Team can control/contain a hazardous materials release. A HAZMAT Team is an organized group of employees, designated by the employer, who are expected to perform work to handle and control actual or potential leaks or spills of hazardous substances requiring possible close approach to the substance for the purposes of control or stabilization of the incident. A HAZMAT Team may be a separate component of a fire brigade or part of a local fire department.

### **HAZMAT Team Credentialing**

Employees responding to emergencies at different levels in the operational structure are required by OSHA to have specific training to ensure that emergency responders are properly trained and equipped to perform their assigned tasks.

OSHA lists seven (7) HAZMAT team emergency responder categories, which include the following five (5) principal training levels for HAZMAT:

- First responder awareness level
- First responder operations level
- HAZMAT technician
- HAZMAT specialist
- On-scene Incident Commander

The remaining two (2) categories include

- Specialist employees
- Skilled support personnel

#### **1. First Responder Awareness Level**

- Usually delivered to employees at HAZMAT facilities and volunteer firefighters
- Typically, 4 to 8 hours of training
- The ability to recognize the presence of hazardous substances in an emergency
- Identify a problem exist, make appropriate notifications, start the evacuation process and establish control zones
- Defensive posture only
- No equipment or mitigation capability
- Credentials will not allow them to provide mitigation support to a HAZMAT Team
- They take no further action beyond notifying the authorities of the release

#### **2. First Responder Operations Level**

- All NFPA certified FF 1 & 2's working in Operations must be credentialed to this level

- Approximately 40 hours to complete both the Awareness and Operations certification levels
- Front end defensive posture – Size up (limited monitoring) and product identification
- Not credentialed to make HAZMAT IDLH entry
- Credentialed as Warm Zone workers that provide most of the support for the entry teams
- Major objective when first on scene is to size up and ensure the appropriate level of HAZMAT resource is responding
- Initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release
- Can contain releases from a safe distance, keep releases from spreading, and prevent exposures to the materials
- Knows how to select and use proper PPE provided to the first responder operational level
- Knows how to implement basic decontamination procedures

### **3. HAZMAT Technician**

- 40 to 80 hours of training above Ops level (depending on the AHJ)
- Are usually part of a dedicated HAZMAT Team
- Knows how to implement the local ERP
- Can make all A, B, and C IDLH Hot Zone entries
- Respond to a releases or potential releases for the purpose of stopping the release
- Assume a more aggressive role than the Operations level
- Knows how to implement the employer's emergency response plan
- Can function as an assigned group supervisor in the Incident Command System.
- Knows how to select and use proper specialized chemical PPE provided to the hazardous materials technician
- Can perform advance control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available with the unit
- Understands and can implement the decontamination procedures
- Understands basic chemical and toxicological terminology and behavior

### **4. HAZMAT Specialist**

- Hazardous materials specialists that receive at least an additional 40 hours of training above the Technician level
- Subject Matter HAZMAT Experts
- HAZMAT Specialists typically teach HAZMAT operations in the local area
- Are individuals who provide support to hazardous materials technicians
- Duties parallel those of the hazardous materials technician, but require a more directed or specific knowledge of the various substances they may be called upon to contain
- Usually part of a dedicated HAZMAT Team
- Usually at least one (1) member of a HAZMAT Team is certified to this level
- More focused on the research and plant systems
- Knows how to implement the local ERP

- Understands classification, identification and verification of known and unknown materials by using advanced survey instruments and equipment
- Able to select and use specialized chemical PPE provided to the hazardous materials specialist
- Can make all A, B, and C entries
- Usually fills the role of the HAZMAT Branch officer or a group supervisor
- Acts as the site liaison with Federal, state, local and other government authorities in regard to site activities

## **5. On-scene Incident Commander**

All hazardous material emergency activities at a site must be coordinated through the Incident Command System (ICS), which specifies that one individual be in charge of coordinating and supervising emergency response efforts.

OSHA 1910.120 states: "Initially, IC #1 is the senior officer on the first-due piece of responding emergency apparatus to arrive on the incident scene. As more senior officers arrive, the position is passed up the line of authority which has been previously established." Based on this text, Blue Card is OSHA compliant in managing a HAZMAT incident. 1910.120(q)(3)(i)

## **6. Specialist employees**

- Are trained in the hazards of specific hazardous substances
- Will be called upon to provide technical advice or assistance for specific products or systems
- HAZMAT Medics fit into this category
- Shall receive training or demonstrate competency in the area of their specialization annually
- Usually their formal education qualifies them as HAZMAT Subject Matter Experts
- Global HAZMAT knowledge but their focus is typically directed on the chemical analysis and processes side of the incident
- Generally, an "on-call" part of the response team or they are employees of the facility hosting the incident

## **7. Skilled support personnel**

- Are skilled in the operation of certain equipment, such as mechanized earth moving, digging equipment, or crane and hoisting equipment
- Are needed temporarily to perform immediate emergency support work
- Will be or may be exposed to the hazards at a HAZMAT scene
- Are not required to meet OSHA training standards
- Shall be given an initial briefing at the site prior to their participation in any emergency response
- All other appropriate safety and health precautions provided to the HAZMAT team members shall be used to assure the safety and health of skilled support personnel

## HAZMAT Entry Typing

HAZMAT incident sites are classified into Hazard Zones. The different Hazard Zones identify the competency levels required by OSHA to perform actions in a specific zone. These zones are:

**Hot Zone:** an IDLH environment contaminated with the products involved in the incident that require a minimum level of PPE to operate in

**Warm Zone:** a defined area just outside of the Hot Zone that has the potential to become IDLH contaminated that requires a minimum level of PPE to operate in

**Cold Zone:** a defined safe area outside of the Warm Zone that has little or no chance of becoming IDLH contaminated where no PPE is required. The Cold Zone is where the IC, support personnel and uncommitted resources are all located

### HAZMAT Entry Types:

In an emergency response, OSHA has defined the following entry/exposure levels to the materials and how they relate to the selection of the proper PPE for the situation:

- **Site Survey** - Characterized by a large degree of uncertainty that mandates the highest levels of caution and protection. Site survey is typically performed in the Cold Zone of the incident.
- **Emergency Rescue** - Entering an IDLH area for the purposes of removing a viable, exposed victim. Emergency rescue is typically performed in the Hot Zone of the incident (much more on this in Function 4 - Strategy and Incident Action Planning).
- **Emergency Monitoring:** Outfitting personnel in the proper PPE for the primary purpose of observing a hazardous materials incident without entry into the spill site. These activities are typically performed by a Tech (or higher) in the Warm Zone.
- **Hazard Mitigation** – To prevent a potential toxic release or to reduce the hazards from an existing release. PPE matched to the hazards. Hazard mitigation is typically performed in the Hot Zone of the incident by Tech level HAZMAT team members.
- **Decontamination** – OSHA mandates providing for the decontamination of personnel or equipment when exiting the Hot Zone. Decontamination is typically performed in the Warm Zone of the incident by Operations level team members directed by a Tech.

### HAZMAT PPE Protection Levels

The use of PPE can itself create significant worker hazards, such as heat stress, physical and psychological stress, impaired vision, mobility, and communication difficulties. For any given situation, equipment and clothing should be selected to provide an adequate level of protection. However, over-protection, as well as under-protection, can also be hazardous and should be avoided whenever possible.

**LEVEL A** – Only worn by the Tech Level (or higher). Protection Provided: Highest available level of respiratory, skin, and eye protection from solid, liquid and gaseous chemicals. Used when the chemical(s) identified have high level of hazards to respiratory system, skin and eyes. Substances are present with known or suspected skin toxicity or a carcinogenetic. A Level A suit must include:

- Vapor protective suit (meets NFPA 1991)
- Pressure-demand, full-face SCBA fully encapsulated inside of the suit
- Two-way radio communication
- Ensemble items must allow integration without loss of performance.
- OPTIONAL: Cooling system, outer gloves, hard hat



**Limitations:** Protective clothing must resist permeation by the chemical or mixtures present.

**LEVEL B** – Only worn by the Tech Level (or higher) for Hot Zone entry. Can be worn by Ops in the Decon process with Tech supervision Protection Provided: The same level of respiratory protection as Level A suit, but less skin protection. Provides liquid splash protection, but no protection against chemical vapors or gases. Used when the chemical(s) identified do not require a high level of skin protection. The primary hazards associated with site entry are from liquid and not vapor contact. A Level B suit must include:

- Liquid splash-protective suit (meets NFPA 1992)
- Pressure-demand, full-facepiece SCBA (worn outside of the suit)
- Inner chemical-resistant gloves, chemical-resistant safety boots, and two-way radio communications
- OPTIONAL: Cooling system, outer gloves





**Limitations:** Protective clothing items must resist penetration by the chemicals or mixtures present. Ensemble items must allow integration without loss of performance.

**LEVEL C** – Can be worn by an Ops Level (or higher). Protection Provided: Not acceptable for a chemical emergency response. The same level of skin protection as Level B, but a lower level of respiratory protection. Liquid splash protection is provided, but no protection to chemical vapors or gases. Used when contact with site chemical(s) will not affect the skin. Air contaminants have been identified and concentrations measured. A canister or cartridge is available which can remove the contaminant. The site and its hazards have been completely characterized. A Level C suit must include:



- Support function protective garment (meets NFPA 1993)
- Full-facepiece, air-purifying, canister/cartridge-equipped respirator
- Chemical resistant gloves and safety boots
- Two-way communications system
- OPTIONAL: Face shield, escape SCBA available

Limitations: Protective clothing items must resist penetration by the chemical or mixtures present. Chemical airborne concentration must be less than IDLH levels. The atmosphere must contain at least 19.5% oxygen.

**LEVEL D** - Can be worn by an Awareness Level (or higher). Protection Provided: Not acceptable for a chemical emergency response. No respiratory protection, minimal skin protection. Used when the atmosphere contains no known hazard. Work functions preclude splashes, immersion, potential for inhalation, or direct contact with hazard chemicals.



A Level D suit must include:

- Coveralls, safety boots/shoes, hard hat, and safety glasses or chemical splash goggles
- OPTIONAL: Gloves, escape SCBA, face-shield

Limitations: This level should not be worn in a Hot Zone. The atmosphere must contain at least 19.5% oxygen.

**Structural Firefighting PPE** – Protection Provided: Not acceptable for a chemical emergency response. The only hazardous material protection provided while wearing full structural PPE is the respiratory protection provided from a Level B PPE entry suit. The actual garments, as worn, provides minimal; skin protection, splash protection, vapor protection, or protection from direct contact with hazardous chemicals. Decontamination is also difficult. Wearing these garments in the hot and Warm Zones where hazardous materials are present should be avoided.

Structural firefighting gear can be modified with accessories (such as duct tape) to protect the user from some known chemical hazards. Used when contact with site chemical(s) will not

affect the skin. The site and its hazards must be completely characterized to use structural firefighting PPE at any HAZMAT event.

## **HAZMAT Dispatch Considerations**

The (local) dispatch center will be notified when there is a spill or leak of a hazardous material substance. They are responsible for the dispatch of the proper fire department resource levels and the other agencies required based upon the degree and nature of the incident.

All dispatched resource should be dispatched using pre-determined dispatch packages. These standard dispatch packages should also include the command and tactical support required to manage the different amounts and types of resource responding.

HAZMAT incidents should be categorized into occurring at 2 different locations:

1. HAZMAT incidents occurring at a fixed facility/site that handles hazardous materials as part of their routine operations
2. HAZMAT incidents that occur anywhere else

1. When a HAZMAT incident is generated from a specific facility/site that handles hazardous materials, the dispatcher must ascertain if the facility has an EAP (are they evacuating affected areas) or does the facility have an ERP (an onsite HAZMAT Team) and what control measures are they currently taking.

Local emergency responders (the AHJ) will provide the HAZMAT Team personnel and support required to control HAZMAT events for fixed hazardous materials facilities utilizing an EAP that evacuates employees to safe distances but takes no further action to control/mitigate.

It is rare for a site/facility with an onsite ERP with their own HAZMAT Team to activate the local emergency responders to help mitigate a hazardous materials release. Most often, when this does occur, it is due to the lack of qualified personnel or the scope of the problem is beyond the facility's HAZMAT Teams ability to control. When these requests for outside aid happen, the onsite emergency workers will generally give good information on the details of the situation and their resource needs.

2. For HAZMAT incidents that occur anywhere else, the local emergency 9-1-1 responders (the Authority Having Jurisdiction - AHJ) will provide the HAZMAT Team personnel and support required to control/contain the HAZMAT incident.

## **HAZMAT Resource Typing**

Fire Department HAZMAT tactics have evolved over the past decades into a contain and control ONLY philosophy. A HAZMAT response team's number one priority is public safety. The main goals on a HAZMAT incident are:

- Protect life, environment, and property. (In that order)
- Assess the degree of the hazard

- Identification of the hazardous material(s)
- Contain the material in a defensive posture (if possible)
- Assure proper documentation and overall scene management

***The person(s) responsible for causing the hazardous materials incident and/or the property owner is financially responsible for both the response and clean-up of a hazardous materials incident. The major objective of a FD based HAZMAT team is to contain the release to where it no longer threatens the public or the environment. Once containment has been achieved, the team's objectives are to make all the proper notifications, document, and to ensure the responsible party is implementing the proper clean-up and decontamination procedures.***

Possible HAZMAT notifications to facilitate the above could include:

- Federal/State/Local Occupational Safety and Health Administration (OSHA)
- Environmental Protection Agency (EPA)
- State Emergency Response Commission (SERC)
- Local Emergency Planning Committee (LEPC)
- Department of Transportation (DOT)
- Federal/State/Local Department of Homeland Security (DHS)
- Center for Disease Control (CDC)
- Poison Control Center
- Local hospitals
- Certified HAZMAT clean-up and waste disposal companies
- State Fire Marshal's Office
- Police and/or Sheriff's Department
- Water/Sewer Depts.
- Jurisdictional Public Works Department
- School Superintendent (if the incident is within 1 mile of a school)
- Other Federal/State/Local agencies as required

**There are 3 basic levels of HAZMAT responses:**

1. HAZMAT Operation level responses
2. HAZMAT Tech level responses
3. HAZMAT Team level responses

**1. Operations level responses** – Initial HAZMAT responses most often include only Operations level HAZMAT personnel.

Operation level HAZMAT resources (Engines & Trucks/Ladder Companies):

- HAZMAT Emergency Response Guide (ERG) and other basic HAZMAT reference materials
- 4-gas meter (H<sub>2</sub>S, O<sub>2</sub>, LEL, CO)
- Diking equipment

- Minimal plugging equipment
- Limited amount of Class B Foam
- Shovels
- 25-50 lbs. of a dry absorbent

After the scene has been sized up, it is critical that the initial IC determines:

- If the current level of dispatched resources can adequately control the incident's problems
- If another agency is required to control the incident's problems (gas company, OSHA, clean-up company, etc.)
- If a HAZMAT unit (Tech level or above) needs to be consulted to control the incident's problems
- If additional Tech level HAZMAT resources are needed to control the incident's problems
- If an entire HAZMAT Team is needed to control the incident's problems

**Tech level responses** - Most HAZMAT Tech level responses are usually generated by on-site HAZMAT Operations level workers who have requested the assignment to be upgraded. The following are types of incidents that would initially be dispatched with some Tech level components:

- The product(s) identified on the initial 9-1-1 call require a higher level of HAZMAT response
- Incidents where the Ops Level has requested the next level of HAZMAT resource without the need to dispatch an entire HAZMAT Team
- When multiple agencies are required on smaller scale incidents
- When a higher level of HAZMAT expertise is required
- Situations where a Hot Zone entry is not required to control/contain

Some situations might require an Operations Level IC to contact (by phone) a dedicated HAZMAT Team member to discuss the size-up of the incident and if it is appropriate to upgrade the assignment with a higher level of HAZMAT resources or if Operations level resources can adequately control the incident.

**Tech Level Resource Typing** – The following represents a standard list of equipment and capabilities of the Tech Level:

- Field testing and detection
- WMD biological detection
- Air monitoring
- Sampling
- Radiation monitoring/detection
- Chemical PPE to make all HAZMAT entries (A, B, C)
- Ancillary protective equipment
- Technical reference materials/programs
- Plume air modeling capabilities

- Intervention capabilities that include: neutralization, encapsulating spreadable powder, pads, absorbent, non-polar solvents, booms, pillows, pipe, plastic, patch and repair
- Decontamination equipment
- Support tools for decontamination
- Respiratory protection: SCBA, remote air systems, canisters, etc.
- Special purpose tools
- Sufficient Tech Level personnel

Tech level HAZMAT personnel and resources come in a wide variety of delivery options. The following is generic typing of common HAZMAT resources:

- Dedicated Tech Level HAZMAT Unit (Engine or Truck Company)
- HAZMAT Squad
- HAZMAT Heavy Rescue
- HAZMAT BC
- HAZMAT support/equipment vehicles
  - Usually housed at a dedicated HAZMAT station
  - A member of the HAZMAT Team will respond with the vehicle for specified HAZMAT responses

**HAZMAT Team responses** - Most HAZMAT Team level responses are generated by on-site HAZMAT Operations level workers who have requested the assignment to be upgraded.

The following are types of incidents that should initially be dispatched with a dedicated HAZMAT Team:

- Any time a HAZMAT IDLH entry is deemed to be required using Level A or B PPE
- Significant amounts of hazardous product(s) have been released, are being released, or have the potential to be released
- The product(s) identified on the initial 9-1-1 call require the highest-level of HAZMAT response
- Facilities that are known to involve large amounts of hazardous materials or where highly hazardous processes are involved (weapons of mass destruction - WMD, radioactive, explosives, etc.)
- Request from other agencies/facilities that specify an entire team is necessary

HAZMAT Tech/Team configurations and their deployment methods vary widely across the US. Here are some general statements on HAZMAT Tech/Team deployment methods used across the US:

- Very few smaller departments (under 5-6 stations) have personnel trained above the Operations level
- Very few smaller departments have a dedicated HAZMAT Team
- Most smaller departments rely on county and/or state level dedicated HAZMAT Teams/resources

- Most county and state HAZMAT Teams deliver resources using several HAZMAT satellite stations with varying levels of HAZMAT personnel and equipment. These individual units come together to form a HAZMAT Team capable of performing IDLH entries along with having all the associated entry and Decon equipment
- Larger metro cities may have an entire HAZMAT Team housed out of one (1) fire station. This could include all the Techs required to make IDLH entries along with having all the associated entry and Decon equipment
- Larger metro cities may have several HAZMAT satellite stations with varying levels of HAZMAT personnel and equipment that all come together to form a HAZMAT Team capable of performing IDLH entries along with having all the associated entry and Decon equipment

## **HAZMAT TEAM TYPING**

Many states across the country have classified their HAZMAT Team responses using the following basic descriptions of the general capabilities which must be considered as the scope of the incident expands.

### **Type 3 HAZMAT TEAM DEPLOYMENT:**

- At least ten (10) members trained to the Tech level or above
- Capable of detecting and measuring known industrial chemicals and collect samples of known industrial chemicals
- Able to detect and measure beta and gamma radiation sources
- Able to make all Class B entries and below
- Complete basic intervention/control techniques such as damming, diking and absorption
- Self-sufficient to perform decontamination of their own team members of known industrial chemicals.

### **Type 2 HAZMAT TEAM DEPLOYMENT:**

- Same qualification as Type 3 team plus:
- At least fifteen (15) members trained to the Tech level or above
- Capable of detecting and measuring known and unknown industrial chemicals using advanced detection equipment and collect samples of known and unknown industrial chemicals
- Able to make all Class A entries and below
- Able to perform plume air modeling and map overlays
- Complete basic intervention/control techniques such as damming, diking, absorption, plugging/patching, neutralization, liquid leak intervention, and vapor leak intervention
- Self-sufficient to perform decontamination of their own team members of known and unknown industrial chemicals

### **Type 1 HAZMAT TEAM DEPLOYMENT:**

- Same qualification as Type 2 team plus:

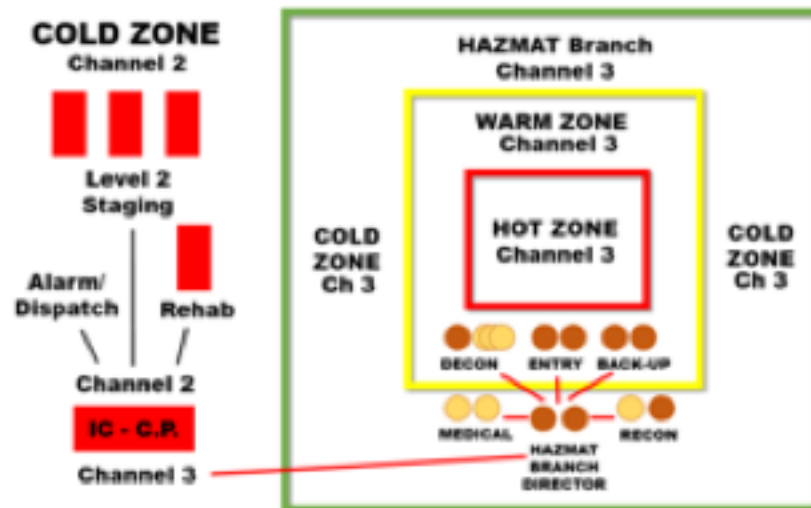
- At least twenty (20) members trained to the Tech level or above
- Able of detecting and measuring chemical and biological weapons of mass destruction with advanced detection equipment
- Able to collect samples of WMD as well as perform WMD confinement

### HAZMAT IDLH Entry Requirements

A full HAZMAT Team response will be required any time a HAZMAT IDLH Hot Zone entry is made. For HAZMAT incidents that require an IDLH entry, the IC must ensure that the following organization is in place prior to entry:

- Research/Recon
- Medical
- Entry
- Back-up
- Decon

The graphic below details the amount and type of HAZMAT personnel required to make a single, two (2) person IDLH entry to control the incident's problem(s).



### HAZMAT Team – “Force Multipliers”

Most fulltime/part time firefighters across the US are trained to the Ops Level. A HAZMAT incident that requires the deployment of a Type 1, 2, or 3 HAZMAT Team will require the additional resources of at least a 1<sup>st</sup> Alarm/Box to support the operation (in addition to the HAZMAT team response). A typical 1<sup>st</sup> Alarm/Box for a fulltime/part time fire department(s) will deploy between 20 to 30 personnel credentialed to the Operations Level.

The response of the local Ops Level credentialed personnel become the force multipliers when there are a limited amounts of Tech Level resources available.

It can take some areas of the country up to 4 to 6 hours to deploy a full Type 1, 2, or 3 HAZMAT Team. For most HAZMAT incidents that require a Hot Zone entry, entry can be put on a “holding status” until all the required equipment and personnel have arrived at the scene.

Many HAZMAT Team incident responses can deliver all the required equipment and supplies to make entry and contain/control the incident’s hazards, but there could be a long response times of the required Tech Level personnel (a Type 3 HAZMAT Team deployment requires at least ten (10) members trained to the Tech level or above).

In the early stages of the incident when there are limited Tech Level resources on the scene (at least 1 or more) the Tech Level can start supervising and implementing the required control/containment measures using Ops Level personnel as their task level workers in the Warm Zone. These early activities can greatly expedite Hot Zone control measures needed to be being taken once the required Tech Level personnel have arrived on scene.

At no time, will Ops Level personnel make entry into a Hot Zone requiring Level A or B PPE.

### **Responding to HAZMAT Incidents**

For any known HAZMAT response, the Dispatch Center shall attempt to obtain all pertinent information from the person reporting a hazardous materials incident. This information should include:

- Involved material(s) name, type, and/or class
- Amount of material involved and the size of container(s)
- Problem (leak, spill, fire, etc.) and its location
- Number of people injured or exposed

The dispatcher should remain on the phone with the caller to gain additional information after entering the call for dispatch. Any additional information shall be relayed to responding units after dispatch.

It is imperative that all agencies that may have responsibility in handling the incident be contacted and an agency representative be requested to meet fire department personnel at the scene. If the call is generated by a responsible party (RP) with a knowledge of the hazardous situation, the RP should be instructed to meet the dispatched units at a safe location.

The dispatch center will provide wind direction, speed, and the humidity level when dispatching units to a HAZMAT incident.

First due companies must start the research process while enroute. This process involves using the DOT Emergency Response Guide (ERG) to identify:

- Material properties
- Safe staging distances
- Evacuation distances



- Isolation and protective action zones distances (hot, warm, and Cold Zone determinations)

## **HAZMAT Staging Procedures**

The first arriving company, HAZMAT unit, and chief officer will respond to the scene, upwind/uphill (whenever possible), in a defensive manner. All other companies will respond directly to a Level 2 Staging location designated by the first due unit or the dispatch center. This area should be upwind and a sufficient distance away from the incident that it keeps the scene clear and maintains good access to the incident site.

First due companies need to determine the best Level 2 Staging location based on the products involved, weather conditions, the scene arrangement, and the ERG safe distance guidelines. Once determined, the Level 2 Staging location must be announced to the dispatch center and all other responding units.

### **Level 2 Staging**

Level 2 Staging for a HAZMAT incident will follow the same Blue Card Level 2 SOPs for structural firefighting. Once a Level 2 Staging location has been selected, the dispatch center shall dispatch all subsequent FD resources for the incident to the Level 2 Staging area.

All outside agencies dispatched to a HAZMAT incident should be sent directly to the Level 2 Staging area that is designated by the IC.

### **HAZMAT Accountability guidelines**

Although most units/members will not be working in a Hot Zone on a HAZMAT incident, the IC is still responsible for tracking all the resources assigned to the incident scene. All HAZMAT accountability will follow standard Blue Card accountability SOPs.

General HAZMAT accountability guidelines:

- The IC will use a tactical worksheet to track incident resources
- Group supervisors can use a tactical worksheet or passports to manage accountability in their assigned group
- Task level Units that are already in place and working when a group supervisor is assigned should report to the supervisor face-to-face and provide an update on work progress and needs
- Task level Units assigned to a group with a supervisor already in place will need to report to their group supervisor face-to-face when arriving at the work location
- Group supervisors should contact units at their staging location as soon as they are assigned to them and advise them what equipment/apparatus is needed at the work location
- The work/rest cycle is improved/lengthened working in a non IDLH environment
- All Hot Zone entries will follow the Blue Card structural firefighting passport accountability system

If the incident uses a HAZMAT Branch, the IC is responsible for documenting the resources assigned to the branch, while the Branch Director is responsible for tracking the ins and outs of the resources assigned to them.

## **Function 2 – Assume, Confirm, and Position Command**

The first Unit or member certified to at least the Operations Level to arrive at the scene of a dispatched HAZMAT incident will assume command of the incident by transmitting a standard Initial Radio Report (IRR), (Function 5 – Communications).

A HAZMAT IC must be certified to the Operations level and have competency in the following areas:

- Know and can implement the employer's incident command system
- Know how to implement the local emergency response plan
- Know and understand the hazards and risks associated with employees working in chemical protective clothing
- Know of the state emergency response plan and of the Federal Regional Response Team
- Know and understand the hazards and risks associated with chemical protective clothing
- Have a knowledge of the local HAZMAT Response Team
- Know and understand the importance of decontamination procedures

An Operations level HAZMAT IC should follow the standard deployment of:

- **Operate in a DEFENSIVE manner**
- Provide for the safety of all personnel and the public
- Evacuating exposed areas if necessary
- Identify and isolating the hot and Warm Zones
- Deny entry
- Attempting to identify the products involved
- Upgrading the assignment based on the incident's hazard profile
- Contain the release from a safe distance, and keep it from spreading
- Protect exposures

Until the IC has set-up and deployed the necessary OSHA subdivisions, NO Level A or B PPE entry shall be made into a HAZMAT IDLH Hot Zone unless it is to perform a highly calculated physical rescue (covered later in this SOP).

The IRR and/or Follow-up report should route all other responding units to a safe Level 2 Staging location.

On incidents that will require Hot Zone IDLH deployment(s), Command should be transferred to a standard command post as soon as possible in the incident

## Function 3 – Size-Up

**All known HAZMAT responses will start out in the Defensive strategy.**

If the products/processes involved in the incident are known at the time of dispatch, responders will need to use their ERG while enroute to research safe staging distances. The first arriving unit will approach the scene upwind and uphill when possible and will place themselves in the Cold Zone of the incident to size up the incident scene. All other responders will Level 2 stage upwind of the incident scene.

If the products/processes involved in the incident are NOT known at the time of dispatch, the first arriving unit will approach the scene upwind and will place themselves as far away from the incident scene/area as possible to safely size up the incident scene using an ERG. Binoculars can be used when it is necessary to stage long distances away from the Hot Zone. All other responders will Level 2 stage upwind of the incident scene.

In the initial stages of the incident, the IC must consult with the people involved in the incident who may have knowledge about the product. In addition, it is imperative all agencies that may have responsibility in handling the incident be dispatched and an agency representative be requested to the command post. The Incident Commander is responsible for assuring the appropriate agencies are contacted for assistance in identification and clean-up of the product.

### **Critical Factor Management**

The information-management phase, known as *size-up*, involves the systematic, yet rapid and deliberate consideration of all the incident's significant critical incident factors.

Standard conditions are identified as the incident's **Critical Factors**. For HAZMAT incidents, there are 7 standard categories that the IC will need to consider:

1. Event trigger
2. Arrangement & Properties of the hazardous material
3. Access & Arrangement of the exposures
4. Life Hazard
5. Resources
6. Action
7. Special Circumstances

### **Event trigger**

- Fire
- Explosion
- Transportation accident
- Overfill/Overpressure
- Spill or leak
- Puncture/Rupture/Break
- Valve, pipe, gauge malfunction

- Handling accident
- Toxic mixture
- Sabotage - Acts of terror
- Sabotage - Acts of terror
- Calls for the “Unknown”

### **Arrangement & Properties of the hazardous material(s)**

- Material(s) identity
- Size and overall amount of the material
- Inside vs. Outside
- IDLH concentrations
- Explosion sensitivity and flammability ranges
- Oxygen deficiency
- How have the material(s) been dispersed after the triggering event?
- Is the material currently contained?
- Is the material a: Liquid, Solid, Gas/vapor, Nuclear, Biologic?
- How do the materials involved react to; water, air, heat
- Where are the materials stored; building, vehicle, tanker, train, airplane
- What type of container is the material stored in – box, tube, cylinder, bag, jar, jug, drum
- How are the containers arranged (stacked, shelved, piled, loaded, secured)?
- Is it a one-time release that has stopped?
- Is the material continuing to be released? If so, is the product; under pressure, off gassing, gushing, pouring, flowing, overflowing, dripping, splashing, leaking, oozing, pooling
- What is the speed and direction of the release
- Are other hazardous materials stored in close proximity and the integrity of the exposed containers
- Is it reacting to/with other materials that are exposed
- Is it moving/migrating to other areas (downhill or downwind)
- Is the material above or below the waist?

### **Access & Arrangement of the Incident Scene**

- Ease or difficulty in accessing the hazard area
- Inside a structure (storage shed, house, office, commercial, manufacturing, HAZMAT facility, etc.)
- Outside a structure (topography and what are the external exposures)
- Inside a vehicle (car, truck, semi, train car, aircraft)
- Located in difficult topography (wrecked vehicles, on mountains, ditches, steep grades, ravines, in water, etc.)
- Distance of the internal exposures
- Access and arrangement of the internal exposures
- Distance of the exterior exposures
- Access and arrangement of the exterior exposures

- Value of the exposures
- Most dangerous direction of hazard migration
- Hazardous effects on exposures
- Barriers or obstruction to operations
- Limitations on apparatus movement

### **Life Safety**

- Location of occupants
- Number of occupants
- Condition of occupants
- Incapacities of occupants
- Resources required for a rescue
- EMS needs
- Hazardous Materials effects on victims
- Isolate (protect in place) vs. evacuate for potential victims
- Hazardous Materials effects on Firefighters
- Time to don the appropriate PPE
- Access to victims
- Escape routes

### **Resource**

- Staffing and equipment on scene
- Staffing and equipment responding
- Staffing and equipment available in reserve
- HAZMAT capabilities of responding personnel
- On-site Facility Resources/Equipment
- Estimate of response times for personnel and equipment
- Length of time required to mitigate
- Condition of Responders
- Capability of Command staff
- Built in hazard protection systems
- Managing/interact with other agencies as required

### **Action**

- Has the appropriate size up been performed on the products involved and the scope of the incident been determined?
- Effect current action is having
- Areas not yet covered
- Stage of operations
- Remote IC set-up
- Is an effective IAP in place
- Is an effective organization in place?

- Are operating positions effective
- Are there enough resources
- Are we operating safely
- Is layering in place
- Are there enough resources and qualified HAZMAT personnel on-scene and/or responding?
- What is the worst thing that can happen
- Is there a safety plan/organization in place that can react in case someone gets in to trouble?

### **Special Circumstances**

- Time of day/night
- Day of week
- Season
- Special hazards by virtue of holidays and special events
- Weather (wind, rain, snow, temperature, humidity, visibility)
- Incident topography

### **HAZMAT size-up reference materials**

**DOT Emergency Response Guide (ERG)** - First due companies need to start the research process while enroute. This process involves using the DOT Emergency Response Guide (ERG) to identify:

- Material properties
- Safe staging distances
- Safe evacuation distances
- Isolation and protective action zones distances (hot, warm, and Cold Zone identification)



The ERG is a comprehensive, easy to use guide that gives Operations level HAZMAT responders assistance on:

- Hazard chemical classifications
- Identifying different types of containers
- Identifying all transportation markings, labels, and placards
- Isolation and protective action distances (hot, warm, and Cold Zone identification)
- A list of all globally categorized hazardous chemicals/materials
- Emergency operational guides for the chemical(s) identified

The list of chemicals indexed in the ERG will give the user an operation guide number for the specific chemical identified. The “**Guide**” section of the manual gives emergency responders specific operational direction for the material identified. The guide numbers provide specific direction on:

- Health hazards of the material(s) identified
- Fire or explosion hazards
- Public safety risks
- PPE required in the Hot Zone
- Evacuation zones for different scenario types
- Containment operations for different scenario types
- First aid recommendations

**Other HAZMAT reference materials include:**

WISER – A wireless information provider for first responders

- Includes an ERG
- More advanced information provided
- Can be used by all responders, but primarily used by Techs and above

NIOSH pocket guide to chemical hazards - Used to reference specific chemical properties:

- Flash points
- Molecular weights
- Specific gravity
- IDLH limits
- Exposure routes
- PPE recommendations

Cameo Chemicals – Internet based

- Very advanced chemical identification system and response planning tool
- Most likely used by the Tech level and above

**Shipping papers, bills of ladings, MSDS/SDS data sheets, etc. (they're all the same):**

Shipping Documents (Papers) are synonymous and can be found as follows:

- Road – kept in the cab of a motor vehicle
- Rail – kept in possession of a crew member
- Aviation – kept in possession of the aircraft pilot
- Marine – kept in a holder on the bridge of a vessel

Shipping Documents (Papers) provide vital information regarding the hazardous materials to initiate protective actions. Information provided:

- 4-digit identification number, UN or NA (go to yellow pages)
- Proper shipping name (go to blue pages)
- Hazard class or division number of material
- Packing group
- Emergency response telephone number
- Information describing the hazards of the material (entered on or attached to shipping document)

EMERGENCY CONTACT 1-000-000-0000		EXAMPLE OF EMERGENCY CONTACT TELEPHONE NUMBER	
CONTRACT #: XX-XXXX-X ***		HAZARD CLASS OR DIVISION NO.	
		QUANTITY	NO. & TYPE OF PACKAGES
UN1219	ISOPROPANOL	3 II	12 000 LITERS
			1 TANKTRUCK
ID NUMBER	SHIPPING NAME	PACKING GROUP	

#### Function 4 - Strategy & Incident Action Planning (IAP)

An IC properly managing the incident's strategy has the **#1 – GREATEST** overall impact on responder safety.

Overall operational strategy is divided into only two categories: Offensive or Defensive.

- Offensive operations are conducted inside the hazard (hot) zone
- Defensive operations are conducted outside of the Hazard Zone - in safe locations

The two separate strategies create a simple, ***understandable*** plan that describes how close the responders will get to the incident's hazards.

The incident's overall strategic decision is based on the incident's critical factors weighed against the Risk Management Plan (RMP).

**All known HAZMAT incidents will start in the Defensive strategy.**

Defensive tactical priorities:

- Define the Hazard Zone
- Isolate the Hazard Zone
- Search and evacuate exposures
- Protect exposures

An Operations level HAZMAT IC should follow the standard Incident Action Plan (IAP) of:



- Provide for the safety of all personnel and the public
- Evacuating exposed areas if necessary
- Identify and isolate the hot and Warm Zones
- Deny entry
- Attempt to identify the products involved
- Upgrading the assignment based on the incident's hazard profile
- Contain the release from a safe distance, and keep it from spreading
- Protect exposures

### **Provide for the safety of all personnel and the public**

Protective actions are those steps taken to preserve the health and safety of emergency responders and the public during an incident involving the release of hazardous materials.

The choice of protective actions for responders and the public will depend on several factors. For some cases, **evacuation** may be the best option; in others, **sheltering in-place** maybe the best course of action. Sometimes, these two actions may be used in combination.

Proper evaluation of the HAZMAT critical factors and the use of the ERG will determine the effectiveness of an evacuation or in-place protection (shelter in-place) strategy. The individual factors that are critical in this decision are:

#### Hazardous material(s) involved

- Degree of health hazard
- Chemical and physical properties
- Amount involved
- Type of release and the speed of the material movement

#### Life safety

- Locations
- Numbers of people
- Time available to evacuate or shelter in-place
- Building types and availability
- Special institutions or populations to consider; nursing homes, hospitals, prisons, etc.

#### Weather conditions & topography

- Effect on vapor and cloud movement
- Potential for wind changes
- High ground to low ground product movement

In some cases, in-place sheltering (staying indoors) may provide adequate protection and should be a serious consideration in the decision-making process. In-place sheltering can be considered during the following circumstances:

- The hazardous material has been identified as having a low or moderate level health risk.

- The material has been released from its container and is now dissipating
- Releases can be controlled rapidly and before evacuation can be completed
- The material is a migrating toxic vapor cloud and the citizens are safer inside structures than what they would be outside of them
- Exposure to the product is expected to be short-term and of low health risk
- The public can be adequately protected by staying indoors

## **Evacuation**

An incident involving hazardous materials has the highest probability of causing a large-scale evacuation than any other incident type. Due to the nature of the hazard(s), this type of evacuation often provides little time.

### **Types of Evacuation**

There are three basic types of evacuation. Each type requires a different resource commitment. They include:

- Site Evacuation
- Intermediate Level Evacuation
- Large Scale Evacuation

### **Site Evacuation**

Site evacuation involves a small number of people typically located in one, manageable geographic area. This includes the people at the site, and persons from any exposed adjacent occupancies or areas. All evacuations should follow the path of upwind and uphill whenever possible. Units assigned to evacuation must use the ERG to determine safe holding locations in the Cold Zone. These locations must be highly considered with the wind patterns factored in. Always avoid having to evacuate the same people twice.

Evacuation holding times are typically short, generally less than an hour before people are permitted to return to their businesses or homes.

### **Intermediate Level Evacuation**

The intermediate level involves larger numbers of citizens and/or affects a larger area. This level affects off-site occupancies and normally affects fewer than 100 persons. Persons may remain out of the area for two to four hours or more. Evacuation completion times will be somewhat longer, but generally rapid. Collecting, documenting, and controlling the evacuees will require more resources. Off-site collection sites or shelter areas will need to be determined and managed. Site perimeters become larger and perimeter security requires more resource. Close coordination with the law enforcement and other agencies will be required.

### **Large Scale Evacuation**

A large or concentrated release of a hazardous materials may cause a large-scale evacuation that involves over 100 to thousands of people. Evacuees may be out of their homes and businesses for extended periods of time. Evacuation completion time frames will be greatly extended. Evacuation shelters will need to be located, opened and managed. Very close coordination with law enforcement and other agencies will be required. Site and evacuation perimeters will typically become extended and require much more resources to maintain.

It will take time to complete any evacuation. The more people to be evacuated, and the distance between the occupancies to be evacuated, the more time required. The greater numbers needing evacuation will also require a greater resource commitment.

**Once the decision has been made to evacuate, the IC's responsibilities include:**

- Order the evacuation
- Provide the evacuation resources required
- Establish law enforcement liaison
- Order the response of other appropriate agencies
- Expand the command organization to meet the incident/evacuation needs
- Establish an evacuation plan and communicate the plan to the emergency workers and agency liaisons
- Monitor, support, and revise the evacuation process as necessary
- Use the rescue Order Model to define the evacuation priorities
- Assign specific areas to evacuate to avoid duplication or missed areas
- Provide the transportation necessary for evacuees
- Provide continuing command of the evacuation, de-commitment, and return of evacuees

**Determine the product(s) involved and identify the hot and Warm Zones**

Once the isolation areas have been identified and addressed, all efforts should be focused on:

- Identifying the product(s) involved
- Determining the overall scope of the incident
- Using the ERG to identify the hot, warm and Cold Zones of the incident

**Identifying the product(s) involved and determining the scope of the incident's problems is a major objective of the IC on a HAZMAT incident.** This information will lead to the development of the incident's strategy, IAP, and the resources required to contain/control the release.

**Isolate and deny entry**

When first arriving to the scene of a HAZMAT incident, the IC will often have little to no information on the materials involved or the scope of the overall problem. In these initial stages of the incident, the IC must:

- Determine the area(s) on the incident scene where the problems exist

- Isolate those areas in a very conservative, defensive manner
- Deny entry of any non-HAZMAT emergency responder into the isolated areas identified
- Evacuate persons in the isolated area as necessary

### **Upgrading the assignment based on the incident's hazard profile**

After the product(s) of the release have been identified and the scope of the incident has been established, it is critical that the IC make a resource determination based on the following:

- If the current level of dispatched resources can adequately control the incident's problems
- If another agency is required to control the incident's problems (gas company, clean-up company, etc.)
- If a HAZMAT unit (Tech level or above) needs to be consulted to control the incident's problems
- If additional Tech level HAZMAT resources are needed to control the incident's problems
- If an entire HAZMAT Team is needed to control the incident's problems

### **Contain the release from a safe distance, and keep it from spreading**

Most hazardous materials are intended to be maintained in a safe condition for handling and use through confinement in a container or other protective system. The emergency is usually related to the material escaping from the protective container or system and is now creating a hazard to people or the environment. The strategic plan must include methods to:

- Control the flow or release
- Get the hazardous material back into a safe container
- Neutralize it
- Allow it to dissipate safely
- Coordinate its proper cleanup and disposal

The specific IAP must identify the method of hazard control and the resources necessary to accomplish this goal. It may be necessary to select one method over another due to the unavailability or long travel distances of HAZMAT resources or, the operation will need to adopt a holding action to wait for the needed equipment or supplies.

Avoid committing personnel and equipment prematurely. Many times, it is necessary to evacuate and wait for other agencies, specialized equipment, or Tech Level HAZMAT Team support.

HAZMAT Team members use two basic methods for control/containment of hazardous materials incidents; Physical and Chemical:

#### Physical control methods

- Absorption
- Covering

- Dikes, Dams, Diversions, and Retention
- Dilution
- Plug and Patch
- Transfer
- Vacuuming
- Valve control
- Vapor Dispersion
- Vapor Suppression (Blanketing)
- Venting

#### Chemical control methods

- Controlled Burning
- Dispersants, surface active agents, and biological additives
- Flaring
- Gelation
- Neutralization
- Polymerization
- Solidification

#### **Operations Level control options**

- | All Operations Level action will start out in a defensive fashion
  - | There are certain incidents, where all known hazards are identified, where the Ops level can take offensive action to contain/control the release (i.e.; CO, CO2, fuel spills, etc.)
  - | Where Level A and B PPE is required, Ops Level workers shall avoid making entry into the Warm Zone of the incident unless they are working under the direct supervision of the Tech Level
  - | Due to the limited amount of HAZMAT PPE, equipment and resources carried on an Operations Level apparatus, it will restrict the Operations Level to the following control/containment options:
    - | Applying Class B Foams
    - | Damming
    - | Diking
    - | Some plugging depending on the product(s)
  - | If recommended by the ERG or the AHJ SOP, a limited ability/expertise to shut off control/supply valves

All the above shall start in a defensive manner.

#### **Hot Zone entry requirements**

Many times, a Hot Zone entry is NOT required to control or contain a hazardous materials release. This can be due to:

- The material has been identified and is a moderate to low health hazard

- The material has been totally released from its container and is quickly dissipating
- Short duration solid or liquid leaks that have ceased being released from their containment system and are being 100% contained on premise and poses no immediate threat to people or the environment
- Leaks that can be rapidly controlled and contained at their source (shut off valves) outside of the Hot Zone

HAZMAT incidents where all hazardous materials are contained and pose no immediate threat to people or the environment must have the proper agencies notified to mitigate. The IC will coordinate and document, with the responsible parties (RP) involved in the incident, the request of the appropriate hazardous materials clean-up and disposal crews.

### **Hot Zone entry requiring Level A or B HAZMAT PPE - IC strategic and tactical considerations**

- All HAZMAT Hot Zone entries requiring Level A or B PPE will require at least a Type 3 HAZMAT Team deployment
- Only the Tech Level can make a Level A or B PPE Hot Zone entry
- Operations Level personnel should only operate in the Warm Zone of the incident under the direct supervision of the Tech Level
- Tech Level personnel must be the Group Supervisors for Research/Recon

For any HAZMAT incident that requires a Hot Zone IDLH entry using Level A or B PPE, the IC must ensure that the following organization is in place prior to entry:

- **Research/Recon**
- **Medical**
- **Entry**
- **Back-up**
- **Decon**

The next section of the SOP will briefly overview the general roles of each HAZMAT Group. Function 6 – Organization will provide greater detail on the individual HAZMAT Group tactical level responsibilities.

**Research/Recon** - A major function of Research/Recon is identifying the products involved and then matching the proper PPE and Decon to the identified incident's hazards. A major IC function of a HAZMAT IC (per OSHA) is an understanding of:

- The different HAZMAT PPE levels
- The required credentialing to use the different PPE levels
- The required credentialing to make Hot Zone entries
- The level of Decon required based on the chosen PPE

**If a Hot Zone entry requiring Level A or B PPE is required to control/contain the incident scene, the Tech Level must supervise all Research/Recon activities.**

**Medical (monitoring)** - Medical monitoring is the ongoing, systematic evaluation of HAZMAT emergency crews who are at risk of suffering adverse effects of heat/cold exposure, stress, or hazardous materials exposure. Medical monitoring is performed at the site of a hazardous materials incident, usually in the Warm Zone, at least one (1) hour prior to the members making entry.

**Medical monitoring members can be Ops Level personnel working under Tech level supervision.**

**Entry** - Offensive HAZMAT entry operations using Level A or B PPE include actions taken by the Tech Level and above to contain/control an incident in such a manner that contact/interaction with the released hazardous material may result.

**All HAZMAT Team IDLH Hot Zone entry team members using Level A or B PPE must be credentialed to the Tech Level or above.**

**Back-up** - All HAZMAT incidents will use the buddy system. The buddy system requires the IC to organize HAZMAT Team hot and Warm Zone members into work groups in such a manner that each member is designated to be observed by at least one other member in the work group. The purpose of the backup team is to provide rapid assistance to entry members in the event of an emergency.

**All backup team members for an IDLH Hot Zone entry must be credentialed to the Tech Level or above and wearing the same level of PPE as the Entry Team.**

**Decon** - Is the process of removing or neutralizing contaminants that have accumulated on personnel and equipment. The process of Decon is critical to both personnel and the environment at hazardous waste sites. Decontamination protects workers from hazardous substances that may contaminate and eventually permeate protective clothing, respiratory equipment, tools, vehicles, and other equipment used on site.

The entire process of decontamination should be directed toward confinement of the hazardous materials within the Hot Zone. The Decon corridor should be located directly adjacent to the Hot Zone. Potential effects of the Decon process upon personnel and the environment should be considered when developing the decontamination plan.

**Members of the Decon team must be in the minimum PPE of at least one (1) level below the entry team's level of protection. This equates to:**

- **Level A Entry – Decon must be in Level A or B PPE – Tech Level required to supervise all Decon**
- **Level B Entry – Decon must be in Level B or C PPE – Tech Level required to supervise all Decon. Ops level can wear Level B PPE in a Decon line (NO Level A PPE for the Ops Level)**

**Emergency Rescue**

Based on RMP and the chemical profile of the incident, ICs must be very pessimistic when evaluating a HAZMAT incident's life safety profile. Generally, people exposed to hazardous materials to the point of unconsciousness are usually dead.

## **Function 5 - Communications**

Effective incident communications provide the very practical connection between and among the 3 management levels of the organization; the strategic, tactical and the task levels. Incident communications are the information "carrier" that the team uses to connect, commit resources, and to create effective, coordinated action.

All HAZMAT incident communications will mirror the Blue Card Hazard Zone standard communication forms. The only changes made to the system is the verbiage we use to manage a HAZMAT incident that is described in this section of the SOP (along with using plain English to manage Group activity).

### **Order Model**

The Order Model will be used on all incident communications.

### **Initial Radio Report (IRR)**

Especially for HAZMAT incidents, the IRR is never an affidavit of absolute accuracy; it's just a quick snapshot of the incident's hazards that provides a "word picture" of what the IC can see from their command position when they first arrive on-scene from a defensive position. Much more accurate information on the products involved and the overall scope of the incident will be given in the Follow-up report and subsequent CAN reports.

The major differences between a structural fire and HAZMAT IRR is in the problem description. A HAZMAT incident should include problem description information on the:

1. Event trigger
2. Arrangement & Properties of the hazardous material

### **Description of the event trigger**

The description of the event trigger could include:

- Fire
- Explosion
- Transportation accident
- Overfill/Overpressure
- Spill/ Puncture/Rupture/Break
- Handling accident
- Acts of terror
- Calls for the "Unknown"



## **Description of the Arrangement & Properties of the hazardous material**

The arrangement and properties of material(s) could include several things (see list in Function 2 - Size-Up). Some arrangements and properties can be identified when initially arriving on-scene and should be stated on the IRR. Others must be identified through the size-up/recon process and be reported on the follow-up report or subsequent CAN reports.

Major reporting items include:

- Involved material(s) identity
- Size and overall amount of the material
- Inside vs. Outside
- Where are the materials stored; building, vehicle, tanker, train, airplane, in a field
- Hazards of the material to the public
- Explosion hazards
- How have the material(s) been dispersed after the triggering event
- Is the material continuing to be released
- Is it moving/migrating to other areas (downhill or downwind)

## **Follow-Up Reports**

The IRR is usually performed from the front seat of an Engine Company. Once the report has been given and Dispatch/Alarm acknowledges the report (using the Order Model) the company officer of the unit is probably out of the cab and has started to Recon the incident scene.

The Follow-up report for a HAZMAT incident should include the same information as a standard Blue Card Follow-up report that includes:

- Spill/ Puncture/Rupture/Break
- Handling accident
- Acts of terror
- Calls for the "Unknown"

All other HAZMAT incident communications will use plain English and must follow the standard Blue Card communication forms.

## **Function 6 – Organization**

Like structure fire organizations, HAZMAT organizations are built from the ground up and are based on:

- Managing the IC's span control
- Firefighter safety
- The incident's arrangement, level of hazards, and the resources required to control the problem(s)

HAZMAT emergencies are highly regulated. This regulation creates very structured organizations that are deployed at every HAZMAT incident as they are required. A HAZMAT incident will use the following Groups when controlling a hazardous materials incident:

- Research/Recon
- Medical
- Entry
- Back-up
- Decon

For any HAZMAT incident that requires a Hot Zone IDLH entry using Level A or B PPE, the IC must ensure that all the above groups are in place and operating prior to entry being made.

### **Research/Recon**

Research/Recon's primary responsibilities are:

- Identifying the material(s) involved and its characteristics
- Determine the overall scope of the incident – hot, warm, Cold Zones
- Determine the best way to contain/control the release
- Determine the appropriate level of PPE for the incident
- Determine the appropriate level of Decon for the incident

A major function of Recon is matching the proper PPE and Decon to the incident's hazards. A major IC function on a HAZMAT incident (per OSHA) is the understanding of the different HAZMAT PPE levels, the required credentialing to use the different PPE levels, the required credentialing to make Hot Zone entries, and the required level of Decon based on the incident's hazards.

A preliminary evaluation of a site's characteristics shall be performed PRIOR to Hot Zone entry by the Tech Level or above. If the preliminary site evaluation does not produce sufficient information to identify the hazards or suspected hazards of the site, an entry ensemble providing equivalent to Level B PPE shall be provided as minimum entry protection.

Immediately after Hot Zone entry, a more detailed evaluation of the site's specific characteristics shall be performed to further identify existing sites hazards and to further aid in the selection of the appropriate PPE for the identified hazards.

This evaluation of a site's characteristics will aid in the selection of the appropriate PPE to be used prior to Hot Zone entry and should be based on:

- **Chemical Hazards** - Chemicals present a variety of hazards such as toxicity, corrosiveness, flammability, reactivity, and oxygen deficiency. Depending on the chemicals present, any combination of hazards may exist.
- **Physical Environment** - Chemical exposure can happen anywhere and the environment in which they occur can present several physical hazards. Chemical

handling activities may involve entering confined spaces, heavy lifting, climbing a ladder, or crawling on the ground. The choice of ensemble components must account for these conditions.

- **Duration of Exposure** - The decision for ensemble use time must be made assuming the worst-case exposure so that safety margins can be applied to increase the protection available to the worker. If respiratory protection is required, SCBA work times and air reserves must also be factored in.
- **Protective Clothing or Equipment Available** – The AHJ should attempt to provide a high degree of flexibility while choosing protective clothing and equipment that is easily integrated and provides protection against each conceivable hazard.

Once the level of the protection is determined, Research/Recon will report to the HAZMAT Branch Director or to the IC the level of PPE, Decon, and resources required to make entry.

### **Medical (monitoring)**

Per OSHA, the ERP must also provide for Medical support. This must include:

- Must be qualified Basic Life Support (BLS-EMT) personnel or higher-trained personnel
- These personnel must be on standby at the incident site
- ALS-Paramedic support personnel shall be no more than 3-4 minutes from the incident site

Medical monitoring is the ongoing, systematic evaluation of HAZMAT emergency crews who are at risk of suffering adverse effects of heat/cold exposure, stress, or hazardous materials exposure. Medical monitoring is performed at the site of a hazardous materials incident, usually in the Cold Zone, at least one (1) hour prior to the members making Hot Zone entry.

Medical monitoring must be provided to:

- All entry team members
- All backup team members
- Any other member who will be involved in physically stressful activities on the incident scene

Personnel assigned to Medical are responsible for:

- Obtaining baseline vital signs and performing physical assessments of Entry and Back-up team members
- Identify and prohibit any individuals at increased risk for sustaining injury and illness from participation in the Hot Zone and Warm Zone activities based on their physical assessment
- Provide early recognition and treatment of personnel with adverse physiological responses because of on scene activities

Pre-entry medical monitoring should include the following assessment:

- Blood pressure – prohibit activities if diastolic is over 105 mm Hg
- Pulse – prohibit activities if pulse rate is over 70% the max heart rate
- Respiratory rate – prohibit activities if greater than 24 per minute
- Temperature – prohibit activities if greater than 99.5 F
- EKG rhythm strip (10 seconds) if available – prohibit activities if dysrhythmias are found
- Skin – prohibit activities if rashes or open sores/wounds are present
- Mental Status – prohibit activities if not alert and oriented X4

### **Medical Monitoring During Entry**

Medical must be assigned to the same tactical channel as the Entry and Backup teams. Whenever possible, Medical should have direct visual contact of the entry team. Medical must monitor the entry team for:

- Changes in gait
- Changes in speech
- Changes in behavior

Back-Up and/or Medical must notify the IC or the HAZMAT Branch Director when any changes are noted that would indicate the member(s) is having any adverse physiological response because of on scene activities. This will require the IC or HAZMAT branch to:

- Have the entry team immediately exit the Hot Zone
- Have the entry team undergo immediate decontamination and doffing of protective clothing
- Once the member's PPE is doffed, Medical will provide immediately assessment and treatment as necessary in the Cold Zone of the incident

### **Medical Monitoring Post Entry**

All entry and backup team members must have post medical monitoring shortly after they have removed their PPE. Post medical monitoring should continue every 5-10 minutes or until the individuals baseline vitals have return to normal. EMS procedures shall be followed for members who are having any medical issues after doffing of their protective clothing.

### **Entry**

Offensive HAZMAT ENTRY operations actions using Level A or B PPE can only be taken by the Tech Level or above, in the appropriate chemical-protective clothing, in order to handle an incident in such a manner that contact with the released material may result. Basic Entry Team guidelines include:

- All entry team members must be credentialed to the Tech Level or above
- Medical monitoring must occur within one (1) hour of entry
- A backup team must be in place prior to any Hot Zone entry

- The control actions taken by entry team members will physical, chemical, or a combination of both
- Entry teams must pre-plan the control measures required prior to entry whenever possible
- Entry teams must bring in all the required and forecasted control equipment whenever possible
- If the preliminary site evaluation does not produce sufficient information to identify the hazards of the site, an entry ensemble providing equivalent to Level B PPE shall be provided as minimum entry protection
- Immediately after Hot Zone entry, a more detailed evaluation of the site's specific characteristics shall be performed to further aid in the selection of the appropriate PPE and control measures
- All members working for the HAZMAT branch must be operating on the same tactical channel
- Max entry depths should be calculated with a 33% air reserve upon exit
- Zero visibility entries should be avoided
- Entry teams must remain in constant contact with their Backup Team and the HAZMAT Branch Director

### **Back-up**

All HAZMAT incidents will use the buddy system. The buddy system requires the IC to organize HAZMAT Team members working in the hot and Warm Zones into work groups in such a manner that each member of the work group is designated to be observed by at least one other member in the work group. The purpose of the buddy system is to provide rapid assistance to team members in the event of an emergency.

Back-up Team guidelines:

- All Hot Zone backup team members for a Level A or B PPE must be credentialed to the Tech Level or above
- Visual, voice, or signal line communication is maintained between the members in the IDLH atmosphere and the backup team members located just outside the IDLH atmosphere in the Warm Zone of the incident
- Backup team members must use the same level of PPE as the entry team
- Backup team members should provide the appropriate rescue/retrieval equipment for possible extrication of entry team members
- Backup team members must be directly ordered into the Hot Zone by the IC or Branch Director

### **Decon**

Is the process of removing or neutralizing contaminants that have accumulated on personnel and equipment. The process of Decon is critical to both personnel and the environment at hazardous waste sites. Decontamination protects workers from hazardous substances that may contaminate and eventually permeate protective clothing, respiratory equipment, tools, vehicles, and other equipment used on site.

The entire process of decontamination should be directed toward confinement of the hazardous materials within the Hot Zone. The Decon corridor should be located directly adjacent to the Hot Zone. Potential effects of the Decon process upon personnel and the environment should be considered when developing the decontamination plan.

### **Decon Plan**

A decontamination plan should be developed (as part of the Site Safety Plan) and set up before any personnel or equipment enter areas where the potential for exposure to hazardous substances exists. The decontamination plan should:

- | Determine the number and layout of decontamination stations
- | Determine the decontamination equipment needed
- | Determine appropriate decontamination methods
- | Establish methods for disposing of clothing and equipment that are not completely decontaminated

The plan should be revised whenever the type of personal protective clothing or equipment changes, the site conditions change, or the site hazards are reassessed based on new information.

All personnel should be trained in the Standard Operating Procedures for minimizing contact and maximizing worker protection, and these procedures should be enforced throughout site operations.

### **Types of Contamination**

Contaminants can be located either on the surface of personal protective equipment or permeated into the PPE material. Surface contaminants may be easy to detect and remove; however, contaminants that have permeated a material are difficult or impossible to detect and remove. Five (5) major factors affect the extent of permeation:

1. The longer a contaminant is in contact with an object, the greater the probability and extent of permeation. For this reason, minimizing contact time is one of the most important objectives of a decontamination program
2. Molecules flow from areas of high concentration to areas of low concentration. As concentrations of wastes increase, the potential for permeation of personal protective clothing increases
3. An increase in temperature generally increases the permeation rate of contaminants
4. Permeation increases as the contaminant molecule becomes smaller, and as the pore space of the material to be permeated increases
5. As a rule, gases, vapors, and low-viscosity liquids tend to permeate more readily than high-viscosity liquids or solids

### **Decontamination Methods**

All personnel, clothing, equipment, and samples leaving the contaminated area of a site must be decontaminated to remove any harmful chemicals or infectious organisms that may have adhered to them. Decontamination methods consist of:

- Physically remove contaminants
- Inactivate contaminants by chemical detoxification or disinfection/sterilization
- Remove contaminants by a combination of both physical and chemical means

### **Physical Removal of contaminants**

In many cases, gross contamination can be removed by physical means involving dislodging/displacement, rinsing, wiping off, and evaporation. Contaminants that can be removed by physical means can be categorized as follows:

- **Loose contaminants** - Dusts and vapors that cling to equipment and workers or become trapped in small openings, such as the weave of the clothing fabrics, can be removed with water or a liquid rinse
- **Adhering contaminants** - Some contaminants adhere by forces other than electrostatic attraction. Adhesive qualities vary greatly with the specific contaminants and the temperature
- **Volatile liquids** - Volatile liquid contaminants can be removed from protective clothing or equipment by evaporation followed by a water rinse

Decontamination procedures must provide an organized process by which levels of contamination are reduced. The decontamination process should consist of a series of procedures performed in a specific sequence. Outer, more heavily contaminated items (e.g., outer boots and gloves) should be decontaminated and removed first, followed by decontamination and removal of inner, less contaminated items (e.g., jackets and pants). Each procedure should be performed at a separate “station” in order to prevent cross contamination.

**The sequence of stations is called the Decon line or corridor.**

Initial stations in the corridor should be located as close to the Hot Zone as safely possible to reduce the risks of cross contamination into the Warm Zone.

Stations down the corridor should be separated physically to prevent cross contamination between individual stations and should be arranged in order of decreasing contamination levels, preferably in a straight line.

Entry and exit points should be conspicuously marked.

Decon workers who initially come in contact with personnel and equipment leaving the Hot Zone will require more protection from contaminants than decontamination workers who are assigned to the last station in the decontamination line.

In some cases, Decon personnel should wear the same levels of PPE as workers in the Hot Zone. In other cases, Decon personnel may be sufficiently protected by wearing one level lower

protection (wearing Level C protection while decontaminating Hot Zone workers who are wearing Level B).

Decon workers who are in a contaminated area and must themselves be decontaminated before entering the warm or Cold Zones. The extent of their decontamination should be determined by the types of contaminants they may have contacted and the type of work they performed. Their Decon should be the same as Hot Zone workers.

### **Emergency Decontamination**

In addition to routine decontamination procedures, emergency decontamination procedures must be established. In an emergency, the primary concern is to prevent the loss of life or severe injury to site personnel. If a worker has been contaminated with an extremely toxic or corrosive material that could cause severe injury or loss of life, decontamination must be performed immediately.

Emergency Decon usually involves using a fire stream to rinse the contaminants off. People undergoing emergency Decon should remove all clothing before proceeding to treatment areas.

Decon should be performed prior to treatment to prevent causing cross contamination to the EMS workers. Making a bad situation worse.

If an emergency due to a heat-related illness develops while making a Hot Zone entry or being in a back-up position, protective clothing should be removed from the member as soon as possible to reduce the heat stress.

During an emergency, provisions must also be made for protecting medical personnel and disposing of contaminated clothing and equipment.

### **Function # 7—Review, Evaluate, Revise**

Major Goal: To confirm the current Strategy and IAP meets the incident's tactical requirements & adequately provides for worker and public.

The biggest reason we continuously perform size-up, evaluation and revision is so our workers can operate safely, complete the tactical priorities, and go home unharmed after the event.

A standard front end ensures our incident operations remain under control from the beginning of the event and assures those operations occur within a structured plan. When the IC performs the standard command functions from the very beginning of the incident, it provides a basis for any revisions required to match the Strategy and IAP to the current incident conditions.

The ongoing evaluation of the incident's critical factors is the basis for managing the current Strategy and IAP **and** keeping it current (positions always match conditions).

HAZMAT incidents provide the IC with the discretionary time needed to make critical decisions.



## **Standard HAZMAT incident action planning considerations:**

- Has the appropriate size up been performed on the products involved and has the scope of the incident been determined?
- Effect current action is having
- Areas not yet covered
- Stage of operations
- Remote IC set-up
- Is an effective IAP in place
- Is an effective organization in place
- Are operating positions effective
- Are there enough resources
- Are we operating safely?
- Is layering in place
- Are there enough resources and qualified HAZMAT personnel on-scene and/or responding?
- What is the worst thing that can happen?
- Is there a safety plan/organization in place that can react in case someone gets in to trouble?

## **Function 8 – Continue, Support & Terminate Command**

Major Goal of Command Function 8: To provide enough command to manage the required units for the necessary length of time in order to achieve the tactical priorities and protect all of the Hazard Zone workers.

The IC's ability to conduct command operations over this time period determines the entire operation's overall effectiveness. Every tactical situation involves a different combination of elements that affect the operation's length and intensity.

### **Implement the Appropriate Branches When Required**

A Branch is used for HAZMAT incidents more than any other local incident.

Whenever there is going to be a Hot Zone entry using Level A or B PPE, the incident requires heavy HAZMAT technical support, or the scope of the problem is large, uncontained, and growing, the IC should create a HAZMAT Branch.

The activation of Branches signifies that the incident is going to be split into two, separate pieces. A Branch should operate on its own radio channel when managing and directing the activities of group supervisors. Branch officers will communicate with the IC on a separate radio channel designated by the IC. The radio designation of Branch Officers should reflect the function or geographic area of the Branch. For HAZMAT incidents, when creating a Branch, designate it "HAZMAT Branch".

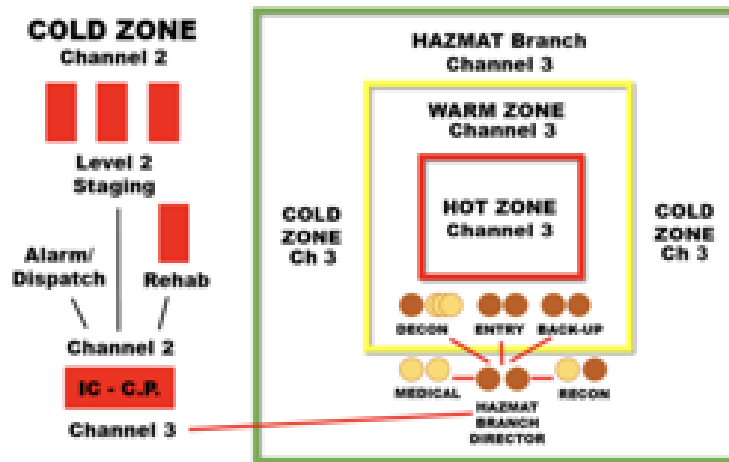
When Command implements Branch Officers the IC will assign a separate radio channel for communications within the Branch. Any current Group supervisors included in the Branch should be notified by Command of their new Branch director. This information should include:

- What Branch the Group is now assigned to?
- The radio channel the branch is operating on

### HAZMAT Branch Operational Guidelines

- HAZMAT Branch directors should be certified to a minimum of the Tech Level
- HAZMAT Branch directors should operate in the Cold Zone of the incident and directly supervise the required Group supervisors
- HAZMAT Branch directors should command their Branch with the assistance of a Support Officer (SO)
- The SO is responsible for providing the IC with Warm Zone progress reports on the incident's assigned tactical channel
- The HAZMAT Branch SO should be certified to Tech Level or above
- Most of the communications inside the Branch will be performed face-to-face

Typical HAZMAT Branch configuration



## **HAZMAT Tactical Guideline – Carbon Monoxide Responses**

### **General CO info**

Unintentional, non-fire-related CO poisoning is responsible for approximately 15,000 emergency department visits and nearly 500 deaths annually in the United States. CO poisoning is the number one (#1) NON-intentional poisoning death in the US. The majority of deaths due to NON-intentional CO poisoning occur between the months November and February (over 50%) with a majority of the incidents occurring in the Midwest and the Northeast parts of the country. The two (2) most common locations where the incidents occurred are in a residence (77.6%) or the workplace (12.0%).

### **Product info**

Carbon Monoxide (CO) is produced by the process of incomplete combustion. This typically occurs in automobile exhaust, cooking appliances, heating equipment (i.e.; anything that burns fuel can produce unhealthy levels of CO).

### **Carbon Monoxide (CO) – NFPA 704**

Health – 3  
Flammability – 4  
Instability – 0  
Special - none

### **Carbon Monoxide Physical Properties**

- Colorless, tasteless, odorless gas
- Molecular weight 28.01 (air is 28.97) CO is slightly lighter but will mix throughout the space and not collect only at the ceiling
- Ionization Potential (IP) 14.01 and CAN NOT be seen by most Photo Ionization Detector (PID)
- Upper Explosive Limit (UEL) 74%, Lower Explosive Limit (LEL) 12.5%

## **Carbon Monoxide physical and health effect on humans**

Carbon Monoxide is an asphyxiate in humans with no warning properties. CO has 210 times greater affinity to attach to hemoglobin than oxygen. Inhalation of CO causes tissue hypoxia by preventing the blood from carrying sufficient oxygen. CO combines reversibly with hemoglobin to form carboxyhemoglobin. Carbon monoxide can be transported across the placental barrier, and exposure in utero constitutes a special risk to the fetus. Infants and young children are generally believed to be more susceptible to carbon monoxide than adults. The elderly are also believed to be more susceptible to carbon monoxide poisoning. It is not quickly removed from your system so the affects can be cumulative.

- NIOSH recommended maximum exposure limit is 35 ppm
- 100 ppm - Slight headache in two to three hours
- 200 ppm - Slight headache within two to three hours with loss of judgment
- 400 ppm - Frontal headache within one to two hours with loss of judgment
- 800 ppm - Dizziness, nausea, and convulsions within 45 min; insensible within 2 hours
- 1,200 ppm - Immediately Dangerous to Life and Health (IDLH) – Acute Exposure

Acute exposure: The signs and symptoms of acute exposure to carbon monoxide may include headache, flushing, nausea, vertigo, weakness irritability, unconsciousness, and in persons with preexisting heart disease and atherosclerosis, chest pain and leg pain. Chronic exposure: repeated exposures to carbon monoxide poisoning may cause persistent signs and symptoms, such as anorexia, headache, lassitude, dizziness and ataxia.

## **Carbon Monoxide greatest threats to public/responders**

Death due to asphyxiation

### **Incident taking**

A majority of CO related incidents are dispatched due to a CO alarm activation at residential occupancies. But a significant number of CO incidents are initiated as an ill or unconscious person EMS call where the caller is unaware their symptoms are being caused by CO.

Blue Card highly encourages departments to attach a one (1) gas CO meter on their EMS equipment. These devises have alerted EMS responders countless of times that the patient's symptoms are being caused by high CO levels (while also protecting the EMS workers).

Dispatch Center should try to obtain the following information for CO alarm generated incidents:

- Verify the problem (CO detector vs. smoke detector)
- Advise occupants to evacuate the building to a safe area
- Are there any medical issues, if yes, how many people are involved?
- Does the occupancy have gas or electric appliances? If gas appliances are being used, also dispatch the appropriate natural gas provider

## **Carbon Monoxide Response Levels**

CO Still Assignment - Carbon Monoxide detector activation only (no symptoms) \*:

- 1 Engine

CO ALS Assignment - Carbon Monoxide detector activation with one (1) sick person\*:

- At least 1 response unit ALS capable
- 1 Engine
- 1 Ladder
- 1 EMS transport unit
- 1 Chief

CO 2-1 Assignment - Carbon Monoxide detector activation (or information that would indicate CO present) affecting multiple people\*:

- At least 2 response units ALS capable
- 2 Engines
- 1 Ladder
- 2 EMS transport units
- 1 Chief

\* Any of these responses could be scaled-up with a higher EMS and HAZMAT response based on the caller information and the associated Critical Factors (i.e.; high CO meter readings (over 35ppm), high life density – multi-family/apartment, theater, mall, etc.).

\* If gas appliances are being used, also dispatch the appropriate gas provider

### **HAZMAT Quals to control**

- FF 1 & 2 with HAZMAT Operations Level credential
- Understanding of Gas Monitoring and its limitations
- Trained in the process of metering to include where to meter
- Understanding of the properties of Carbon Monoxide (slightly lighter than air)
- Carbon monoxide response does not require any specialized training, PPE, or equipment outside what most all Fire Departments have available

### **PPE and allied equipment required**

- All members working in the warm and Hot Zone of the incident will wear full structural FF PPE, SCBA on, with the members face piece available to rapidly don
- Preferably 2 (two) 4 gas meter with the following sensors – O2, LEL, H2S, CO. The meter must be “zeroed out” in fresh air before using in the Hazard Zone.
- FD personnel in the Warm Zone will be limited to the absolute minimum required to size up the incident
- Fan

### **Responding to CO Incidents**

All members working in the warm and Hot Zone of the incident will wear full structural FF PPE, SCBA on, with the members face piece available to rapidly don  
Preferably 2 (two) 4 gas meter with the following sensors – O2, LEL, H2S, CO. The meter must be “zeroed out” in fresh air before using in the Hazard Zone.

FD personnel in the Warm Zone will be limited to the absolute minimum required to size up the incident  
Fan

## **Responding to CO Incidents**

When responding to a CO alarm it's easy to become complacent because of the high instance of false alarms. Responders should avoid this attitude and take these responses seriously. A CO alarm should never be ignored.

CO alarms are designed to alert before symptoms occur while occupants still have time to take action to protect themselves. Occupants should be directed to immediately evacuate the building when a CO alarm sounds.

## **Most frequent causes of CO exposures**

- Faulty HVAC gas heating and cooking systems
- Faulty gas hot water heater ventilation systems
- Running gas powered devices located too close to an enclosed space
- Outside cooking equipment located too close to an enclosed space (gas BBQ, charcoal grills, etc.)
- Marine/Boating environment
- Cars running in an enclosed space
- Malfunctioning fireplace chimneys

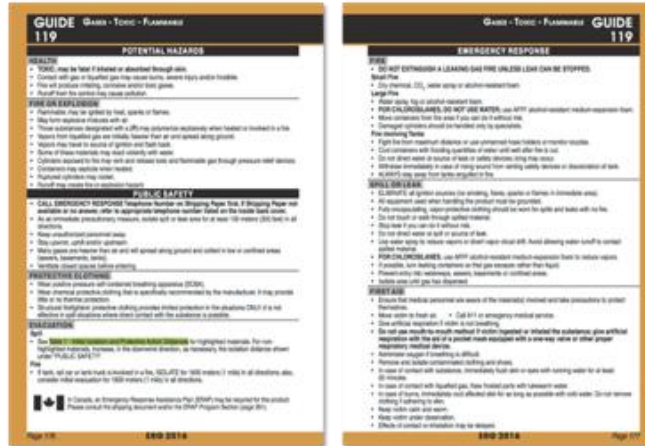
## **CO Size-Up**

Responding size-up considerations:

- Is it a CO alarm or CO alarm with illness?
- Is it a CO alarm or other alarming device (CO vs. smoke)?
- Are the people suspecting they are sick due to CO?
- What could be the problem:
  1. Car in Garage
  2. Appliances
  3. Fireplace
  4. Furnace / water heater
  5. Cooking appliances/grills

## **Specific 2016 ERG page numbers**

- Carbon Monoxide
- Guide 119 – Pages 176 - 177
- ID Number 1016



## Rescue

- Structural firefighting gear along with SCBA will provide adequate protection for making entry on all CO incidents
- If a rescue is imminent upon arrival at a Carbon Monoxide incident crews will make entry and remove all occupants to an open-air environment
- Patient care must be transferred to the appropriate EMS personnel

From this point on, the IC will facilitate:

- The appropriate pt. treatment
- Executing the procedures in this SOP

## Required metering equipment

- Preferably 2 meters that have been calibrated per manufacturer recommendations
- 1 meter for evaluation and 1 meter for confirmation
- Both meters should be a 4 gas to meter for Oxygen, Carbon Monoxide, Lower Explosive Limit (LEL) and Hydrogen Sulfide (H2S)

## Metering techniques

Prepare the gas meter prior to entry, including fresh air calibration. Once calibrated, begin using the meter to monitor the atmosphere outside of structure, working your way to the interior of the structure.

Check with occupants prior to entry for information related to incident:

- What gas appliances were operating?
- Have any vehicles been running inside the garage or next to any openings?
- Where are the gas appliances located?
- Have they done anything since the alarm sounded and prior to the Fire District's arrival?

## Control method

A majority of Carbon Monoxide responses result in a false alarm. The most common types of Carbon Monoxide alarm malfunctions are:

- Old and non-functioning alarms
- Maintenance issue (dirty or exposed to other household products that have cause the malfunction)
- Batteries need to be replaced

False alarms will be verified by thorough metering of the occupancy with insignificant CO readings.

Once entry has been made, begin an organized, systematic metering of the structure to determine the cause, making sure to check all fuel burning appliances and document readings. Any meter readings above 15ppm CO are unusual. With meter readings over 15 ppm:

- Attempt to identify the source(s)
- If identified, turn off the affected appliance, vehicle, engine or motor
- If the fuel supply to the device can be shut off, do so
- Ventilate (using PPV) when appropriate
- Notify occupant of results, including the need to contact a qualified technician to service or correct condition as it poses a danger to its continued use
- Advise occupant to call 911 should alarm sound again

Members will need to go on air with any reading over 35 ppm. Anytime an SCBA is used, the IC must ensure two in two out is in place.

Any appliance that has been turned off, unplugged, disabled, or had the fuel shut off to it, must be red tagged, put out of service, and be attended to by a qualified technician before placing back into service.

ANY natural gas appliance or meter that has had the gas shut off, the local gas authority must be notified and dispatched to the incident. AT NO TIME will any FD member turn on a gas meter or any gas appliance that has its gas supply in the off position. Transfer all CO incidents that involve any natural gas-powered equipment over to the appropriate utility company

Once the source has been identified and controlled, ventilation should be started to reduce high CO concentrations. Once started, over ventilation is recommended

Ventilation to move the CO will potentially move the cloud to areas such as exit stairways long way away from the original, contaminated area. Because it is odorless and colorless, other FD members located in stairwells, hallways, or near the ventilation exit points may not realize they are in an area high in CO concentration until they are overcome.

All areas of the structure must be re-monitored after ventilation is completed to confirm all product has been removed from the structure.

## **Decon**

Decon is not required for CO only issues.

## **Organization used for CO incidents**



Most CO incidents are handled by the first responding unit and the local utility company and these incidents don't require large command organizations.

Unless the hazards are wide-spread or are affecting multiple people, these types of incidents will not require large HAZMAT organizations. If levels of CO are encountered over 35ppm, the standard OSHA groups will be required to conduct Hot Zone operations. Most notably:

- Research/Recon
- Entry
- Back-up
- No Decon is needed for inert gas only issues

### **Review and Revise**

If a gas meter is secured to control the problem (or anything other gas equipment up-meter) arrangements will need to be made for agencies (FD and Utility company) to meet at a designated command post, in the Cold Zone, to perform a face-to-face on what both agencies need to do to support each other.

### **Continue, Support, and Terminate Command**

Law enforcement (LE) may be necessary to coordinate intermediate and large-scale evacuations when they are required on CO incidents. When LE is required for the incident, follow the evacuation SOP outlined in the HAZMAT command function section.

CO gas incidents exposing large numbers of people may require the IC to expand the command structure to include EMS and/or a HAZMAT branches.

## **HAZMAT Tactical Guideline - Natural Gas Pipeline Responses**

This SOP is based on natural gas pipeline emergencies already in its gaseous/vapor form. This SOP does not address liquefied or compressed natural gas emergencies.

Natural gas pipeline emergencies represent one of the most common HAZMAT emergencies that local fire departments respond to. The Pipeline and Hazardous Materials Safety Administration (PHMSA) reports that on average over the past ten (10) years there are almost 300 incidents a year with natural gas that involve explosions or significant fires. These incidents seriously injure 65 people, kill 13, and cause 475 million dollars in property damage per year.

Natural gas explosions also represent one of the leading causes of FF LODDs and serious injury on HAZMAT incidents.

These types of incidents will be approached with the upmost caution and ALL natural gas pipeline SOP's MUST be followed to prevent:

- Death
- Significant injury
- Fire Department liability

### **Natural Gas - Fire Diamond**

Health – 2  
Flammability – 4  
Instability – 0  
Special - none

### **Natural Gas Physical Properties**

- Colorless, tasteless, odorless gas (unless an odor causing agent has been added)
- Natural gas is predominately methane
- Natural gas is a Class 2 Flammable gas
- Ignition Temperature - 1163° F
- Flash point - minus180 Celsius
- Molecular weight 16.04 (air is 28.97)
- Natural gas is much lighter than air and will dissipate rapidly outside
- Inside of buildings and any other contained vessels, natural gas tends to pocket, particularly in attics, under stairs, and in dead air spaces
- The flammable limits are 5 percent to 15 percent in air (remember that your meter is reading the percentage of the lower explosive limit not the actual percentage of the product in air)

- Odorized natural gas can be smelled at concentrations of less than 1%

**Whenever there is a gas leak - somewhere there is the right mixture to support an explosion and/or fire**

### **Natural gas physical and health effect on humans**

Natural gas is non-toxic and considered a simple asphyxiant. Vapors may cause dizziness or asphyxiation without warning. Some may be irritating if inhaled at high concentrations.

### **Natural gas greatest threat to public/responders**

Explosions

### **General Natural Gas Distribution info**

Natural gas typically originates in underground deposits and is extracted in a number of ways. Energy companies have also developed alternative processing methods to create natural gas. Transmission pipelines transport the natural gas at pressures of up to 1,500 psi throughout the country to local natural gas distributors.

Local, gas distribution systems operate at pressures ranging from 99 to 0.25 psi (0.25 psi is the usual pressure downstream of a residential gas meter) and consist of mains, services, valves and meters that are constructed of steel, cast iron, ductile iron, wrought iron or plastic, depending on the system age and type of service. Natural gas transmission and distribution piping system installations must conform to rigid construction requirements set forth in ANSI B31.8, Gas Transmission and Distribution Piping System Standard.

The U.S. Department of Transportation (DOT) maintains jurisdiction over the safety of transmission pipelines. Distribution systems must comply with DOT regulations, along with any public utility commission requirements. Utility companies must ensure the integrity of their natural gas distribution systems through a comprehensive safety program that involves surveying, monitoring, maintenance and testing. Most utility companies are responsible for the entire, local distribution system, including the natural gas meter. Property owners are responsible for all-natural gas piping inside buildings downstream of the meter.

Many rural and suburban areas don't have piped natural gas service. In these areas, the gas service may be bottled gas, such as liquid propane gas (LPG). The information contained in this specific SOP doesn't apply to LPG. Fire departments should be aware of where there is natural gas service in their local coverage areas.

### **Incident call taking guidelines**

Dispatch Center will try to obtain the following information when processing a natural gas pipeline emergency:

- Verify natural gas pipeline emergency
- Release/leak occurring inside a structure or in the open
- Location of the leak if known

- Has an explosion or fire occurred
- Number of people exposed or injured

Dispatch Center will:

- Instruct anyone exposed to evacuate to safe areas (100 meters away from the structure)
- Request for response of the natural gas pipeline service provider on ALL natural gas emergencies

### **Natural Gas Pipeline Response Levels**

1. Natural gas reported OUTSIDE of a building with no explosion/fire

- 1 Engine
- 1 District Chief

2. Ruptured, cut, broken, or leaking high pressure natural gas lines with no explosion/fire

- 2 Engines
- 1 Ladder
- 1 Medic
- 1 District Chief

3. Natural gas inside of any building or structure (or space – i.e. sewer, etc.) with no explosion or a gas fire that is NOT exposing a structure

- 2 Engines
- 1 Ladder
- 1 Medic
- 1 District Chief

4. Any known gas explosion or gas fire exposing a structure

Full 1<sup>st</sup> Alarm structural response

- Appropriate HAZMAT response based on the caller info (with a minimum response of 1 HAZMAT Unit (with at least 2 Techs))

### **HAZMAT Quals to control**

- FF 1 & 2 with HAZMAT Operations Level credential
- Understanding of Gas Monitoring and its limitations
- Trained in process of metering to include where to meter
- Understanding of the properties of Natural Gas (lighter than air)
- Natural Gas response does not require any specialized training, PPE, or equipment outside what most all Fire Departments have available

### **PPE and allied equipment required**

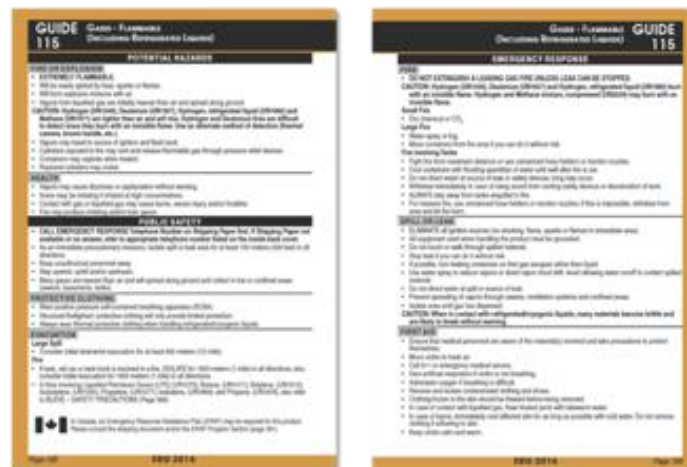
- All members working in the Warm Zone of the incident will wear full structural FF PPE, SCBA on, with the members face piece available to rapidly don
- 4-gas meter with the following sensors – O2, LEL, H2S, CO. The meter must be “zeroed out” in fresh air before using in the Hazard Zone
- FD personnel in the Warm Zone will be limited to the absolute minimum required to size up the incident

## Responding to Natural Gas Incidents

If the level and type of release is known while responding, first due units will use their ERG to determine safe apparatus placement locations and staging areas (a minimum of 333 ft. – 100 meters).

### ERG information

- The material name is listed as “Natural gas, compressed” in the Blue pages
- Directs the user to Guide #115
- Chemical ID number: 1971



## Natural gas pipeline emergencies fall into 3 separate, distinct categories:

- Natural gas leaks with no visible ignition
- Natural gas leaks with ignition (free burning)
- Natural gas leaks that have exploded

### Natural gas control methods

Calls for "odor of gas," "gas leaks," "broken gas lines," and similar situations may range from minor to potentially disastrous incidents. Due to possible extreme consequences, these types of incidents must be approached with the upmost caution.

### Reported gas Leak - NO visible ignition

Use the ERG as a basic guide for natural gas leaks. When responding to a reported gas leak with no fire or explosion, the first arriving unit should:

- First arriving unit will stop at least two houses away or 333 ft. (100 meters) from the dispatched address, upwind whenever possible
- All later arriving units shall maintain Level-2 staging a minimum of 800 feet away from the address/area of the leak, upwind whenever possible
- Only a minimum number of personnel shall be allowed to size-up the situation
- All personnel must be in full PPE and crew must be equipped with a 4-gas monitor (preferably 2 monitors) capable of detecting NG LEL
- Personnel are metering for the percentage of LEL and the possible displacement of Oxygen in confined areas and dead spaces within and around the structure
- In the Cold Zone, start monitoring the environment when approaching the leak area
- Shut off all vehicles (ignition sources) in the Warm Zone
- Personnel in the Warm Zone must be in full PPE with SCBA on with their face piece ready to don (two out)

When metering for natural gas, any positive LEL readings indicate that NG is present. Units shall:

- Immediately go from the Offensive strategy (investigating) to the Defensive strategy
- Ensure the local NG provider is responding
- Evacuate any civilian and firefighting personnel from the structure a minimum of at least 2 houses away or 333 ft. – 100 meters from the last LEL reading
- Upon evacuation, if easily accessible, isolate and shut-off the gas meter to the occupancy
- Single family home; evacuate at least the 2 homes around all sides of house (or 333 ft. – 100 meters)
- Multi family, mixed use and commercial occupancies; the entire building should be evacuated initially with consideration for additional evacuation of the exposures depending on their distance and arrangement around the source (using the 100-meter evacuation guideline)
- The larger the occupancy, the larger the potential energy there is to release
- Await the local utility company for control/mitigation

### **Ruptured gas lines that are exposed to open air**

- Immediately assume the Defensive strategy
- Ensure the local NG provider is responding
- Evacuate any civilian and firefighting personnel from the structure a minimum of at least 333 ft away – 100 meters
- NG providers are the AHJ for NG incidents. They have all the necessary personnel and equipment to mitigate these types of events. FD personnel at no time should try to mitigate/control the leak
- Fire department members will remain outside of the Hot Zone and will only provide warm and Cold Zone support to the NG provider

- Fire department shall not provide “protection lines” for NG workers. The greatest threat of NG is an explosion. A handline will not put out an explosion and only exposes more people to the threat

### **Underground, migrating NG leaks**

Natural gas explosions have occurred in structures which were not served by natural gas. Underground leaks may permit gas to travel considerable distances before entering a structure through:

- The foundation
- Around pipes
- Storm drains and sumps
- Other void spaces

Once an underground leak has been identified:

- Ensure the local NG provider is responding
- Evacuation distances for these types of incidents could be much further than the standard 333 ft. (100 meters)
- While evacuating, continue to meter the exterior of structures to determine the overall scope of the incident (size of the Hot Zone)
- Do not rely on gas odor, the odorant in the gas may be scrubbed out by passage through the ground
- Continued metering will be performed by the NG provider to determine the proper evacuation distances and what control measures will be taken to stabilize

### **NG – No Ignition - General Guidelines**

The greatest risk of NG is an explosion which can be ignited by a spark or open flame. Sparks can come from turning electrical equipment on and off. If possible, radios, pagers, cell phones, etc., should be turned off before approaching the area. Fire fighters should avoid using doorbells or any other electrical equipment. Prohibit smoking and prevent other potential sources of ignition.

Flipping electrical breakers off could have the potential to cause a spark, causing an explosion if a concentration of gas were present. The local electrical provide must be requested if the power to the structure needs to be secured to reduce the explosion hazard. FD members must NOT secure the electric utilities in these situations and have the power company do it.

Anytime a gas meter is secured (turned off) the local NG provider must be notified, dispatched to the scene, and command transferred over to them.

If fire department personnel shut off/isolate any type of natural gas equipment located upstream of an occupancy’s gas meter, THEY MUST LEAVE THAT EQUIPMENT OFF and notify the local NG provider. The local gas company is the ONLY agency that can turn on ANY natural gas piping or equipment.

If the problem is an extinguished pilot light on an appliance, Fire Department personnel shall attempt to close the shut-off to that appliance. Fire Department personnel shall not re-light pilot lights even if they are assured there is not an explosive accumulation in the area. If the gas leak cannot be stopped by an in-line shut-off, then the gas supply to the building shall be shut off and red tagged until repairs are completed.

### **Natural gas leaks with ignition (free burning)**

Burning natural gas should not be extinguished, since this changes the hazard from being visible to invisible and creates a high explosion hazard. Natural gas fires should be controlled by:

- Evacuate any occupants to minimum safe distances
- Protect exposures
- Continue to monitor the area for any natural gas reading/concentrations to define the Hot Zone
- Await the local utility company for final control/mitigation

### **NG Explosion has occurred**

Units arriving at the scene of a structure explosion must consider natural gas as a significant possible cause. In these circumstances, the cause of the explosion may be difficult to determine. Until it can be determined that the area is safe from the danger of further explosions, evacuate all civilians and keep the number of fire department personnel in the area to an absolute minimum.

The area (Blast Zone) hosting the explosion shall be considered Defensive. No member shall enter this area until the proper gas and electric utility companies have deemed the area is safe from hosting any further gas explosions.

- Notify the gas and electric companies and request an immediate response
- The number of exposed personnel shall be kept to an absolute minimum. All apparatus must spot at least two houses away or 333 ft. away (100 meters) from the explosion area, in the Cold Zone. A SAFETY PERIMETER SHALL BE ESTABLISHED AND MAINTAINED AROUND ANY SUSPECTED GAS LEAK, FIRE, OR EXPLOSION
- Conduct a recon and search for possible victims outside of the explosion zone. Interview neighbors or witnesses to try to determine if the building(s) was occupied. Victims can be found a long distance from the origin of the explosion
- Observe for signs of gas leaks, i.e., flames coming through cracks in the ground or around foundations, or bubbling through puddles
- Do not extinguish flames coming up through the ground
- Check systematically using combustible gas meters, following the "Reported gas Leak - NO visible ignition" metering guidelines
- Any metering readings of LEL - all personnel must be evacuated a minimum of 333 ft. – 100 meters from the last zero reading on the meter



- Evacuate all exposed structures. Do not enter the structure after it has been evacuated. The NG provider will meter the interior all the exposures during their size-up
- Always beware of the possibility of additional explosions
- Shut off the gas in other exposed buildings if easily accessible and it's safe to do so (you're out of the Hot Zone)

Because something has just exploded, other structures located in close proximity could be involved in fire. Most of the nearby structures will have also suffered structural damage. If a structure in the defensive blast area is involved in fire, operations will be conducted only in the Warm Zone to protect exposures. No entry shall be made in the Hot Zone for any firefighting activity.

**Reported gas in sewers, drainage systems, and below grade vaults** Various types of gas from a variety of sources can be found in sewers, drainage systems, and below grade vaults. This includes natural gas, propane, gasoline, sewage gas, hydrogen sulfide (very lethal), and CO from electrical cable burnout.

If on fire, do not attempt to extinguish any flames if a gas becomes ignited in a sewer or underground vault. This will be a defensive incident. Establish a Hot Zone around the opening and keep vehicles and bystanders away from nearby manhole covers. Prohibit smoking and eliminate other potential sources of ignition.

Any type of flammable gas in a sewer system can travel long distances from its source. When gas has been confirmed in a sewer, these types of events generally require a much larger evacuation area and large HAZMAT organizations. These types of incidents create very high hazards for both the public and responders. Only a Type 3 HAZMAT Team and above can make entry in a confined space that is suspected of containing hazardous materials of any kind. The Operations level shall only meter above grade and follow the policies outlined in the procedure.

## Decon

Decon is not required for natural gas only issues.

## Organization used for natural gas incidents

Most natural gas incidents are handled by the first responding unit and the local utility company and these incidents don't require large command organizations.

Arrangements will need to be made for both agencies (FD and Utility company) to meet at a designated command post, in the Cold Zone, to perform a face-to-face on what both agencies need to do to support each other.

Law enforcement (LE) may be necessary to coordinate intermediate and large-scale evacuations when they are required. When LE is required for the incident, follow the evacuation SOP outlined in the HAZMAT command function section.

Natural gas incidents have a potential of exposing large numbers of people that may require the IC to expand the command structure to include EMS and/or a hazmat Branch.

## **Natural gas lessons from the past**

NIOSH Investigation F2009-13. This incident involved eight fire fighters from a combination department that were injured in a natural gas explosion at a strip mall located in Maryland.

Occupational injuries and fatalities are often the result of one or more contributing factors or key events in a larger sequence of events that ultimately result in the injury or fatality. NIOSH investigators identified the following items as key contributing factors in this incident that ultimately led to the injuries of eight fire fighters:

- Insufficient execution of the fire departments updated standard operating guideline on incidents involving flammable gas, e.g., apparatus and fire fighters operating in a flammable area (Hot Zone)
- The accumulation of natural gas in the structures void spaces
- An unmitigated ignition source
- Insufficient combustible gas monitoring equipment usage and training
- Ineffective ventilation techniques

NIOSH investigators concluded that, to minimize the risk of similar occurrences, fire departments should:

- Ensure that standard operating guidelines for natural gas leaks are understood and followed
- Contact utility companies (natural gas and electric) immediately to cut external supply/power to structures when gas leaks are suspected
- Ensure gas monitoring equipment is adequately maintained and fire fighters are routinely trained on proper use
- Ensure that collapse/explosion control zones are established when dealing with a potential explosion hazard

## **Compressed, non-flammable inert gases**

This SOP will cover the policies and procedures for dealing with emergencies that involve compressed, non-flammable, physiologically inert gases that pose no other major HAZMAT threat other than asphyxiation.

The term "physiologically inert" is used to indicate a gas which has no toxic or anesthetic properties and does not act upon the heart or hemoglobin. Instead, the gas acts as a simple diluent that displaces the oxygen concentration in the occupied space or area. According to the

U.S. Chemical Safety and Hazard Investigation Board, in humans, "breathing an oxygen deficient atmosphere can have serious and immediate effects, including unconsciousness after only one or two breaths. The exposed person has no warning and cannot sense that the oxygen level is too low."

OSHA considers an atmosphere below 19.5 percent in oxygen, oxygen deficient. When oxygen concentrations drop from 19.5 to 16 percent your cells fail to receive the oxygen needed to function correctly. 15 to below 10 percent causes severe mental dysfunction, unconsciousness, and death with a short-term exposure (less than an hour). Humans cannot survive at levels 6 percent or lower.

On average, there are over 500 deaths per year cause by asphyxiation due to compressed non-flammable physiologically inert gases. Examples of the three (3) most common physiologically inert compressed gases which have caused accidental (and deliberate) death by this process are:

- Carbon Dioxide (CO<sub>2</sub>) (#1 cause of inert gas asphyxiation)
- Nitrogen
- Helium

### **Carbon Dioxide (CO) – NFPA 704**

Health – 3  
Flammability – 0  
Instability – 0  
Special - none

### **Carbon Dioxide (CO<sub>2</sub>) Physical Properties**

- Non-flammable, inert gas
- Colorless, tasteless, odorless
- Molecular weight 44 (air is 28.97) CO<sub>2</sub> is heavier than air and it will pool in the lower portions of interior and exterior spaces
- Natural state on the planet earth is in a gas form. Must be compressed and cooled to liquify or freeze

### **Carbon Dioxide physical and health effect on humans**

- IDLH: 40,000 ppm
- High concentrations may cause dizziness or asphyxiation without warning
- Contact with escaping gas or liquefied gas may cause burns, severe injury and/or frostbite
- Dry ice is frozen CO<sub>2</sub> that will cause frostbite type burns with direct contact to the skin

### **Carbon Dioxide greatest threat to public/responders**

- Death due to asphyxiation

### **Nitrogen – NFPA 704**

Health – 3  
Flammability – 0  
Instability – 0  
Special - none

### **Nitrogen Physical Properties**

- Non-flammable, inert gas
- Colorless, tasteless, odorless
- Molecular weight 28 (air is 28.97) Nitrogen is slightly lighter than air but will mix throughout the space and not collect only at the ceiling
- Used in food processing, refrigeration systems, purging air conditioning and refrigeration systems, and in pressurizing tires

### **Nitrogen physical and health effect on humans**

- IDLH: air is made of 78% nitrogen. IDLH comes in the form of displacing oxygen
- High concentrations may cause dizziness or asphyxiation without warning
- Vapors from liquefied gas are initially heavier than air and spread along ground
- Contact with escaping gas or liquefied gas may cause burns, severe injury and/or frostbite

### **Nitrogen greatest threats to public/responders**

- Death due to asphyxiation

### **Helium**

Health – 1  
Flammability – 0  
Instability – 0  
Special - none

Helium's molecular weight is 4 (air is 28.97) making it much lighter than air. Helium will dissipate very rapidly into the atmosphere causing little to no threat to the public or responders. Over 98% of the injuries/deaths caused by helium are intentional (suicide) or are an accidental result of misuse/playing with helium.

### **Incident call taking**

Most inert compressed gas incidents are reported as EMS incidents as ill or unconscious patients who are unaware their symptoms are being caused by an inert gas.

Most residential alarm systems don't monitor for CO<sub>2</sub> or Nitrogen. CO<sub>2</sub> and Nitrogen monitors are usually found at commercial facilities that use these gases in their manufacturing process. Occupancies that use large amounts of CO<sub>2</sub> and Nitrogen in their processes usually have O<sub>2</sub> alarms that monitor the O<sub>2</sub> levels present, not the amount of CO<sub>2</sub> and Nitrogen that is present.

### **Typed dispatch levels**

- Any low oxygen or CO2/Nitrogen alarm: 1 Engine, 1 Ladder, 1 Chief
- Any low oxygen or CO2/Nitrogen alarm with a sick person: 1 Engine, 1 Ladder, 1 EMS unit, 1 Chief (standard EMS dispatch packages if multiple patients are reported)
- Any low oxygen or CO2/Nitrogen alarm where the caller verifies a release that indicates a contaminated atmosphere is present: 1 Engine, 1 Ladder, 1 EMS unit, 1 Chief, Tech Level Hazmat response

### **HAZMAT Quals to control**

- FF 1 & 2 with HAZMAT Operations Level credential
- Understanding of Gas Monitoring and its limitations
- Trained in the process of metering to include where to meter
- Understanding of the properties of compressed inert gases
- Inert, non-flammable, compress gas responses do not require any specialized PPE or control/mitigation equipment outside what most all Fire Departments have available

### **PPE and allied equipment required**

- All members working in the Warm Zone of the incident will wear full structural FF PPE, SCBA on, with the members face piece available to rapidly don
- If the space is contaminated or suspected of being contaminated, SCBA donned if going below grade, into enclosed spaces or if the Oxygen levels start to drop below 19.5%
- Recommended 2 - 4 gas meters with the following sensors – O2, LEL, H2S, CO. The meter must be “zeroed out” in fresh air before using in the Hazard Zone. 1 meter for evaluation and 1 for confirmation
- FD personnel in the warm and Hot Zones will be limited to the absolute minimum required to size up the incident. Crews located in the hot and Warm Zone should be equipped with a 4-gas meter

### **Responding to inert compressed gas incidents**

As stated previously, most inert compressed gas incidents are dispatched as EMS calls for ill or unconscious persons.

### **Size-up**

First responders must be aware of the occupancy types that commonly contain inert compressed gas systems. These occupancy types include:

- Any occupancy with a beer, soda fountain, or soft drink dispenser
- Fast food restaurant chains (beware of CO2 in the basement)
- Occupancies with large areas of cold storage
- Food/Beverage processing plants
- Hospitals/Medical facilities
- Computer and pharmaceutical manufacturing plants
- Fire extinguishment equipment for water sensitive equipment

General size-up items for an ill-person EMS call, as well as any low oxygen or CO2/Nitrogen alarm HAZMAT dispatch:

- Workers who showed up to work healthy and are now unconscious
- Are any exterior or interior compressed gas cylinders present?
- Are any exterior or interior gas line piping systems present that may be leaking?

### 2016 ERG Guide -Carbon Dioxide

- Guide 120
- ID Number 1013 / 2187



Because Carbon Dioxide is much heavier than air, it makes it the most threatening inert gas (#1 cause of inert gas fatalities) because of its tendency to pool and remain in non-ventilated and below grade areas for longer periods of time.

### 2016 ERG Guide – Nitrogen & Helium

- Guide 121
- ID Number 1066



The major differences between the ERG response guides for CO<sub>2</sub> vs. Nitrogen are the higher potential freezing hazards of CO<sub>2</sub>. Evacuation distances and control measures are the same for all three (3) products.

## Mitigation

Initial actions that should occur once a hazardous environment due to CO<sub>2</sub> or Nitrogen is suspected:

- As an immediate precautionary measure, evacuate and isolate the spill or leak area for at least 100 meters (330 feet) in all directions
- Keep unauthorized personnel away
- Stay upwind, uphill and/or upstream
- CO<sub>2</sub> gases are heavier than air and will spread along the ground and collect in low or confined areas (non-ventilated interior areas, sewers, basements, etc.)

## Metering techniques

- The meter operators must have an understanding that **the meter will not read carbon dioxide or nitrogen without a specific sensor for that gas** (the majority of 4 gas meters DO NOT have CO<sub>2</sub> or Nitrogen sensors)
- Most 4 gas meters will show a level of Oxygen
- A drop in Oxygen is usually the only indicator of the presence of an inert gas
- When low O<sub>2</sub> levels are encountered, meter in low O<sub>2</sub> areas working your way away from the low O<sub>2</sub> level readings until all metered areas show normal levels. This will define the Hot Zone
- O<sub>2</sub> levels under 19.5% will require the use of an SCBA while metering with two out in the Warm Zone

## Control methods

- Mitigation starts with locating and shutting off (or eliminating) the source. Use caution when cryogenic issues are present (frost or ice forming on valves and leaking plumbing)
- Ice or frost on inert gas systems (valves and piping) may indicate the equipment is leaking somewhere causing the icing/frost issue
- When the source is not obvious and cannot quickly be secured, monitor from cold to hot areas to help isolate the source of the leak
- Ventilation of the space should not occur until the source can be identified and controlled (unless life safety issues are present, and ventilation must occur to facilitate a safer evacuation)
- Once the source has been identified and controlled, ventilation should be started. Once started, over ventilation is recommended

Ventilation to move the CO<sub>2</sub> will potentially move the cloud to low lying areas, such as exit stairways, where the Oxygen can drop to fatal levels a long way away from the original, contaminated area. Because it is odorless and colorless, other FD members located in stairwells, hallways, or near the ventilation exit points may not realize they are in an oxygen deficient area until they are overcome.

Limit the number of personnel located in the hot and Warm Zones. SCBA's shall be worn in any atmosphere with less than 19.5% Oxygen (or any atmosphere that has the potential to suddenly become Oxygen deficient).

All areas of the structure must be re-monitored after ventilation is completed to confirm all product has been removed from the structure.

### **Decon**

Decon is not required for inert gas only issues.

### **Organization used for the compressed inert gas incident types**

Unless the hazards are wide-spread or are affecting multiple people, these types of incidents will not require large HAZMAT organizations. If low levels of Oxygen are encountered, the standard OSHA groups will be required to conduct IDLH operations. Most notably:

- Research/Recon
- Entry
- Back-up
- No Decon is required for inert gas only issues

Law enforcement (LE) may be necessary to coordinate intermediate and large-scale evacuations when they are required on some inert gas incidents. When LE is required for the incident, follow the evacuation SOP outlined in the HAZMAT command function section.

Inert gas incidents exposing large numbers of people may require the IC to expand the command structure to include EMS and/or a HAZMAT branches.

### **Suicide using inert gases**

Helium suicides also known as an "exit bag suicide" is a device consisting of a large, plastic bag with a bottom tying cord. The user places the bag over their head. A tube connected to a compressed gas cylinder is inserted inside of the bag. The bottom cord of the bag is tightened, and the gas cylinder is turned on. It is usually used in conjunction with an inert gas like helium (preferred) or nitrogen, which prevents the panic, sense of suffocation and struggling even when unconscious (the hypercapnic alarm response) caused by the deprivation of oxygen in the presence of carbon dioxide. Unconsciousness occurs in 2-3 breaths with death occurring 6-10 minutes later.

The above method poses little to no threat to response personnel.

Even though unpractical, some people have taken this method to the extreme by using the interior of car or a bedroom to perform the same act on a larger scale. Entering a confine area with no Oxygen is very lethal. Personnel must use extreme caution when any suicidal behaviors are suspected.



## **HAZMAT Tactical Guideline – Weapons of Mass Destruction (WMD)**

The purpose of the Blue Card WMD SOP is to integrate a Fire Dept. response that will support what is primarily a Law Enforcement (LE) event.

All suspicious packages technically fall under a potential Weapons of Mass Destruction (WMD) incident. All WMD incidents will be considered a potential crime scene. Therefore, the AHJ of the incident scene will be local, state, or federal Law Enforcement (LE) authorities.

A large number of potential WMD incidents (mostly suspicious letters and packages) continue to be reported to local law enforcement and emergency response agencies nationwide. In some instances, these letters or packages may include explosives, hazardous powders, liquids, or other hazardous materials.

### **Physical properties associated with potential WMD threats**

- Any unattended item incongruous to that location (e.g., a suitcase at a non-airport bus or train station)
- Items located in an out-of-the-way place where it is not readily visible
- Items that are abandoned by someone quickly leaving the area

- Items emitting an odor, mist, oily liquid, or leaking a powdery substance
- Items with oily stains, crystallization or discolorations on the package
- Items with excessive weight for its size
- Rigid, lopsided or uneven envelopes
- Items with protruding wires or aluminum foil
- Item appears to be disassembled or re-glued
- Package makes a buzzing or ticking noise
- Contents of parcel make a sloshing sound
- Packages arriving before or after a phone call from an unknown person asking if the item was received or it was sent to intentionally harm people or property

**Types of threats to public/responders associated with WMD materials include:**

- Explosives
- Radiological device
- Radiological Dispersal Device (RDD) “Dirty Bomb”
- Chemical agent(s)
- Weaponized biological agent(s)
- Secondary explosive devices

All of these incident types have to be treated with the utmost caution. Response agencies must assume that there is a legitimate threat until proven otherwise. Agencies and businesses that typically get the most legitimate WMD threats are:

- Any federal agency (IRS, DOJ, DHS, etc.)
- Courts
- Schools
- Post offices
- Hospitals
- Financial agencies
- Lawyer offices
- Credit card and collection agencies
- Media/press agencies
- Planned parenthood type agencies

Agencies that have a high risk of receiving threats and suspicious packages will usually train their employees in the proper procedures for dealing with these types of events. When a suspicious package is observed, all best practice training and teaching materials instruct people to call the local police department when encountered.

**WMD incidents fall into two major response categories:**

1. Explosive threats - suspicious packages that may contain explosives
2. Biologic threats - suspicious packages and substances (powders) involving no explosives

Each incident type will typically involve the same response agencies, but will have very different incident action plans, PPE requirements, and resource deployments.

## **Fire/EMS responding to potential WMD explosive threats**

### **Deployment**

All Fire and EMS resource dispatched to potential WMD threats must understand:

- The incident is a Law Enforcement (LE) event
- LE will be the overall IC for the event
- Fire/EMS will always respond and support LE in a DEFENSIVE manner

Most FD responses to suspicious package incidents that could possibly involve explosives (or a known WMD threat) are generated from LE authorities. Fire departments typically support LE by providing EMS, tactical support units, and HAZMAT personnel when LE has a credible WMD threat and they will be engaged in high risk or long-term activities.

### **Fire/EMS Dispatches**

A fire response should only be generated to a suspected WMD incident; 1) if injured or ill persons are reported, 2) or, if LE is asking for assistance, once a legitimate threat has been verified.

There is no set fire “dispatch package” for a WMD explosive threat. Each type and level of fire response will be based on the LE agency’s request for assistance. This could range from just air and rehab logistical support to dispatching a Type 1 HAZMAT Team (or components of).

When receiving requests for EMS for injured or ill persons due to a suspected WMD event, Dispatch Center shall use the Blue Card Managing HAZMAT and EMS incidents SOPs for call typing and the appropriate resource levels.

### **Staging on Explosive Threats**

When responding to WMD incidents involving an explosive threat, Level 2 Staging for all responding companies shall be implemented from the time of dispatch.

When LE generates a request for Fire/EMS support on an explosive threat, they should specify the best Level 2 Staging location for the responding Fire units.

### **When staging/parking equipment on any WMD incident:**

- Use buildings and natural barriers to place between you and the threat
- If you can see the device, the device can see you
- Once the staging area has been selected, personnel must size up the staging location for any possible secondary devices, suspicious package, or materials
- Avoid using any radio transmissions if advised to by LE (when in doubt, stay off the radio!)

## **WMD Threats – Law Enforcement (LE) Resource Typing**

The typical LE unit that handles legitimate WMD explosive threats is a “Bomb Squad”.

The typical local LE based Bomb Squad team consists of the following:

- 4 to 6 people make up a bomb squad
- The squad will usually have 1 commander with 4 to 5 certified hazardous device techs
- Most bomb squad deployments will consist of the commander and at least 2 bomb techs.
- Typical equipment a bomb squad responds with:
- 1 tech will respond with one deployment vehicle that contains: robot, x-ray equipment, bomb suit, SCBA's, render safe equipment
- All squad members are certified to the HAZMAT Tech Level
- All squad members are SCBA confined space certified
- If SCBA's are used, at a minimum, LE will require EMS standby and an Air Support unit
- Typical response time to assemble a “Bomb Squad” is about 60 minutes
- When any radiological or biological WMD materials are detected, the Bomb Squad must notify and request the response of an FBI bomb squad
- When any weapons grade explosive material is detected, the Bomb Squad must notify and request the response of a DOD bomb squad

There are over 450 public safety bomb squads located throughout the US that consist of over 2,600 bomb technicians. These squads are affiliated with several different agencies:

- Local LE based squads
- DPS based squads (State level)
- FBI based squads
- ATF&E based squads
- Fire based squads

In addition to the public safety bomb squads, there are several DOD (military) based bomb squads across the country that routinely respond with public safety on WMD explosive threats. A DOD, military based bomb squad/EOD unit must be notified when military explosives are involved in the incident.

Each of these agencies bring with them a certain amount of HAZMAT personnel and support, evidence collecting support, and evidence sampling support. But some bomb squads bring no other HAZMAT support but the bomb squad members themselves (and their basic equipment). A good rule of thumb to use is, the higher up the Bomb Squad is on the state or federal level, the more agency support the squad will have available to them.

The majority of bomb squads are locally based LE squads and they will rely on their local fire departments to provide them with HAZMAT operational and logistical support (along with the associated support personnel and equipment that goes with it).

## **Command on WMD explosive threats**

The Authority Having Jurisdiction (AHJ) on all WMD explosive threats will be the LE agency who has jurisdiction for the event (local, county, state, or federal LE). LE becomes the IC for the event because they are trained and equipped to mitigate these types of incidents. Fire and EMS personnel are neither trained nor equipped to handle explosive threats.

### **Fire/EMS Command guidelines for WMD explosive threats:**

- LE will be in overall command of any WMD explosive threat
- EMS and Fire units will play support roles only
- Fire's major goal early on this type of incident is to establish a liaison directly with the LE IC or at the LE/Fire Command Post as quickly as possible in order to coordinate safe and effective action
- The IC for WMD explosive threats is typically the Bomb Squad Commander
- The Fire/EMS chain of command will follow Blue Card Command SOPs while fitting into the LE IC's IAP
- The major management objective of the Office-in-Charge of the Fire/EMS resources on an explosive threat is the safety and welfare of all assigned personnel
- At no time shall any Fire/EMS personnel operate within a known explosive Blast Zone

### **Typical Law Enforcement WMD explosive threat response and Incident Action Planning (IAP)**

- Most explosive WMD threats calls go through a LE dispatch center
- If generated in a Fire only dispatch center, the call should be transferred to the appropriate LE dispatch center as soon as possible
- A fire response should only be generated to a suspected WMD incident if; 1) injured or ill persons are reported, 2) or, LE is asking for assistance, once a legitimate threat has been verified
- LE response typically starts out with a field officer to verify the threat
- If suspicious, the field officer will:
  - Possibly call a bomb dog to continue to verify
  - Possibly call a Bomb Squad to continue to verify
- The Bomb Squad will avoid all unnecessary deployments
- Once a credible threat has been established, the local Bomb Squad will be deployed

### **Bomb Squad size-up - determining if there is a legitimate threat**

Once a credible threat has been established by LE officers in the field, the local Bomb Squad will be deployed to determine the type, scope and the legitimacy of the threat. Once on the scene they will take the following actions to determine what level of threat exists:

- Visually inspect the package
- Possibly X-Ray the package
- Scan the device for radioactive properties

If a legitimate (real) threat does exist (explosives or radiation present) the Bomb Squad commander will determine:

- Evacuation areas and isolation distances based on the size and location of the threat
- Additional resources required based on the threat
- The appropriate IAP based on the threat
- Can the threat be moved, or must it be rendered safe in its current location?

**Fire based support provided to LE on when an actual explosive threat exists**

The IC for the Fire resources will need to establish a liaison with the Bomb Squad’s Commander (probably the overall IC for the incident). It is preferable to have the Fire IC located at the LE IC’s command post where a majority of the communications will be face-to-face.

Support activities Fire/EMS units will typically need to coordinate with LE on explosive threats:

- Evacuation assistance
- EMS support and stand-bye
- Logistics, Air, and Rehab support
- Possible HAZMAT support
- Possible Clean-up assistance

***Because fire department units are not equipped with the proper PPE to enter an explosive threat Hot Zone (Blast Zone) all HAZMAT support to LE on these types of incidents will be provided in the warm and Cold Zones of the incident.***

**Isolating the threat and managing evacuations**

The bomb squad commander is the best person to determine the areas to evacuate and where to move people, based on the threat.

Below is the DHS evacuation chart for explosive devices based on the size of the package and the potential amount of explosives it could contain.

<u>Explosive Capacity</u>	<u>Inside a Building Evac Distance</u>	<u>Outdoor Evacuation Distance</u>
Pipe Bomb	70 FT – 21 M	1,200 FT – 400 M
Briefcase/Suitcase Bomb	150 FT – 45 M	1,850 FT – 600 M
Car	320 FT – 100 M	1,500 FT – 500 M
SUV/Van	400 FT – 122 M	2,400 FT – 850 M
Small Moving Van/Delivery truck	640 FT – 200 M	3,800 FT – 1,300 M
Moving Van/Water Truck	860 FT – 265 M	5,100 FT – 1,800 M
Semi-Trailer	1,570 FT – 500 M	9,300 FT – 3,000 M

A major LE consideration in the evacuation IAP will be the possibility of the presence of any secondary devices.

**Secondary Explosive Devices**

A secondary explosive device is defined as – a secondary device(s) usually hidden and placed in a separate location of where the “known” threat is located. Usually intended to:

- Injure/kill already evacuated civilians
- Injure/kill first responders
- Create more confusion or a diversion from their original intent

In some WMD situations, the original threat is a diversion, where sophisticated suspects may choose to place a secondary device near the original threat. Often times the secondary device creates a much larger threat to life.

Suspects may choose to call in a false threat (fake bomb threat) in an attempt to gather intel. First responders should be especially aware when responding to a location that are the target of repeated fake threats. They will use these fake threat dry runs to assess:

- If evacuations are performed, where are the areas around the building where people are evacuated to
- Who typically will respond to the threat
- Where public safety park/stage their equipment
- If any security or LE responds and what are their deployment tendencies

The suspect will use this intel to plant secondary devices when the actual event does occur.

A major size up consideration on any WMD deployment is the presence of any secondary devices. Secondary devices are typically placed:

- In dumpsters
- In trash cans
- In parked cars
- In unattended packages
- In shrubbery/bushes

### **Bomb Squad evacuation size-up**

The Bomb Squad's major evacuation size up consideration is whether people are safer inside of the building as opposed to outside of the building. This is due to the potential of having secondary devices. The Bomb Squads major evacuation considerations are:

- Perform reconnaissance without evacuation
- Initiate a partial evacuation
- Conduct a complete evacuation

Critical public safety service facilities may be precluded from a complete evacuation due to the essential nature of their operation.

Some occupancies use a standard policy to evacuate upon receipt of any bomb threat. However, if the bomb threat is a hoax, such a blanket policy could result in considerable production down-time and would be costly in terms of dollars; which may be playing right into the bomb threat maker's hands.

Many threats are simply pranks perpetrated by employees or students who know that this sort of unconditional bomb threat policy will get them time off from work or school. The most prudent approach would be to evaluate the critical factors of each bomb threat on its own merits and perform evacuations only if deemed necessary.

The critical factors to be evaluated with each individual bomb threat when deciding whether or not to evacuate are:

- The possibility of conducting an effective search or recon without a total evacuation
- Employees know the layout and contents of their occupancies better than anyone. When a threat is called in, prior to any evacuation (if needed) use the occupants to survey their work areas to point out if any suspicious package or objects are indeed present
- The liabilities involved if an explosion occurs and the building was not evacuated
- Proximity and danger to neighboring buildings, or to other businesses sharing the same building

Facility supervisors and/or the bomb squad will assess the situation and provide guidance regarding facility lock-down, searches, and/or evacuations. When determined to be prudent, evacuations or occupant re-locations will be based on:

- The location, size, and nature of the explosive threat
- If the explosive threat is located inside of a building or outside of the building
- If located inside a building; the interior layout, size, and construction type of the structure
- If located outside the building; they arrangement and type of structures located in close proximity to the threat

Whenever possible, people should be moved to a safe area inside of the building as opposed to evacuating people outside of the structure. Once outside, evacuees are much more vulnerable to secondary devices.

The Bomb Squad Commander is the best person to size-up and determine:

- If evacuations are necessary
- Partial vs. a total evacuation
- Inside vs outside evacuations
- If exposures needed to be evacuated
- The locations of safe holding areas for the evacuees

When evacuations are necessary, evacuation holding areas must be established, where evacuees may wait safely until the threat is over. Such locations should be away from any potential hazards in the event of an explosion, be cleared of any potential secondary devices, and should offer protection from the weather.

The largest Fire based resource responses for these types of incidents is to assist and support LE with large scale evacuations.

**Providing logistics, air, and rehab support on WMD explosive threats**



- The typical LE based Bomb Squad is not equipped or supported with their own agencies air, light, and/or rehab equipment or the associated personnel that go with them. Most often times, this support is provided by the local Fire Dept.
- On deployments where bomb squad techs wear an SCBA for respiratory protection, the operation will require the support of EMS and the appropriate air unit response
- Rehab support becomes critical on long term deployments where bomb squad techs are operating in their explosive PPE for long periods of time
- Rehab and EMS support/stand-by units should be combined together at the same location when operating on long term incidents
- These units shall be located in the Warm Zone of the incident behind a barrier of protection (apparatus or a building(s))
- Verify the standby location is clear of any secondary devices

### **Providing EMS support on WMD explosive threats**

- EMS primary responsibility on these types of incidents is to stand-by for the bomb squad techs who are working with the threat
- If an incident (blast) should occur and injure a bomb tech(s), LE whenever possible will extricate their injured officers out of the Hot Zone to a safe treatment area
- The typical blast injuries EMS must prepare to treat are; shrapnel, burns, amputations, and overpressure/compression injuries to the chest and head

### **Organization used for WMD explosive threats**

Depending on the type of threat identified, the organization used on these types of incidents could range from small, to very large (needed for large scale evacuations).

LE will be the overall IC (the AHJ) for the incident, while Fire/EMS will provide support to LE. This support will come in the form of assisting the LE IC in determining the overall incident scope, strategy, and the corresponding organizations based on the incident's critical factors.

If the size-up process leads to a legitimate threat, the Fire/EMS/HAZMAT IC will need to expand the incident based on:

- The overall level of hazards to responders and the public
- Command Team required to liaison with LE
- The resource and management requirements to do medium to large-scale evacuations
- The support required to LE in order to safely mitigate the incident

### **Interacting with other agencies providing HAZMAT support and clean-up on WMD explosive threats**

If a neutralized device was constructed using weapons grade explosive material, the Bomb Squad must notify the closest DOD Bomb Squad. The DOD team will typically bring the resources with them to collect the evidence and perform a proper clean up.

If a neutralized device was being used to disperse biologic, chemical, or nuclear material, the Bomb Squad must notify the FBI. The FBI will notify and potentially respond with the following agencies:

- FBI Weapons of Mass Destruction (WMD) Coordinator
- FBI Joint Terrorism Task Force (JTTF)
- Centers for Disease Control and Prevention (CDC)
- Department of Homeland Security Operations Center (HSOC)
- Terrorism Incident Law Enforcement and Investigation Annex
- Depending on the nature and scale of the incident, the Department of Homeland Security (DHS) will implement the Nation Response Plan (NRP) for the incident

These federal response teams will typically bring the resources with them to collect the evidence and perform a proper clean up.

Typically, the collection of any evidence from an explosive threat that a public safety bomb squad responds to will be the responsibility of that bomb squad and the local law enforcement agency having primary jurisdiction to collect and preserve. On these types of incidents, Fire based HAZMAT resources may be needed to assist LE in cleaning up the containment area. Because these costs cannot be recouped, a major IC clean up consideration will be utilizing whatever clean-up resources are available to them to avoid paying for the clean-up out the local Fire and LE budgets.

## **Fire/EMS responses to suspicious packages and substances (powders) involving no explosives**

All personnel responding to such incidents must be aware of the potential for exposure to hazardous chemical and/or radiological materials in addition to biological hazards. Additionally, there may be a threat posed from secondary releases or other devices.

### **Deployment**

#### **Fire/EMS Based Dispatch Packages**

All fire department responses to these types of incidents shall be avoided unless LE is on-scene and they are requesting Fire's assistance, or there are reported ill persons associated with the incident.

On all verified biological threats, local LE agency will notify the following agencies:

- The local Federal Bureau of Investigation (FBI)
- FBI Weapons of Mass Destruction (WMD) Coordinator and/or
- FBI Joint Terrorism Task Force (JTTF)
- A certified HAZMAT unit(s) – this could be fulfilled by a Bomb Squad and/or a combination of Fire based HAZMAT units
- Local law enforcement
- Local public health department - response agency dispatch centers should pre-identify the local public health points of contact (hospitals and treatment centers) to be notified in the event of a potential bioterrorism event
- U.S. Postal Inspection Service (if used to deliver the suspicious package)

There is no set fire "dispatch package" for a WMD biological threat. Each type and level of fire response will be based on the LE agency's request for assistance. This could range from just EMS, air and rehab logistical support - to dispatching a Type 1 HAZMAT Team (or components of one) to support LE with evidence collection and/or product testing.

When receiving requests for EMS for injured or ill persons due to a suspected WMD biological event, Dispatch Center shall use the Blue Card Managing EMS incidents SOPs for call typing and the appropriate resource levels.

## **Staging on WMD Biological only threats**

When responding to WMD incidents involving a biological threat not associated with explosives, Level 2 Staging for all responding companies shall be implemented from the time of dispatch.

When LE generates a request for Fire/EMS support on a WMD threat, they should specify the best Level 2 Staging location for the responding Fire units.

Once the staging area has been selected, personnel must size up the staging location for any possible secondary devices, suspicious package, or materials.

## **Command on WMD Biological only threats**

The Authority Having Jurisdiction (AHJ) on a WMD biological threat will be a LE agency who has jurisdiction for the event (local, county, state, or federal LE).

Sending, delivering, or giving an agency or a person any material with a threatening intent (even if it's an inert material) constitutes a federal crime. On verified threats (even if the product involved is inert) the local FBI Weapons of Mass Destruction Coordinator and/or FBI Joint Terrorism Task Force (JTTF) should be notified. This process utilizes coordination from FBI Headquarters elements to provide technical oversight and support to responders who are on-scene.

Even when explosives are not associated with a biological threat, the Bomb Squad members are typically the only members of their LE agency who are HAZMAT certified to the Operations Level. Therefore, the responsibilities for managing a credible biological threat for a LE agency typically falls to the Bomb Squad.

For incidents that involve larger, unopened suspicious packages, a Bomb Squad will be required to inspect the package to insure it doesn't contain explosive materials or radiation.

Fire/EMS Command guidelines for WMD biological threats:

- LE will be in overall command of any WMD biological threat
- Fire's main objective is public safety and incident stabilization. Once the Hot Zone has been stabilized (evacuated and no longer threatening people or property) Fire will support LE as required
- Fire's major goal early on this type of incident is to establish a liaison directly with the LE IC or at the LE/Fire Command Post as quickly as possible in order to coordinate safe and effective action
- The IC for WMD biological threats is typically the Bomb Squad Commander
- The Fire/EMS chain of command will follow Blue Card Command SOPs while fitting into the LE IC's IAP
- The major management objective of the Office-in-Charge of the Fire/EMS resources on an WMD biological threat is the safety and welfare of all assigned personnel

It is preferable to have the Fire IC located at the LE IC's command post where a majority of the communications will be face-to-face.

### **Fire based tactical and logistical support provided to LE on biological threats**

Support activities Fire/EMS units will typically need to coordinate with LE on biologic (white powder) threats:

- Evacuation assistance
- EMS support and stand-by
- Logistics (air) and Rehab support
- HAZMAT Operations Level support
- HAZMAT Tech Level support
- Possible assistance with evidence collection
- Possible assistance with product testing and identification

### **Evacuations**

Typically, when Fire units are dispatched, LE is already on the scene and the threat area has been evacuated and isolated. General evacuations guidelines for biologic threats:

- As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions with powders and solids, and 50 meters (150 feet) with liquids
- The evacuation and isolation zones can be smaller if the material is contained in a room that can be isolated
- Shut down the ventilation system for the isolated area whenever possible
- Keep unauthorized personnel away
- Stay upwind, uphill and/or upstream
- Once evacuated and isolated, attempt to identify the substance involved

### **EMS**

Guidelines for managing people exposed to threatening/unknown powders with no symptoms:

- Because there are several different types of biological WMD threats, the goal of EMS is to know what specific product people have been exposed to. Knowing this information will drive the treatment therapies used by EMS and hospital workers
- Most people who are directly exposed to an unknown powder have no symptoms
- Most people who are directly exposed to an unknown powder have not been exposed to a hazardous substance
- People exposed to a product who are having no symptoms should be move to an area with fresh air and be isolated
- Do not start treating people who have no symptoms until the product has been identified
- Even if the person(s) is having no symptoms, avoid coming in direct contact with them unless you're wearing the proper PPE
- Leave people who are having no symptoms isolated until the product has been identified

Always inspect for and ensure that there are no secondary devices located in the isolation and treatment areas.

Guidelines for treating people exposed with symptoms or when the product involved is identified as containing a biological hazard

- Product identification becomes a huge priority when treating people who were exposed to the product are having symptoms
- Even if the person is not having any symptoms, they must be treated if they have been exposed to a known biological hazard
- Effects/symptoms of the exposure (inhalation, ingestion or skin contact) to a substance may be delayed
- All members treating people who have been exposed to a biological hazard shall wear the proper PPE for the hazards present (Level C PPE)
- Prior to patient treatment, it is preferable to remove all of the patient's clothes, bag them, and then perform a gross Decon of the patient using water with soap
- The material identified will determine the treatment therapies used by EMS and hospital workers
- All treatment members must be deconned before leaving the Warm Zone
- The goal of continued patient care is avoiding cross contamination into the ambulance and hospital
- Transport patients based on the material identified and the hospital's ability to administer the appropriate antidote(s) and/or treatments

### **PPE for WMD biological hazards**

- Level C protection
- Full face canister mask, such as fit-tested powered air purifying respirator (PAPR), or an SCBA. If available, an SCBA is preferable
- Wear full coverage body protection (Tyvek suit), face shield, and disposable fluid-resistant gloves (latex)
- Wear appropriate footwear; disposable shoe covers can be worn to protect against contamination
- Decontaminate protective clothing and personal protective equipment after use
- Structural firefighters' protective clothing will not provide adequate protection

### **Providing logistics, air, and rehab support on WMD biological threats**

- The typical LE based Bomb Squad is not equipped or supported with their own agencies air, light, and/or rehab equipment or the associated personnel that go with them. Most often times, this support is provided by the local Fire Dept.
- On deployments where bomb squad techs wear an SCBA for respiratory protection, the operation will require the support of EMS stand-by and the appropriate air unit response
- Rehab support becomes critical on long term deployments where the products identified are biological hazards
- Rehab and EMS support/stand-by units should be combined together at the same location when operating on long term incidents

- These units will should be located in the Cold Zone of the incident site
- Verify the standby location is clear of any secondary devices

### **Providing HAZMAT support on LE events**

Because a great majority of these packages end up not containing a threat to the public, local LE's objective is to determine the identity of the product before making their federal notifications.

An appropriately trained HAZMAT unit should screen evidence for the presence of chemicals and radiological material consistent with the chain-of-custody requirements. Before sampling and testing, when possible, photographs of the letter/container should be taken, and relevant information should be documented. Under NO CIRCUMSTANCES should an unprotected responder, such as a law enforcement officer or firefighter, attempt to package an unknown substance.

### **Fire Based HAZMAT Team Deployments**

The fire department IC needs to be aware of the HAZMAT Tech Level testing capabilities for these types of incidents when supporting/interacting with any LE agency's:

- Most HAZMAT Teams cannot test for or identify all liquids, solids or gases
- Most HAZMAT Team sampling identification is presumptive, NOT definitive or conclusive
- Most HAZMAT Teams collect only public safety samples. It is up to law enforcement agencies to take those samples into evidence for conclusive testing
- Most HAZMAT Teams partner with several other agencies/organizations. All of these response partners may have a role depending on the nature of the incident

The LE IC and Fire liaison will determine and coordinate the deployment of Fire based HAZMAT resources into a potential Hot Zone when needed for evidence collection and/or product sampling for identification.

Guidelines for deploying Fire based HAZMAT units or personnel into a suspected or potential biological threat Hot Zone:

- No FD response agency should open any items for sampling, without a COMPELLING REASON, that have NOT been cleared for explosives by the local bomb squad
- A HAZMAT Team's assistance takes the form of identifying materials in a device or container that has been rendered and/or deemed safe by the bomb squad
- Once an item has been rendered and/or has been deemed safe by the bomb squad the HAZMAT Team will follow their local sampling and identification SOPs and protocols
- A Type 1 HAZMAT Team (or components of) will be required if product identification is required. This usually requires the response of a Team Specialist

All Tech Level deployments using PPE for a suspected WMD incident that requires a Hot Zone entry shall follow all prior HAZMAT deployment SOP's covered in the HAZMAT 8 Functions of Command section.

### **Managing incidents with positive test results for WMD biological materials**

If a sample tests positive for a biological hazard, the LE IC must make the proper federal notifications. These notifications will trigger a large-scale national response that includes the deployment of federal HAZMAT and clean-up teams.

The objectives of local LE and HAZMAT Teams once biological WMD materials have been positively identified are:

- Treat the scene as a crime scene
- Proper notifications to the federal authorities
- Proper treatment and transportation of any person(s) who have been exposed based on the identified material
- The Decon of HAZMAT entry team members and EMS personnel who have treated exposed patients
- Isolate and control all entry into the warm and Hot Zones of the incident scene until federal authorities have arrived on-scene and command has been transferred

When biological WMD materials have been identified, the FBI will immediately notify:

- Centers for Disease Control and Prevention (CDC)
- Department of Homeland Security Operations Center (HSOC)
- Biological and Terrorism Incident Law Enforcement and Investigation Annexes
- Depending on the nature and scale of the incident, the Department of Homeland Security (DHS) will implement the Nation Response Plan (NRP) for the incident

These federal response teams will typically bring the resources with them to collect the evidence and perform a proper clean up.

### **Managing incidents with negative test results for WMD biological materials**

When test results come back that are conclusively negative for WMD biological materials, the entire operation can be ramped down for Fire units. No PPE will need to be used and no Decon will be required for people or property exposed to an inert product.

LE will remain on-scene for interviews and evidence collection. LE will also need to inform the local FBI of the threat and provide incident details.

### **Fire Department organizations used for biological WMD threat incidents**

Depending on the type of threat identified and if there is a confirmation of biological WMD material present, the organization used on these types of incidents could range from small to large if Fire based HAZMAT units are used.

If the size-up process leads to a legitimate threat, the Fire/EMS/HAZMAT IC will need to expand the incident based on:

- The overall level of hazards to responders and the public
- Command Team required to liaison with LE
- The resource and organization required to perform product collection and sampling in a potential WMD biological Hot Zone



- The support required to LE in order to safely mitigate the incident