Part 2
How to Prevent MAYDAYS at the CO and IC Level


INCIDENT
COMMANDER

Why do firefighters die in the "line of duty"?

They most often are in offensive positions during defensive conditions


RED WING FIRE DEPT

PROJECT MAYDAY

Company Offices Roles and Responsibilties In Maydays

COMPANY OFFICERS

"The most IMPORTANT person on the FIRE DEPARTMENT"

PROJECT MAYDAY

Company Offices Roles and Responsibilties In Maydays

The Company Officer is responsible for *Mayday* prevention through crew development, communications and practices. This includes setting a consistent attitude, accountability and expectation regarding crew *Mayday* readiness.

Ensure CO responsibilities and expectations are clear to the entire crew

- **Practice crew communications**
- **Instill that FF stay on hose lines**
- **Rover / Engineer integration into crew**

PROJECT MAYDAY

MAYDAY READINESS

Preventing *Mayday* situations involve multiple factors. Firefighters, Company Officers, and Command Officers must reinforce the prevention of scenarios that lead to a Mayday. The most important factors for Mayday prevention begin with the following operational standards.

- **Working within a FD IMS and SOPs that are continually revised and ENFORCED**
- **Working within the IAP for the incident**
- **Always being accountable to someone within IMS**
- **Maintaining individual and crew air management and integrity**
- **Manage work cycle**
- **Monitor distances traveled into structure**
- **Layering of resources and providing tactical reserve**
- **Planning and acting out an exit plan**

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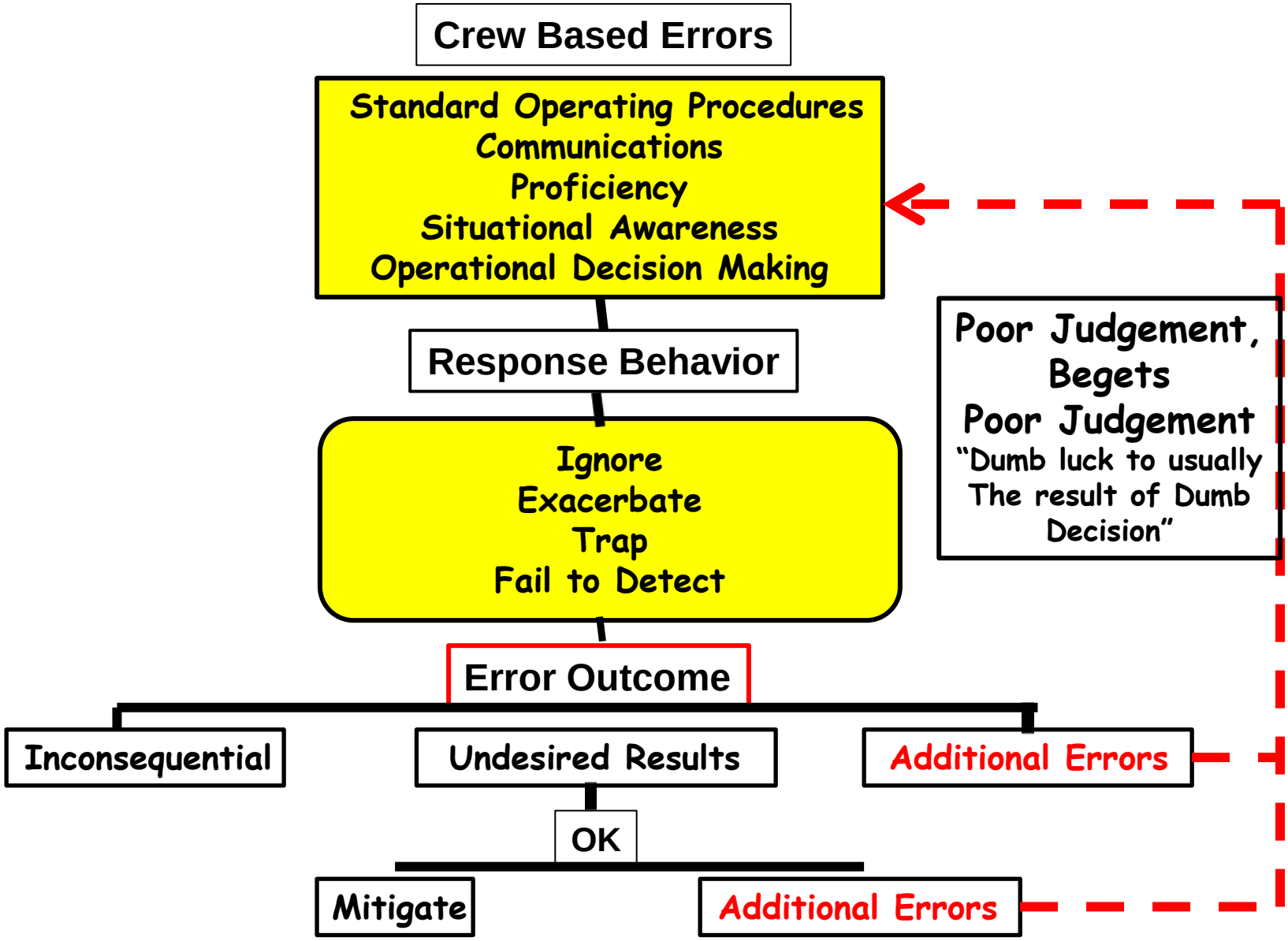
MAYDAY READINESS

- When you are assessing risk in a *DYNAMIC ENVIRONMENT,* firefighters tend to get so task-focused that they lose sight or how the situation is *evolving.*

- As the CO, you need to slow down, develop awareness, assess the threats, make risk decisions and implement controls. Ask yourself: what profile are we operating in? What actions are appropriate for the profile We're operating in?
- CO should complete tasks that maintain crew continuity and allow for safe and effective operations.
- Balance your risk decisions against changing conditions, available resources and ***elapsed time.***

A General Model of Error in Firefighting Operations



Company Officers are working bosses. They are tied to SCBA work times and don't operate in a position conducive to managing the ongoing details of an active attack position (3 or more units).

DUMB LUCK is usually the result of DUMB DECISION

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Safety Officer

FIRE DEPARTMENT SAFETY HEALTH SAFETY OFFICERS ASSOCIATION FDSOA

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SO Personal Survey

- 32% of the Mayday Incidents had dedicated SO
- 25% were FIT/Aide made SO

* 65% of these SO reported that they were given other assignments, while being the SO

… short term 5/10mins 70%

… 10/15 mins 15%

… 15 mins and longer 21%

* During the Mayday, the SO was ….

… assigned to Mayday 35%

… assigned to fire 57%

… assigned to Mayday victim 3%

- SO had SO training (> 12hrs) 19%

PROJECT MAYDAY

IC Personal Survey

MAYDAY
IC

Cool Command


INCIDENT
COMMANDER

Preventing MAYDAYS

- FOLLOW SOP's
- Identify and forecast resources requirements
- Control the Problem
- Manage air and work cycles
- Maintain tactical reserves

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IC Personal Survey

8,376

Male: 6,180

Female: 195

Incident Commanders will not view a "Mayday" as a possibility, but as a *probability*

PROJECT MAYDAY

Functions of Command – 1. Deployment

DEPLOYMENT

PROJECT MAYDAY

Functions of Command – 1. Deployment

Number of Apparatus on Initial Response:

1- Engine	100%	1- Ladder	98%
2- Engines	100%	1- Rescue	88%
3- Engines	95%	1- BC	98%

Staffing on Apparatus on Initial Response:

2 Person(s) on Engine	10%
3 Person(s) on Engine	35%
4 Person(s) on Engine	55%
2 Person(s) on Ladder	9%
3 Person(s) on Ladder	45%
4 Person(s) on Ladder	45%
5 Person(s) on Ladder	1%

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Functions of Command – 1. Deployment

Staffing on Apparatus on Initial Response:

2 Person(s) on Rescue 98%

1 Person on BC vehicle 82%
2 Person(s) on BC vehicle 18%

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Functions of Command – 1. Deployment

Average Response Time of Initial Response Apparatus: (Average)

1st Engine	5 minutes, 34seconds
2nd Engine	7 minutes, 41 seconds
3rd Engine	9 minutes, 42 seconds
1st Ladder	7 minutes, 15 seconds
1st BC	7 minutes, 32 seconds

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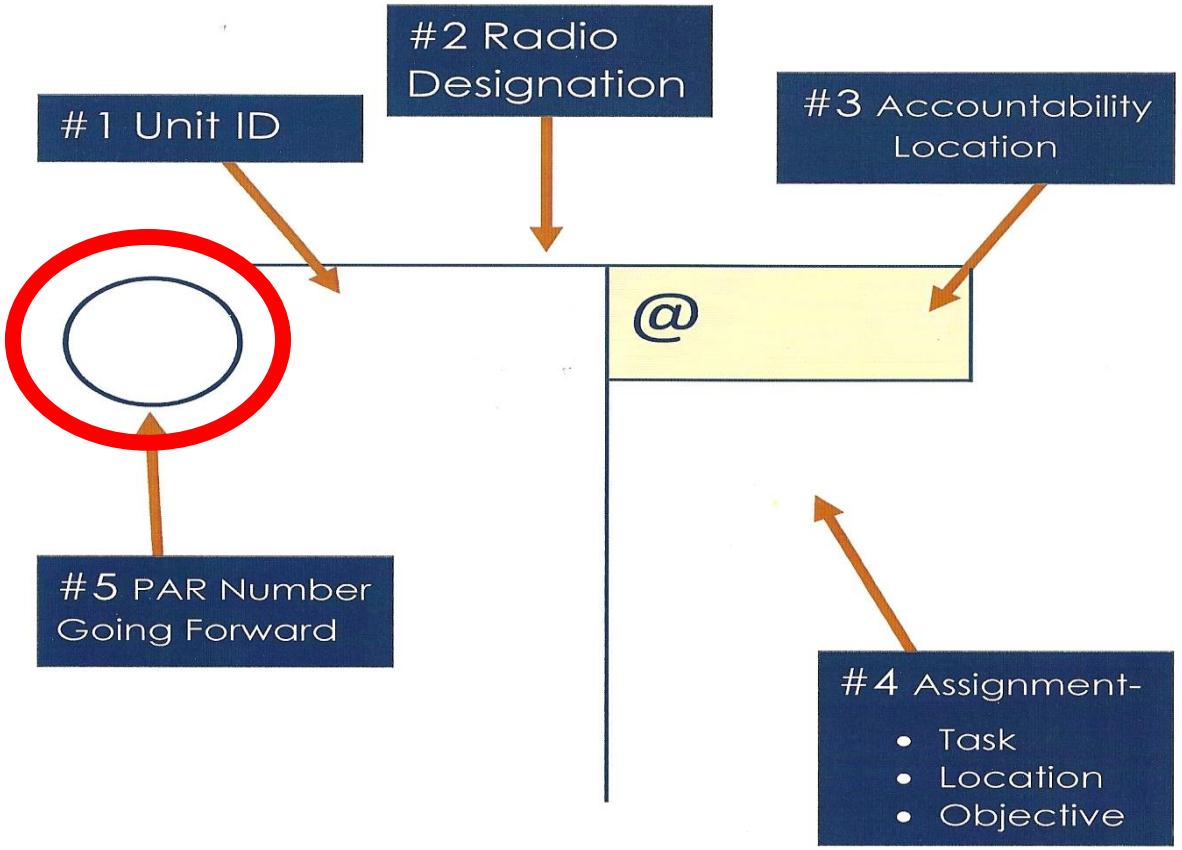
Functions of Command – 1. Deployment
TACTICAL WORKSHEETS



"Sequence of Assignment" is an efficient and inclusive way to make assignments. **In one transmission**, the IC can contact the fire unit, name their radio designation, announce their accountability location, give them a specific assignment with ***task***, ***location***, ***objective***, and determine the number of personnel entering the "Hot Zone" **(IDLH)**. This sequence is also very easy to repeat back to follow the communication order model.

PROJECT MAYDAY

Functions of Command – 1. Deployment

How many runs did you make prior to your to your Mayday?

Average of ….. 5

Were you able to hear all the radio traffic while enroute?

57 %

How often was command transferred?

Once ….. 39% Twice ….. 54% Three times….. 7%

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Functions of Command – 2. Situational Awareness

SITUATIONAL AWARENESS

PROJECT MAYDAY

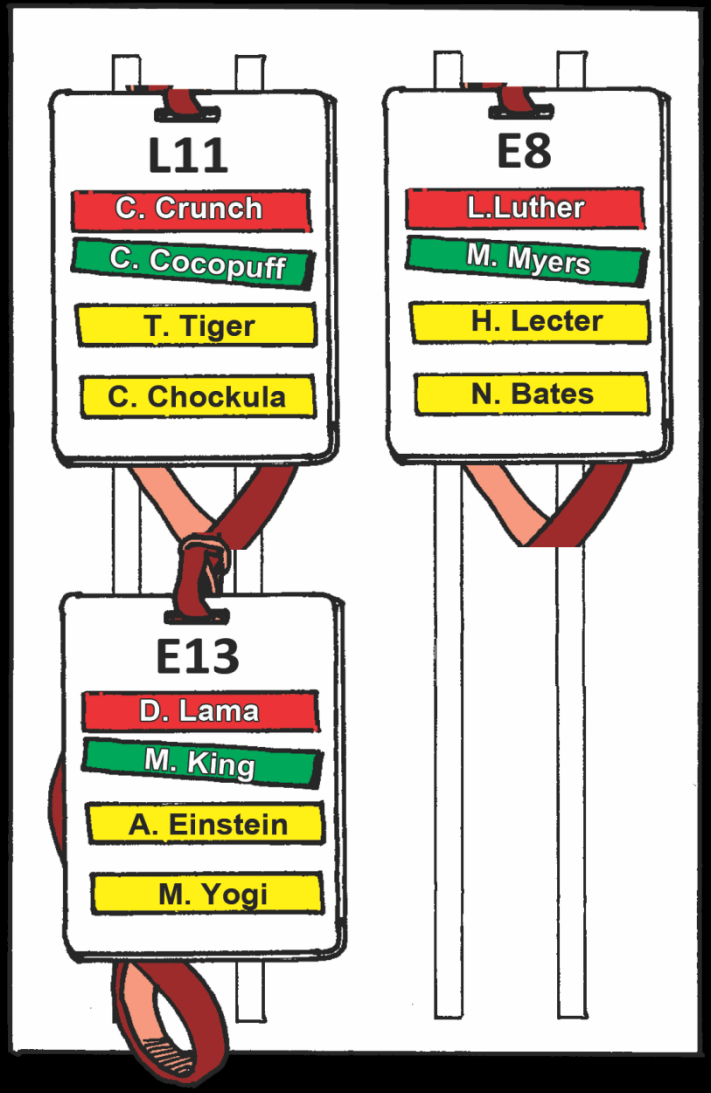
Functions of Command – 2. Situational Awareness

PROJECT MAYDAY

Functions of Command – 2. Situational Awareness

ON SCENE REPORT:

- Unit ID/Channel 39%
- Dispatch Address 77%
- Occupancy Type 68%
- Construction 19%
- Conditions (smoke/fire) 94%
- Assume Command 85%
- Command Location (Mobile/Cab) 17%
- Strategy (offensive/defensive) 84%
- Lay Supply Line (AHJ / SOP) 55% 71%
- Action: Fire Attack/Search 79%
- IRIC 11%
- Accountability location 26%
- Up Grade response 16%



68% of Maydays had NO accountability process in operations at the time of the Mayday

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Functions of Command – 2. Situational Awareness

THIS IS NOT ACCOUNTABILITY

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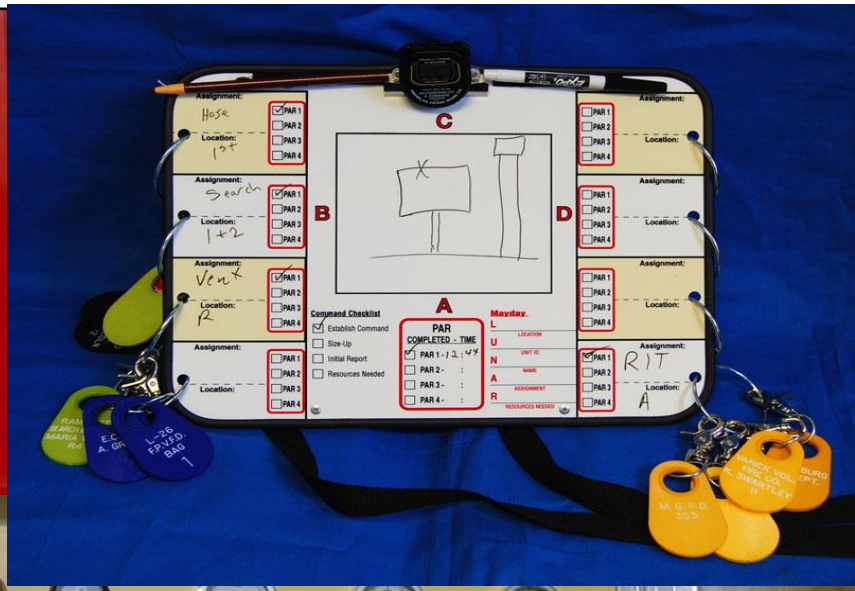
Functions of Command – 2. Situational Awareness



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Functions of Command – 2. Situational Awareness

PROJECT MAYDAY

Functions of Command – 2. Situational Awareness

NAME THREE MOST CRITICAL FIREGROUND FACTORS FOR YOUR MAYDAY FIRE

Building Type	91%
Fire	97%
Occupancy	62%
Life Hazards	79%
Arrangement	27%
Resources	75%
Actions	54%
Special Circumstances	16%

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Functions of Command – 2. Situational Awareness

COOL COMMAND

TACTICAL TARGETS

Rescue
Fire Control
Property Conservation
Customer Stabilization
Personal Decon

JOB DESCRIPTION

Deployment
Assume-Confirm-Position
Situation Evaluation
COMMUNICATION
Strategy – IAP
Organization
Review – Revision
Continue - Demob

CRITICAL FIREGROUND FACTORS

- ✓ Customer Profile
- ✓ Life Hazard
- ✓ Exposures
- ✓ Time
- ✓ Building
- ✓ Occupancy
- ✓ Arrangement – Access
- ✓ Non-Fire Problems
- ✓ Resources
- ✓ Special Circumstances
- ✓ Actions

PRODUCES

PROJECT MAYDAY

Functions of Command
5. Strategy and Incident Action Plan

How many firefighter fatalities included the Critical Factor – Wind.

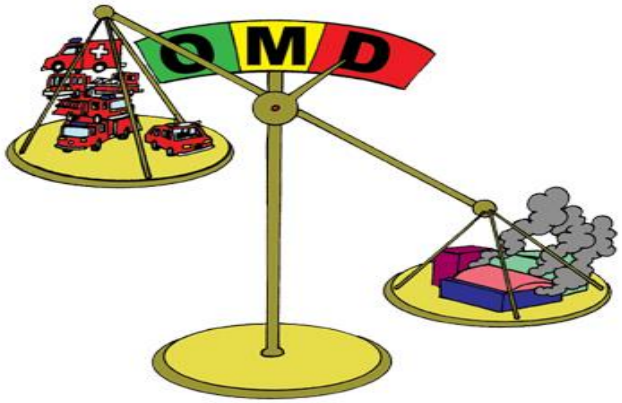
Wind and ventilation act like identical twins when applied to structure

The BEST beginning to any structural fire is to rapidly Elimination of the fire!

RISK MANAGEMENT PLAN

WE'LL RISK OUR LIVES A LOT, if neccessary, TO PROTECT SAVABLE LIVES

WE'LL RISK OUR LIVES A LITTLE, in a HIGHLY calculated manner, TO PROTECT SAVABLE PROPERTY



We will NOT RISK OUR LIVES AT ALL, for what is already LOST (people or property)

e OFFENSIVE STRATEGY is utilized when the IC determines firefighters can operate on the interior of the structure in order to complete the tactical priorities, to SAVE lives and savable property. Whenever possible, the OFFENSIVE STRATEGY should commence with water application from an external position.

MARGINAL STRATEGY has been eliminated. It was designed to Allow for rescue operations under DEFENSIVE conditions. Some defensive fires are NOT survivable.

TRANSITIONAL ATTACK is a tactic. It is NOT a strategy Transitional attack indicates flowing water from the Exterior, may or may NOT operate on the interior.

Definitions for "Level of Risk"

SMALL – The combination of protective gear, hazard zone management system (HZMS), offensive fire conditions, with the ability to quickly control the hazard.

LARGE – The combination of protective gear, HZMS, a known-viable-rescue, the ability to protect ourselves (water) & maintaining the capability to exit.

NONE– The incident conditions are lethal to us and/or there is nothing to save in the fire area.

E D W A R D – D

E – Emergency Traffic (Clear ALL traffic)

D – Deploy RIC

W – Warble Tone (Advise all on scene of incident)

A - Add another Alarm

R – Roll call a PAR

D – Double RIC

D – Deal with the Incident

Acknowledge YOU Have BLIND SPOTS

IC Procedures: Mayday

1. Initiate Mayday alert tones for a minimum of 3 seconds

> "All companies on the _____ Incident, we have a Mayday in progress; clear this channel. Member with the Mayday, go."

2. Acknowledge, determine, and document (who, where, what)

> "I copy, (WHO, WHERE, WHAT). Initiate GRAB LIVES. I want you to _____. Help is on the way."

> "All companies on the _____ Incident, we have a Mayday in progress ... (WHO, WHERE, WHAT)."

3. Deploy assigned IRIC, RIC, or RIG, or reassign company as rapid intervention
4. Prioritize communication to affected company, division, or group
5. Notify dispatch of the Mayday situation (who, where, what) and request additional resources/tac channel
6. Coordinate rapid intervention and maintain suppression/mitigation efforts and consider moving companies to command
7. Obtain a PAR concluding the Mayday prior to resuming normal radio communication

> "All companies on the _____ Incident, the Mayday is cleared, the PAR is complete. Resume normal radio communications."

V
S

IC

Eyes
Ears
Brain
Backbone
Heart

Hand
Foot
Face
Body
Face

HAZARD ZONE

✓ Collapse
✓ Thermal Insult
✓ Toxic Insult

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Functions of Command
Situational Awareness

None of the problems in situational awareness are solved by immediate water application, unless initial exterior attack

They are most often brought under control by slowing down the operation, operating within a single IAP, determining key incident conditions, applying coordinated standard actions

When we get nervous or stressed, our attention narrows, causing us to concentrate on just a few things at a time … TUNNEL VISION

- Acknowledge the MAYDAY
- Communicate to victim " remain calm and control your breathing"
- Report "Mayday" to dispatch
- Have victim activate their "PASS Unit" and shut the PASS unit OFF when talking to command, rescue officer, RIT
- Mayday victim may become more difficult to understand, once they activate PASS unit

Command Supporting MAYDAY Victim

- Limitation of interior crews, because of air limitations
- Interior crews not having the right tools
- Fire control of fire
- NO RADIO PARs

- TAKE strong control of the communication
- Assign a BC to D/G RESCUE
- Expand command organization
- Establish treatment / medical support

Division/Group Responsibilities

If D/G Supervisors are in place in the D/G having the Mayday, the IC must push the management of the Mayday to that D/G Officer. If none are in place, assign D/G supervision as soon as possible

Expectationand Exercise of Fireground Communications:

- **Communication methods**
- **What to communicate**
- **When to communicate**
- **How to communicate**
- **How to mitigate unnecessary communications**

Division/Group Responsibilities

1. Take strong control of the entry point
2. Resource assessment in the Division
3. Request enough resources to get the job done (safely)
4. Support the fire fight when necessary – Put the fire out!
5. Consider the critical factors in the Division
6. Develop the Division's rescue IAP
7. Utilize the Help Order when possible
8. DO NOT flood the interior with resource
9. Organize, properly equip, and brief On Deck/RIT Units before deployment
10. Clear, realistic objectives to the rescue teams
11. Implement, react to, and reinforce the rescue efforts as required in the Division

COMMAND RESPONSIBILITIES

1. Take strong control of the entry point *(assignment)*
2. Resource assessment in the Division
3. Request enough resources to get the job done (safely)
4. Support the fire fight when necessary – Put the fire out!
5. Consider the critical factors in the Division

6. Assign BC's (i.e. Warm zone bosses) into Divisions if not already assigned
7. Coordinate and support the rescue efforts with the Divisions as required
8. Expand the command organization
9. Support the fire fight when necessary – Put the fire out!
10. Provide the required support work
11. Establish Treatment
12. Consider the medical and technical requirements for the rescue

Clearing A MAYDAY Operation

Once the mayday(s) has been completely controlled the IC should contact Dispatch and clear the mayday radio traffic. This announcement should include:

- Brief Mayday update
- The Strategy and IAP update
- A resource determination

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Functions of Command – 3. Communications

COMMUNICATIONS

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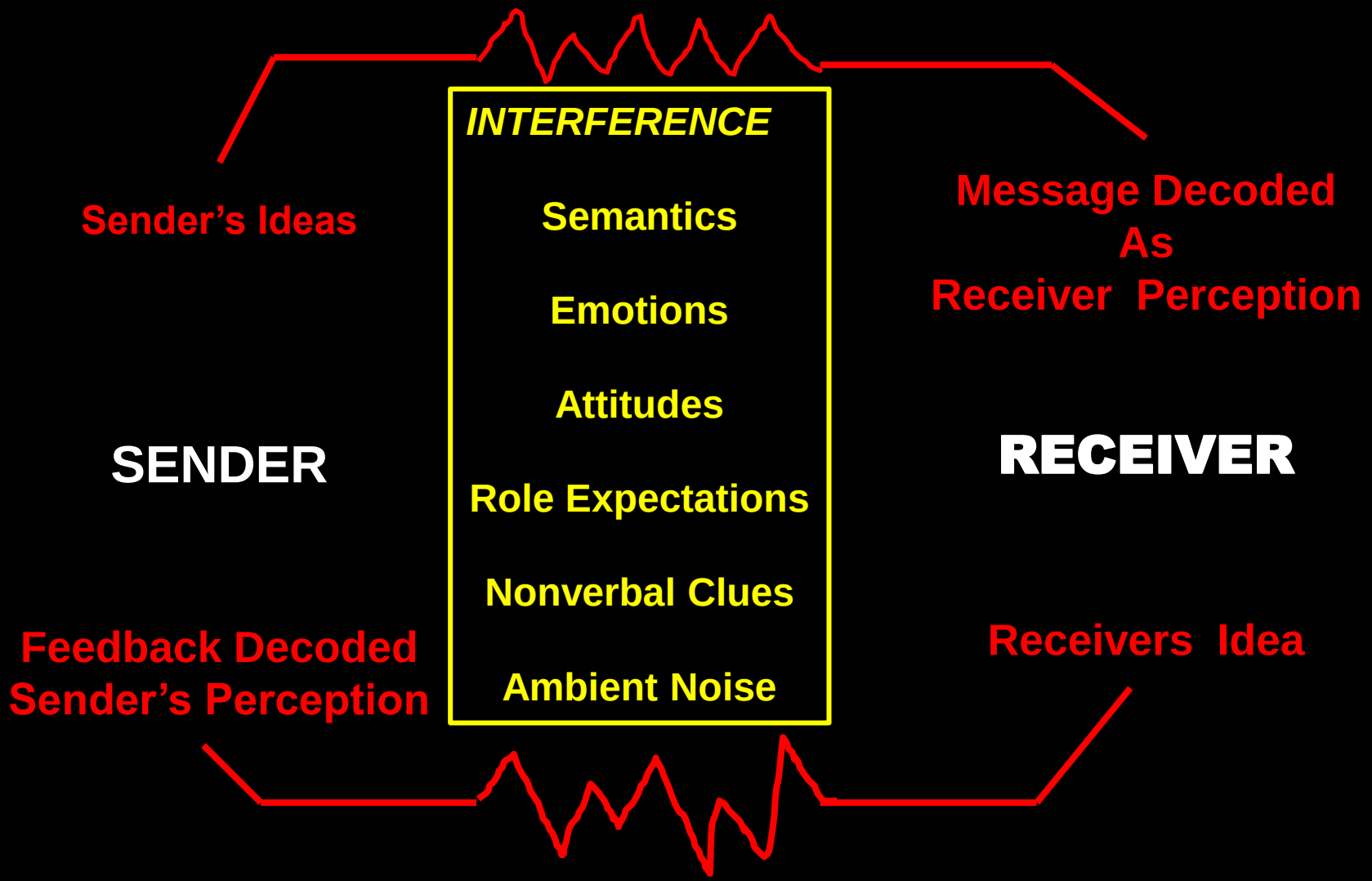
Functions of Command – 3. Communications



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Functions of Command – 3. Communications

FAA rule

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COMMUNICATION ISSUES

BE UNDERSTOOD

first time

EVERYTIME

E-16 …. Engine One Six

A side …. Alpha Side

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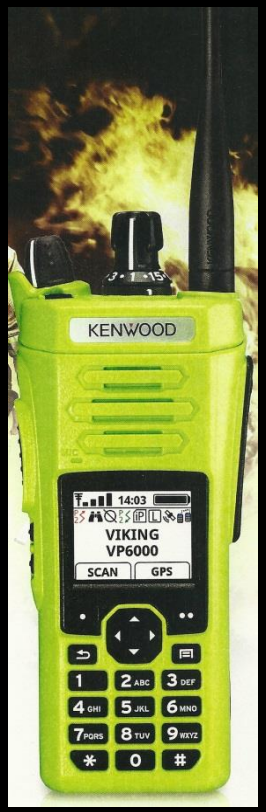
Functions of Command – 3. Communications

COMMUNICATIONS



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Functions of Command – 3. Communications

36.5% of Maydays were MISSED on their 1st CALL

- 67% Sidewalk Command (portable)
- 26% Outside Vehicle (rear)
- 7% Inside Vehicle

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Functions of Command – 3. Communications

ONLY 37%
of the time was radio communications verified or repeated for confirmation

CO must confirm radio communications

- Company cannot complete the assignment … 39%
- Company needs help in carrying out assignment … 44%
- Assignment is complete and company needs to re-cycle or be reassigned … 35%

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Functions of Command – 3. Communications

COMMUNICATIONS Creates/Causes 56% of Maydays COMMUNICATIONS order model

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PROTABLE RADIOS

Portable	5W
Vehicle	30-45W
DISPATCH	100W

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PROTABLE RADIOS

Portable 5W

5 > 4 > 3> 2W

Vehicle

Hard Charger

Replace Battery

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BODY MASS
BUILDING/STRUCTURE

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RANGE OF RECEPTION 70 DEGREES

CLEAN

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PROJECT MAYDAY

Considerations / Recommendation

- Emergency Stress …
  Normal – 75hpm – you will react clearly and manage complex motor skills…
  after 145 hpm
  most people begin to deteriorate voice command, volume , begin shakes, lower motor kills, vision, hearing, and depth perception can also decline, if stress intensifies people will usually experience a form of amnesia after the event.

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Considerations / Recommendation

The IC's tone of voice is going to set the rest of the Mayday

- **Volume**
- **Quality**
- **Speed**
- **Feedback**

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Considerations

COMMUNICATIONS:

2019: **1,217**

Effective/Ineffective Communications

Average:

47 messages…pace 2.4 per minute

31 effective (66%) …. 16 ineffective (34%) 2missed messages (39 minutes) PACE

There is a 15%effcienty drop when FF used SCBA's

Command Effect: distractions

Face-to-face messages, too many people in command environment, many messages garbled (SCBA facepiece) multi-distractions (switching channels) relabeling crews, sensory overload is a major contributing influence in restricting effective communication flow.

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Considerations

COMMAND WITH AIDE:

Most effective only missing 1 message, effective command communication (91%)

However, Aides can also be distraction, talk allot This holds true with aide's that our not normally assigned or working out of their environment.

Most effective team has nonverbal glances, confirming nods, hand gestures, use of post-it's.

"Effective command communications relies on the quality of communications, based on imperfect information"

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Considerations

Multi demands impose simultaneously sensory overload, impairs communications. Volume of inputs exceeds the capability of critical decision, creating multiple layers of complexity
Usually the quality of communications decreased in proportion to the amount and type of stimuli and distractions of radio traffic. The critical factor for calm and controlled communications is of major importance in reducing sensory overload.

Keep all radio communications clear and concise.

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Considerations

REASONS FOR MISSED RADIO TRAFFIC

NO Apparent Reason	38%
Switching channels	19%
Talking in Person to others	19%
Garbled	14%
Feedback squeal	5%
Background noise	5%

1,217

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WHY ?

29%
of Mayday situations,
were
NOT
reported initially as
Maydays

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Considerations / Recommendation

How well Command manages the "MAYDAY" and how well on-scene crews interact with one another will determine the success or failure of the toughest type of incident we will ever fight

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PROJECT MAYDAY

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Portable handheld radios are widely used during firefighting operations, and these radios are often exposed to the elevated temperatures that are typically present in a fire environment. Radios, like other electronic equipment, can be vulnerable to elevated temperatures. Previous investigations have shown that radios may suffer physical damage, such as melting and deforming, as well as operational difficulties when exposed to elevated temperature environments [1]. Performance problems with portable radios have been identified by the National Institute for Occupational Safety and Health (NIOSH) as contributing factors in some fire fighter fatalities [2]. To investigate the impact of elevated temperatures on radio operations, experiments were conducted to measure the performance of portable radios exposed to elevated temperatures. The goal of this investigation is to develop scientifically based performance standards for fire fighter portable radios.

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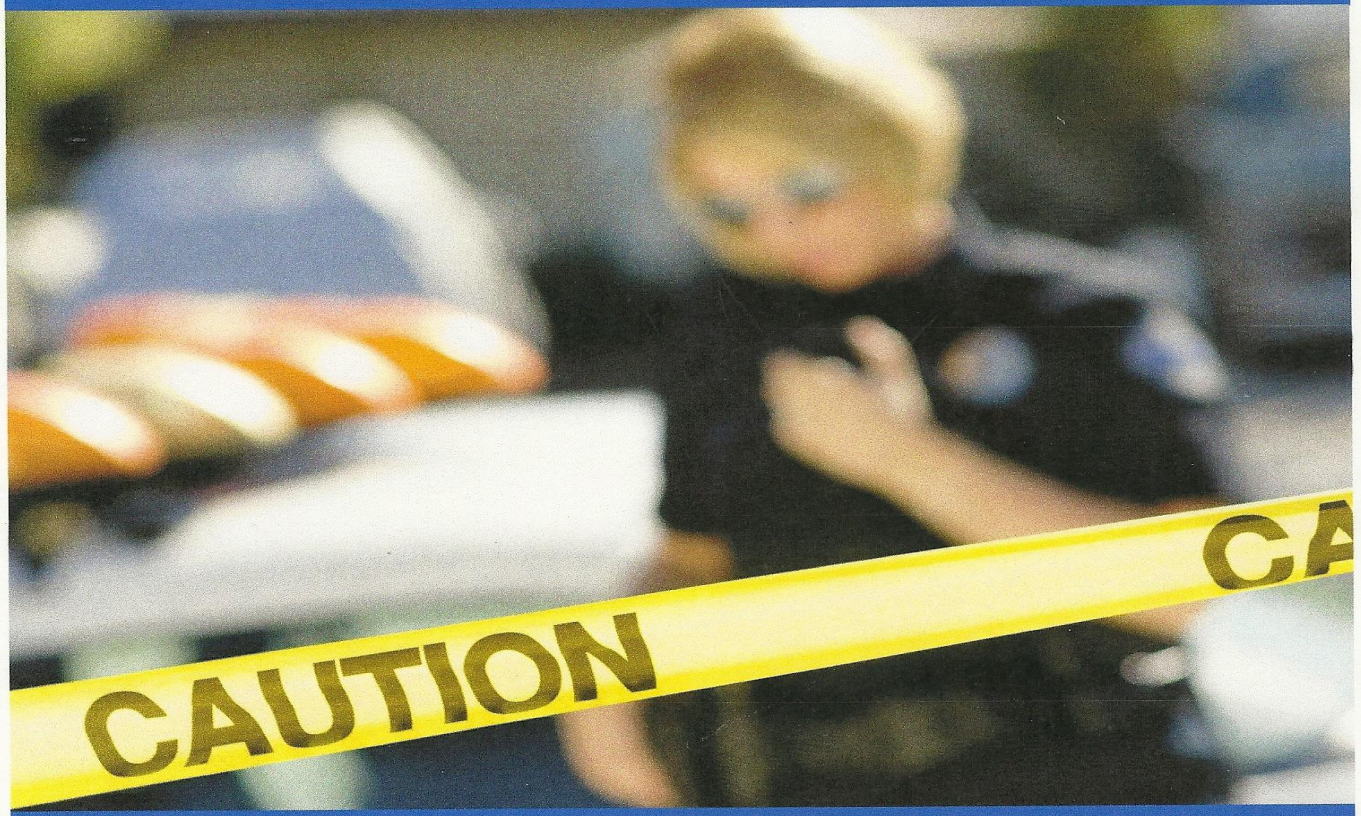
LOCUS USA™

WHITE PAPER

Assessing the Effects of Radio Failure in High-Risk Incidents



A Guide for Public Safety Agencies

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To address the lack of performance standards for fire fighter portable radio equipment, the NFPA Technical Committee for Electronic Safety Equipment has proposed the development of a standard for portable radios used by emergency service personnel. The information in this paper provides data and performance measurements relevant to the development of the new standard.

Because of the lack of standards for portable radios, operation guidelines and performance criteria have been left to the radio manufacturers. Many of the manufacturers list maximum operating temperatures of 60 °C for the radios to be used by fire fighters. This temperature falls well below temperatures that a fire fighter could encounter while operating in a fire environment. Previous work studying the performance of electronic equipment used by first responders in elevated temperature environments led to the development of a Thermal Class system for categorizing the operation of electronic equipment exposed to thermal conditions [4].

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Currently, the National Fire Protection Association (NFPA) has no specific standards in place for portable radios and other two-way communication devices. These types of devices are broadly covered by NFPA 1221: Standard for Installation, Maintenance and Use of Emergency Services Communications Systems [3]. The general usage of two-way portable equipment is referred to in NFPA 1221 Section 9.3.6. The only requirements in this standard relating to radio operation in the fire environment are found in Section 9.3.6.2, which states "Portable radios shall be manufactured for the environment in which they are to be used and shall be of a size and construction that allow their operation with the use of one hand," and Section 9.3.6.12, which states "Portable radios used by first responders who might encounter hazardous conditions likely to cause fire or explosion because of the release of flammable liquids or gases shall be rated as Intrinsically Safe by a recognized testing authority, if determined necessary by the AHJ." No further information is given to specify details of the "environment" in which the radios are to be used, and no testing procedures or performance criteria are outlined in the standard.

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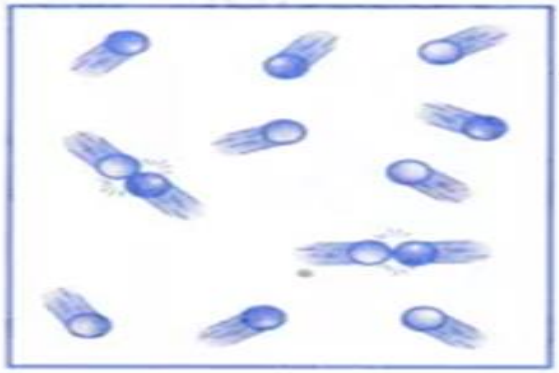
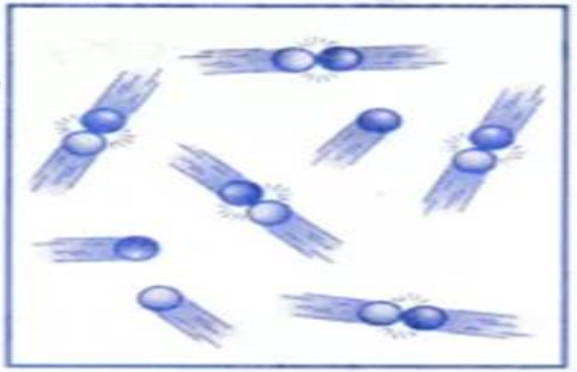


The temperature of the reaction increases

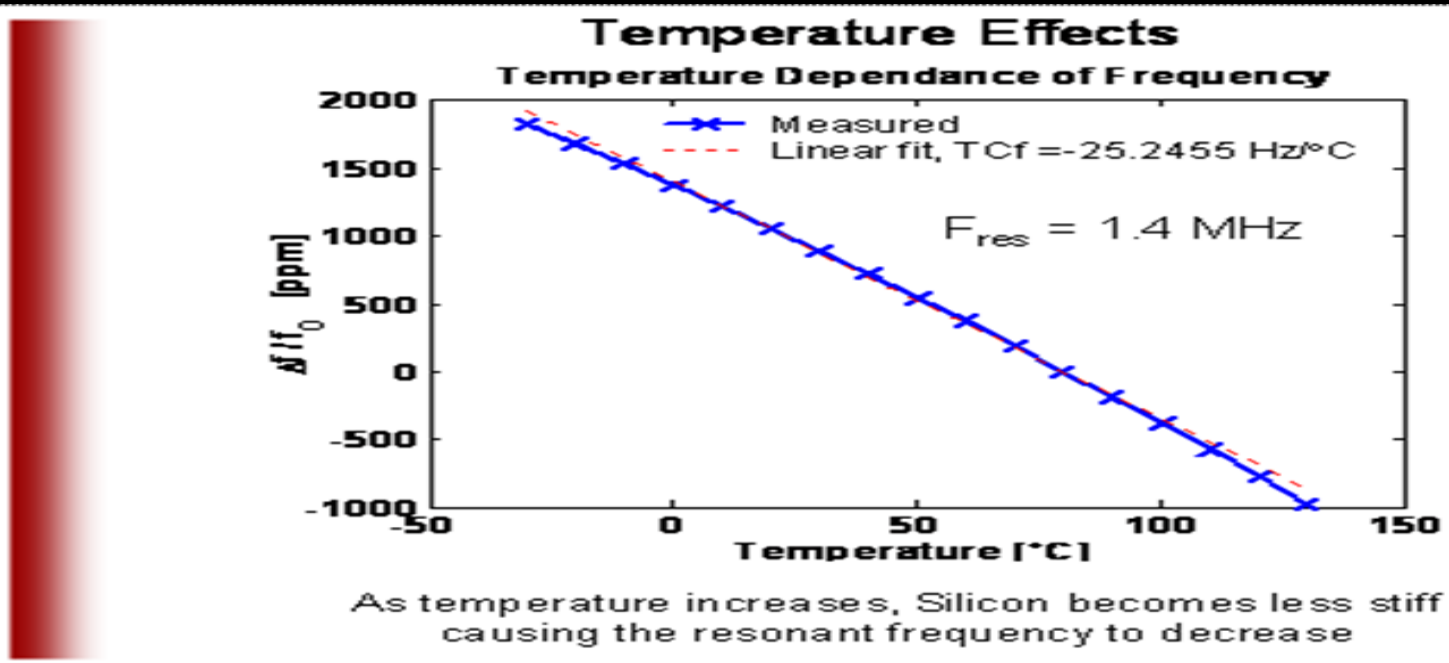


- At a lower temperature, the particles move slower.
- Frequency of collision is lower.

- At a higher temperature, the particles move faster.
- Frequency of collision is higher.

Temperature of a reaction controls the frequency of collision

FREQUENCY DRIFT



As temperature increases, Silicon becomes less stiff causing the resonant frequency to decrease

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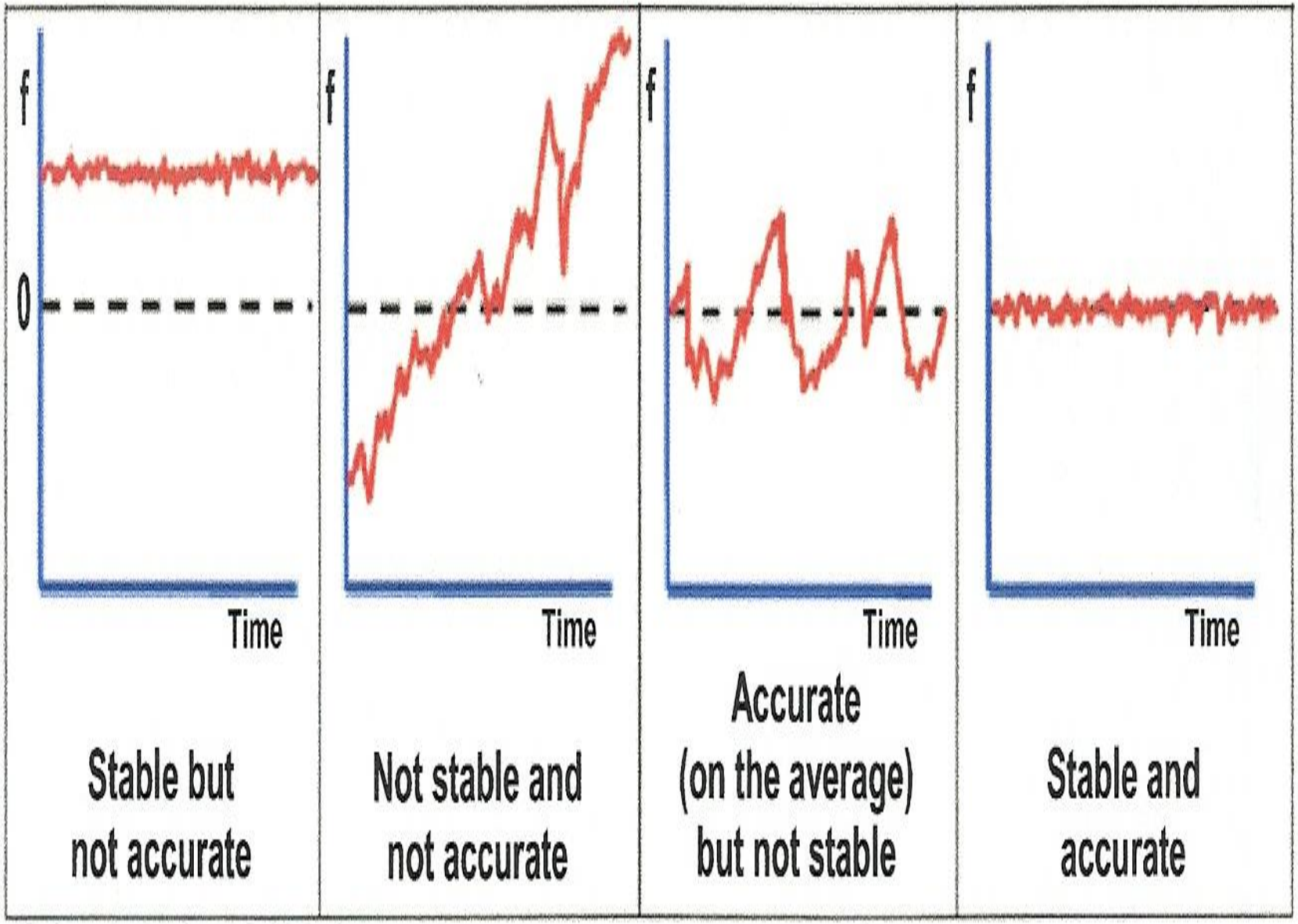
Frequency Accuracy and Stability Dependencies of Crystal Oscillators



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Uncovering the Hidden Danger Lurking Inside Your Radio

One of the most challenging problems to detect is radio frequency drift. Often this issue stems from poor calibration or improper signal alignment. Problems can range from inaudible transmissions and incomplete radio identifier displays, all the way up to calls being rejected by the system.

If a radio falls out of alignment, not only can it affect the individual subscriber's ability to transmit and receive, but it can also impact users on adjacent systems.

More specifically, in 2013, the FCC narrowband mandate allowed for entities to license frequencies closer together. [2]

This increased use of frequency spectrum elevated the probability of a misaligned radio interfering with an adjacent channel user.

Frequency drift has become such a problem that even the manufacturers have taken steps to alert customers to the risk.

Did You Know?

- At any given time, 15 to 20 percent of an agency's subscriber radios have drifted out of alignment, causing them to fail without warning.
- For every 100 radios on an LMR system, there are between 5 and 10 subscribers on the road in danger of experiencing a communications failure at any time.
- Even if a radio appears to be functioning normally, frequency drift can lie undetected - only surfacing when the problem becomes severe.

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Radio	Thermal Class II Exposure 160 °C for 15 min
A1	No transmitting at 15 min. Signal drift of more than 5 ppm post-test.
A2	Signal drift of more than 5 ppm during test.
A3	Stopped transmitting at 12 min + 10 s (730 s).
B1	No transmitting at 15 min. Did not transmit post-test.
C1	No transmitting at 15 min. Did not transmit post-test.
D1	Signal drift of more than 5 ppm during test.
E1	Signal drift of more than 5 ppm during test.

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We recently had seventeen radios tested by NIST and NL Labs.
These radios were involved in Maydays and were exposed to high heat conditions (flash-overs/basement-room entrapment).

- 9 had suffered significate heat damage
- 11 had suffered radio drift (VHF - exceed 7 MHz and UHF 10MHz)
- 13 had suffered 72% antenna damage

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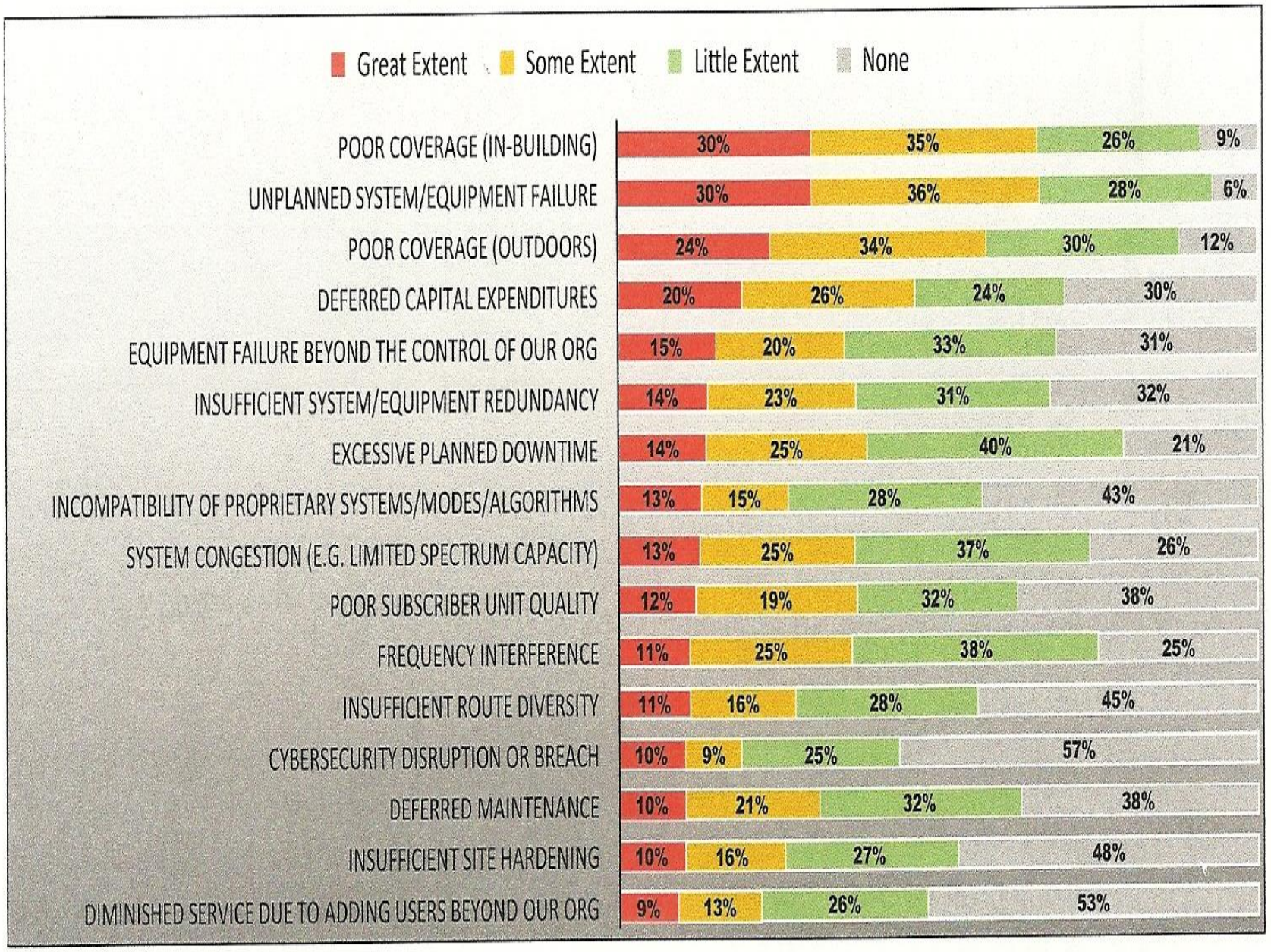
Risk Factors That Affect an Organizations Ability to Communication



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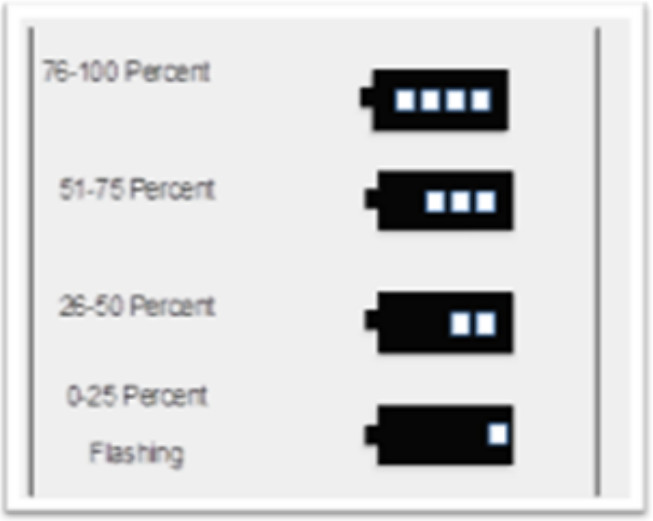
NFPA 1802:

STANDARD ON TWO-WAY, PORTABLE RF VOICE COMMUNICATION DEVICES
FOR USE BY EMERGENCY SERVICES PERSONNEL IN THE HAZARD ZONE

Standardized Placement of:

1. Power/volume knob
2. Selector knob
3. EAB (Emergency alert button)
4. External antenna (if so equipped)
5. Display
6. Transmit /Receive Indicator
7. Push-to-talk button (PTT)
8. Programmable Buttons & switches

Power Source Visual Indicator



PROJECT MAYDAY

NFPA 1802:

STANDARD ON TWO-WAY, PORTABLE RF VOICE COMMUNICATION DEVICES FOR USE BY EMERGENCY SERVICES PERSONNEL IN THE HAZARD ZONE

NFPA 1802

- Devices ONLY!
  - Not the operating system.
- LMR - Fire Service Radio
- New Devices
  - First Net

Industry is already:

- Well Established
- Highly Regulated

PROJECT MAYDAY

Functions of Command – 3. Communications

Heat creates RD attenuation drifting, which cases portable radios to go OFF frequency, heat absorbs the signal. Portable radio should be worn in pockets, if in a sling, it needs to be under the coat.

PROJECT MAYDAY

PROJECT MAYDAY

Do you know how your Fire Department EA button works and what is your Fire Department policy regarding its use

71% of *Mayday* victims DID NOT

PROJECT MAYDAY

PROJECT MAYDAY

- Different system provide different functions of response: a) transmit to your current talk group b) directs call to emergency talk group Regional Standardization

Other features:

a) Some mics become temporarily "hot" enabling brief transmission w/o PTT, b) the "silent alarm" disables audio/visual clues, c) other programing may prevent changing channels after activation.

Another issue interoperability channels

New radios have alert motion transceivers

The presence of a EA button does NOT guarantee that it works

Barry Furey

PROJECT MAYDAY

MAYDAY FD Information

- Most EA button (systems) are designed by the vendor, based on the instruction of the buyer.
- What happens with fireground communications when the EA is activated?
- Does the IC have any control over the EA button activation?
- How much training has firefighters, company officer and IC on the EA button?

How do you use the E-trigger (when you can't Get through or you start with it

PROJECT MAYDAY

What does your dispatcher do … if the IC doesn't answer a MAYDAY … once, twice, three times

PROJECT MAYDAY

Communications Center

MAYDAY CHECKLIST (MAYDAY DISPATCHER)

	PAUSE: Wait 5 seconds .....Allow the IC to acknowledge the Mayday
.	Get Help .....Have someone else start the **Channel One Checklist**
	IF THE IC DOES NOT RESPOND (FOLLOW BLUE)
.	Acknowledge the Mayday. Tell the Mayday FF ....."Activate your PASS alarm"
.	Multi-Select: 01, CVD, TAC & Channel 16 .....Alert Tone #2 x Three Seconds
.	Mayday Broadcast: "Mayday, Mayday, Mayday for the (incident name) incident, **all personnel hold your radio traffic.** (repeat transmission from Mayday FF)".
.	Close the Loop ..... Ensure the IC acknowledges the Mayday
	IF THE IC RESPONDS, start here
.	When the IC and Mayday FF are done talking. .....Continue
.	Multi-Select: 01, CVD, TAC & Channel 16 .....Alert Tone #2 x Three Seconds
.	QUICK Mayday Broadcast: "Mayday, Mayday, Mayday for the (incident name) incident, **all personnel hold your radio traffic"**
.	Activate Channel Marker .....To Mayday radio channel
.	Patch .....Mayday channel to TAC (if needed)

MAYDAY RESOLUTION CHECKLIST

.	Multi-Select: 01, CVD, TAC and broadcast: "Mayday has been resolved for (incident name), all personnel can resume normal radio traffic."
-	Remove channel marker, remove the patch.

Communications Center

BADGE NUMBER ADVISORY (CODE 3 COVER)

CHANNEL ONE DISPATCHER

-	Violent Incident .....No response? Send Police Code 3
-	Additional Alarm .....Automatically Dispatch an Additional Full Alarm .....Either Berkeley 2nd Alarm orACCREC MASR ..... Instructions: Requestunits report to Staging and provide the Incident CMD/TAC radio channels
-	ACCREC ..... Request **Code 3 Non-Divertible** ambulances for # of FF involved in Mayday + 2. .....Call Fire Departments or Contra Costa County if ACREC @ Level 0
-	CFD .....Request two Oakland Battalion Chief's
-	Duty Chief ..... Request a response
-	Activate greater alarm checklist
-	Station 5 Cover-in - ALCO (625) - Oakland
-	Station 2 Cover-in - Albany - El Cerrito
-	Working Fire E-Mail ..... Send with "Mayday" as the subject and include Mayday details in the body
-	Update IC .....What resources are responding
-	Support the Mayday dispatcher as needed.

- Is the EA recessed?
- Can it be activated with gloves on?
- Is the button tucked into a difficult position?

MAYDAY PROJECT

Considerations / Recommendation

MAYDAY PROJECT

Considerations / Recommendation

Dispatcher play a significant role in Maydays

- **Acknowledge the Mayday, assure the member that “help is on the way”, then notify the IC.**
  - **Transmit “Mayday” tone**
  - **Upgrade the assignment**

PROJECT MAYDAY

USFA Voice Radio Communications Guide for the Fire Service

June 2016

PROJECT MAYDAY

COMPONENT 2: The MAYDAY Event

- Changing channels causes problems with:

  - Miscommunication
  - People not changing channels when they should, they want to listen to the mayday
  - Important communications is missed

- ALL radio should be set-up so when you turn the channel knob, the first and last channel are the same.

- Make sure future radios have a EA button that can be easily activated.

- If you have lapel mics, make sure they have a EA button, If so, what does it do to the radio, when activated?

PROJECT MAYDAY

COMPONENT 2: The MAYDAY Event

DON'T CHANGE CHANNELS

PROJECT MAYDAY

Dispatch Audio Recording

PROJECT MAYDAY - AUDIO INCIDENT TAPES

	CONCISE		EFFECTIVE USE OF RESCOURCES
5	brief, NO unnecessary traffic	5	deploy crews quickly doing standard standards
4	race redundancy or unnecessary traffic	4	deployed crews slowly or ineffectively
3	occasional non-pertinent info	3	missed opportunities to delegate crews effectively
2	overuse of radio traffic	2	used crews inefficiently
1	rambling and frequent unnecessary radio traffic	1	failed to delegate or deploy for further progress
	RESPONSIVENESS		**TACTICAL RESERVE**
5	appropriately prompts others for C-A-N report	5	anticipated/requested additional alarms throughout
4	quickly answers traffic directed toward IC	4	initially required additional alarms but didn't maintain reserve
3	short delays in radio response	3	"piecemealed" incidents
2	extended delays in answering	2	failed to anticipate additional needs/
1	non-responsive to traffic	1	ran out of tactical reserve at critical time in incident
	ORDER MODEL		**IC INTENT**
5	order model to adhere to	5	clear initial plan and follow-up through-out incident
4	rare instances of open loop communications	4	effective but frequent communications of plan
3	occasional unclear transmissions	3	occasional "surprize" / non- standard assignments
2	frequent open loop communications	2	frequent "surprize" / non-stand assignments
1	unclear traffic and open loops		
	CLARITY		**COMMAND PRESENCE**
5	clear speech with adequate volume/inflection	5	clarity/ confidence in decision making and communications
4	clear traffic with minimal distractions	4	wavered in above as incident continued
3	occasional unclear transmissions	3	only occasionlly showed clarity/
2	frequent unclear transmission	2	directed crews, but without clarity/ confidence
1	inadequate volume/clarity	1	failed to direct or was unconfident in approch
	DISCIPLINE		

PROJECT MAYDAY

YOUR COMMENTS

"When calling a "MAYDAY", do NOT give up the radio button, until a complete "PCAN" report is given... Then acknowledge

PROJECT MAYDAY

Functions of Command – 3. Communications

35.6% of Maydays were MISSED on their 1st CALL

- **67% Sidewalk Command (portable)**

27% Rear/Outside Command Vehicle

6% Inside Vehicle

PROJECT MAYDAY

Functions of Command – 3. Communications

WHY ARE WE MISSING MAYDAYS?

MAYDAY VICTIM

- WHO, TYPE *MAYDAY*, LOCATION, IF ANY INJURIES, CONDITIONS, ACTIONS, AIR

  (E-14,FF Abbott, Fallen through a Hole into the Basement, I believe I have broken my ankle, I'm crawling to the "B" side away from the fire lots of fire in the basement, my air is 1100p)
- Key Mic (don't give up the radio) 79 seconds
- Speak NORMAL, slow breathing
- Speak through Exhaust Ports
- LISTEN – THINK – DEVELOP A PLAN
- Consider turning OFF / PASS device when speaking

PROJECT MAYDAY

HEARING

The

In the Room

PROJECT MAYDAY

Hearing & Listening

PROJECT MAYDAY

MAYDAY, MAYDAY, MAYDAY

PROJECT MAYDAY

Hearing & Listening

HOW CRITICAL IS HEARING

- Good hearing is necessary
- Sound can be heard…
  - In darkness and inclement weather
  - 360 degrees, come from every direction
- Collect intelligence
  - 50 to 60% of Situational Awareness is hearing, increases when visibility is limited

PROJECT MAYDAY

PROJECT MAYDAY

Hearing VS Listening

HEARING vs LISTENING

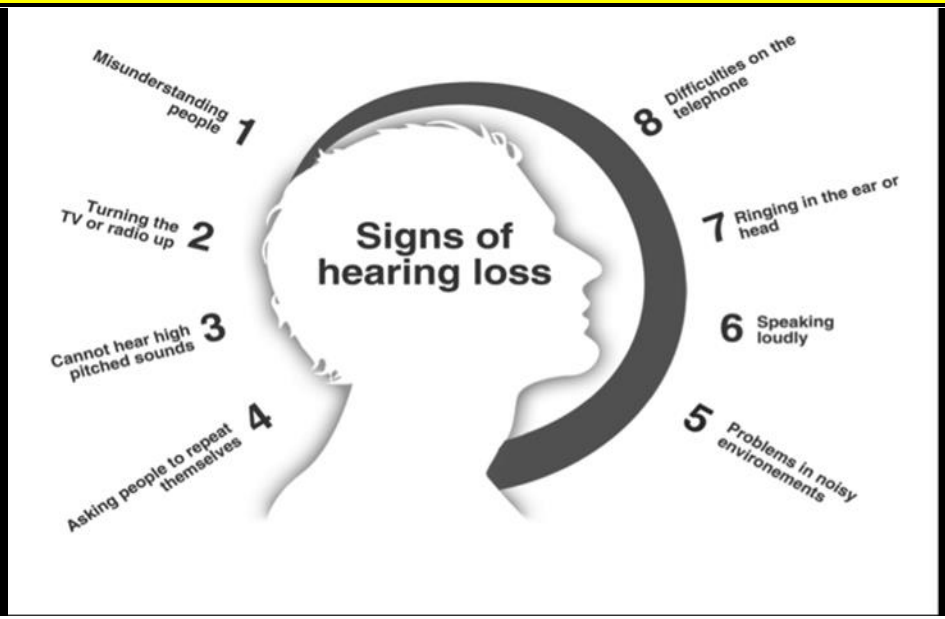
- Do you think there is a difference between hearing and listening?

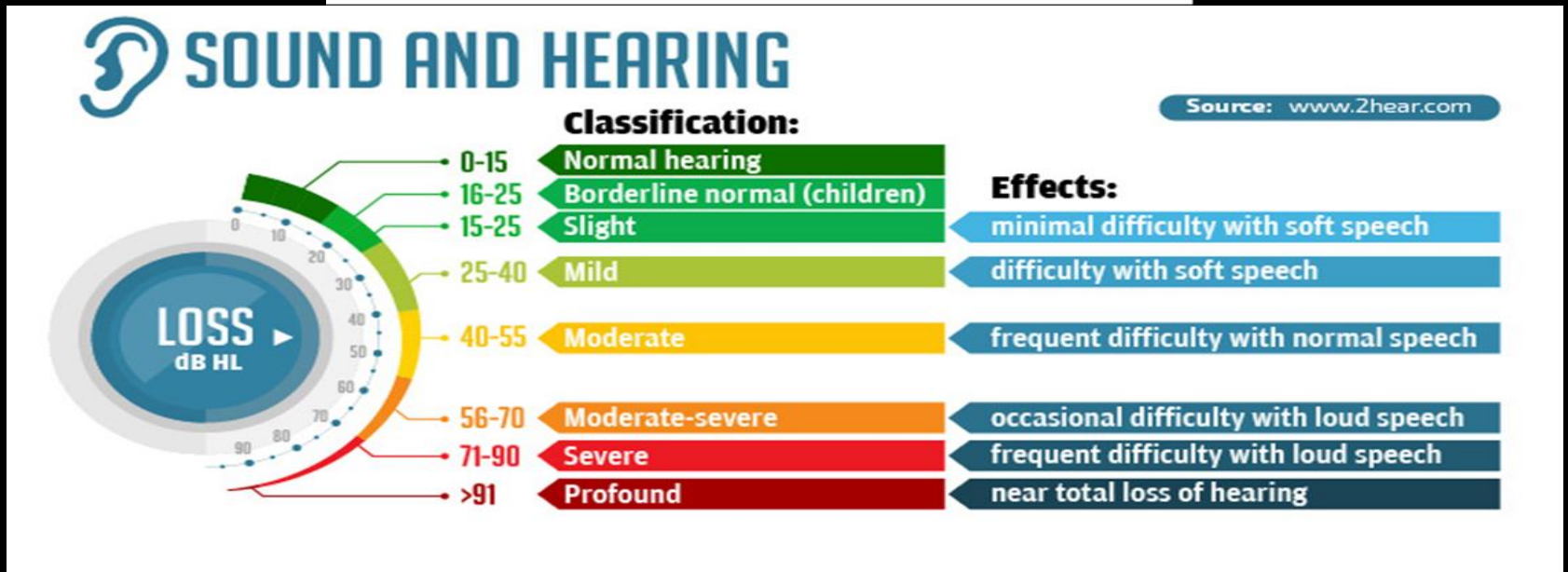
YOUR are RIGHT, there is!

- Hearing is simply the act of perceiving sound by ear. If your hearing impaired, hearing just simply happens.
- Listening, however, is something you consciously choose to do. Listening requires concentration so that your brain processes meaning from words and sentences. Listening leads to learning

PROJECT MAYDAY

HEARING - LISTENING





PROJECT MAYDAY

Why Operational Hearing?

The human body undergoes significant physiological change in the face of a perceived threat or other stressful situations found that emotional stress can affect hearing, especially if severe enough or if exposer is prolonged. Research shows (Blink2005) The heart rate increase after 145 bpm, motor skills become difficult. After 175 bpm cognitive processing begins a selective shutdown sequence with brain functioning, lending the potential explanation for frequency need to have messages repeated or misinterpretation, unexplained miss messages. A command team needs to feature rapport, boundaries, expectations, and anticipation of each other's tendencies.

PROJECT MAYDAY

Why Operational Hearing?

	Word Understanding	
	GOOD Hearing	POOR Hearing
	20seconds	40 seconds
Hearing *letters and numbers*	*74%*	*36%*
Hearing and comprehending orders or information of more than 30 seconds	83%	23%
Multi-bench marks given at the same time	92%	34%
When low air alarm goes off	66%	19%
Calling a MAYDAY	88%	35%

PROJECT MAYDAY

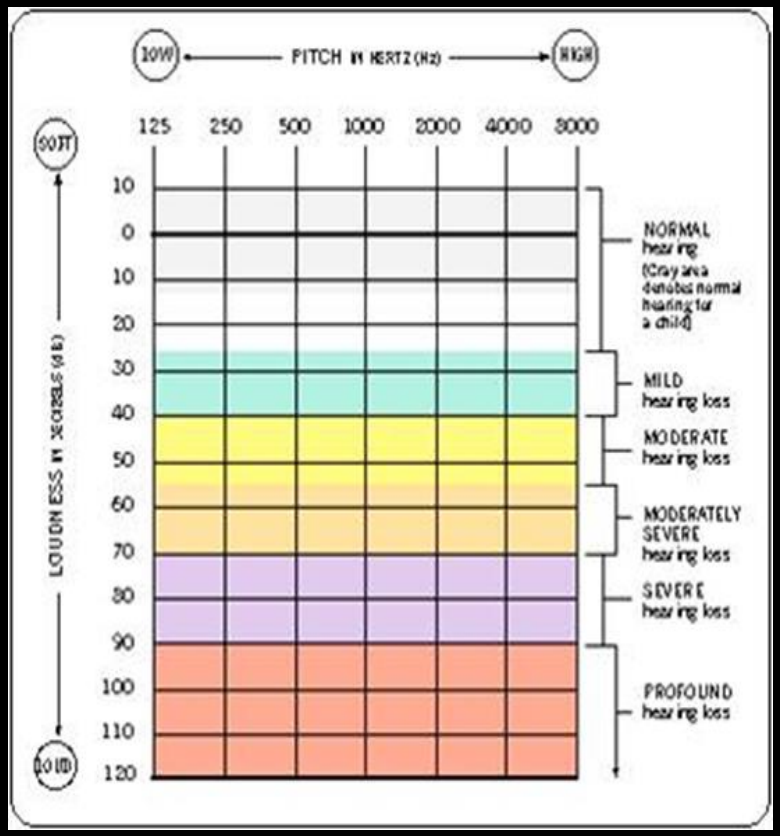
HEARING PROBLEMS

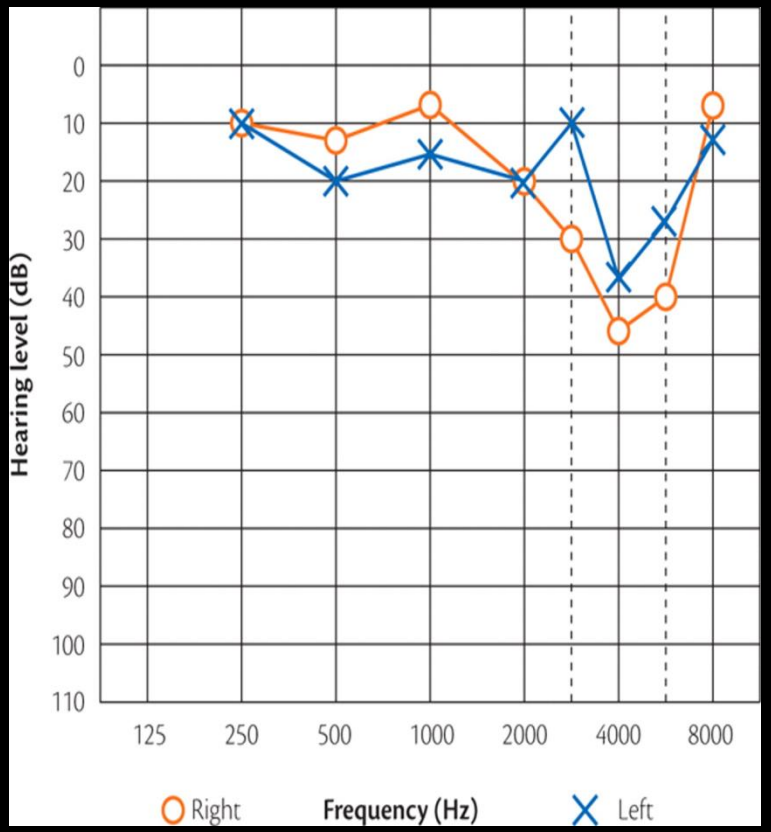
- **95dB – US**
- **85dB – Canada**

- Noise induced hearing loss is permanent hearing loss

PROJECT MAYDAY

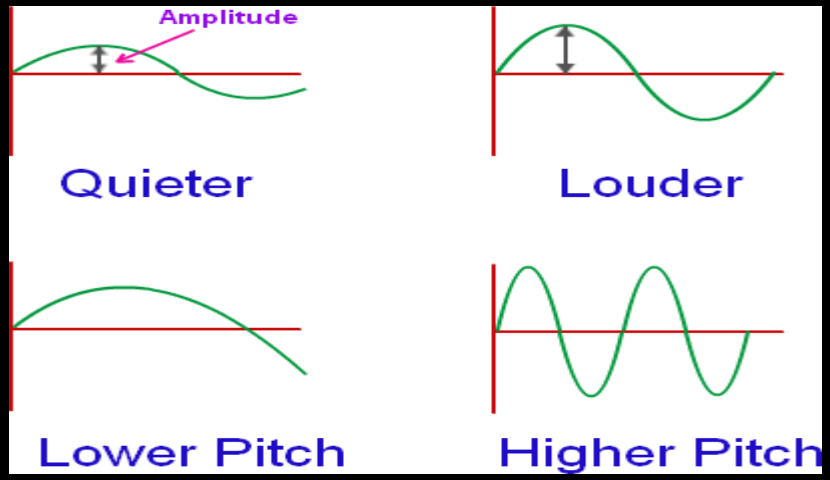
HEARING TEST





PROJECT MAYDAY

CALLING A MAYDAY



PROJECT MAYDAY

Hearing Aids

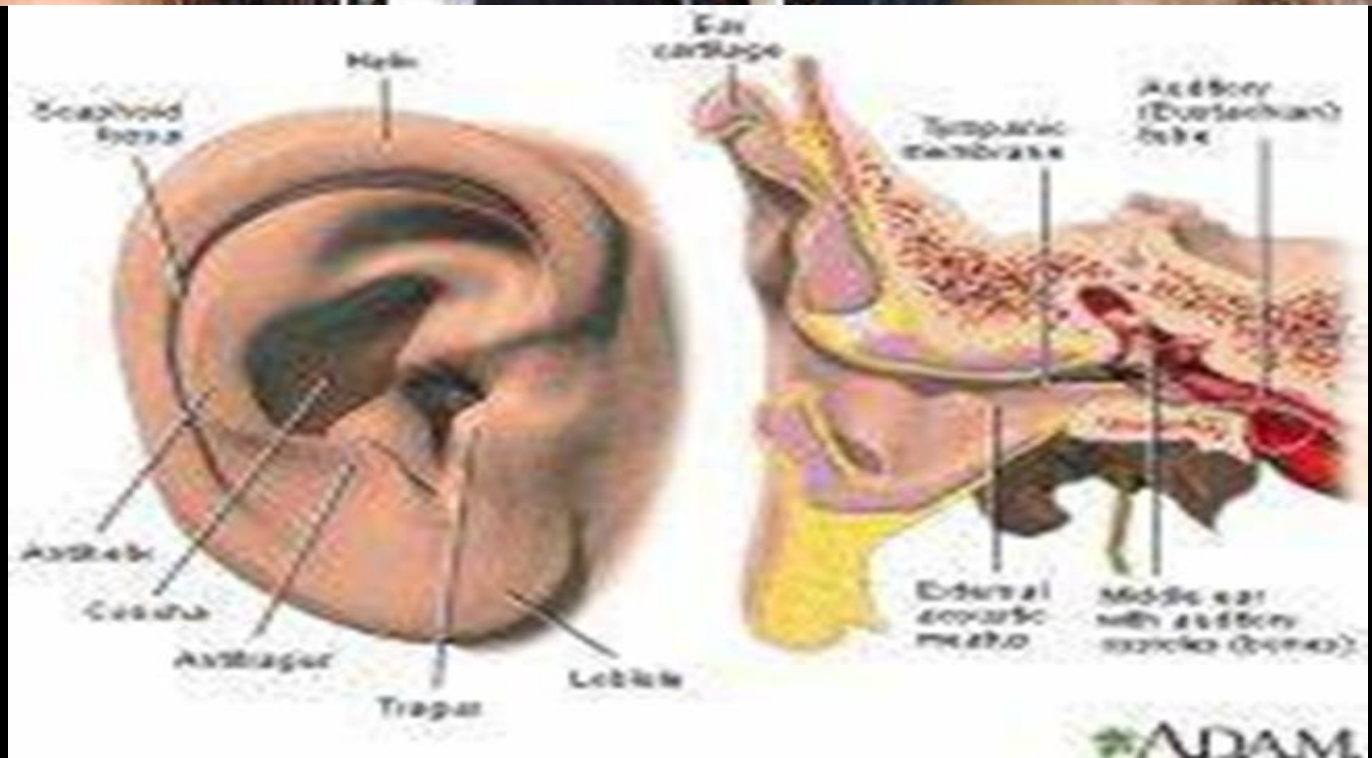
PROJECT MAYDAY

Hearing Aids

29 Reported Burns to the Ear
61 Reported Burns to the Ear
23 Within PM Timeline
(11 over the ear. 9 in the ear)
3 Permeant Disability
5 Lost Hearing in the injured Ear
2 Total loss of hearing in one Ear
7 Required major ear surgery/rebuild

PROJECT MAYDAY

Hearing Aids



PROJECT MAYDAY

Functions of Command
4. Assumption, Confirm and Position of Command

BC-IC Initial Priorities

- Verify strategy, positions and functions
- Evaluate effectiveness of initial attack
- Forecast fire behavior / building construction
- Prioritize assignments for arriving companies and chiefs
- Evaluate needed resources
- Strong focus on tactical controls and firefighter safety
- Benchmarks (A/C, U/C, L/S, etc.)

PROJECT MAYDAY

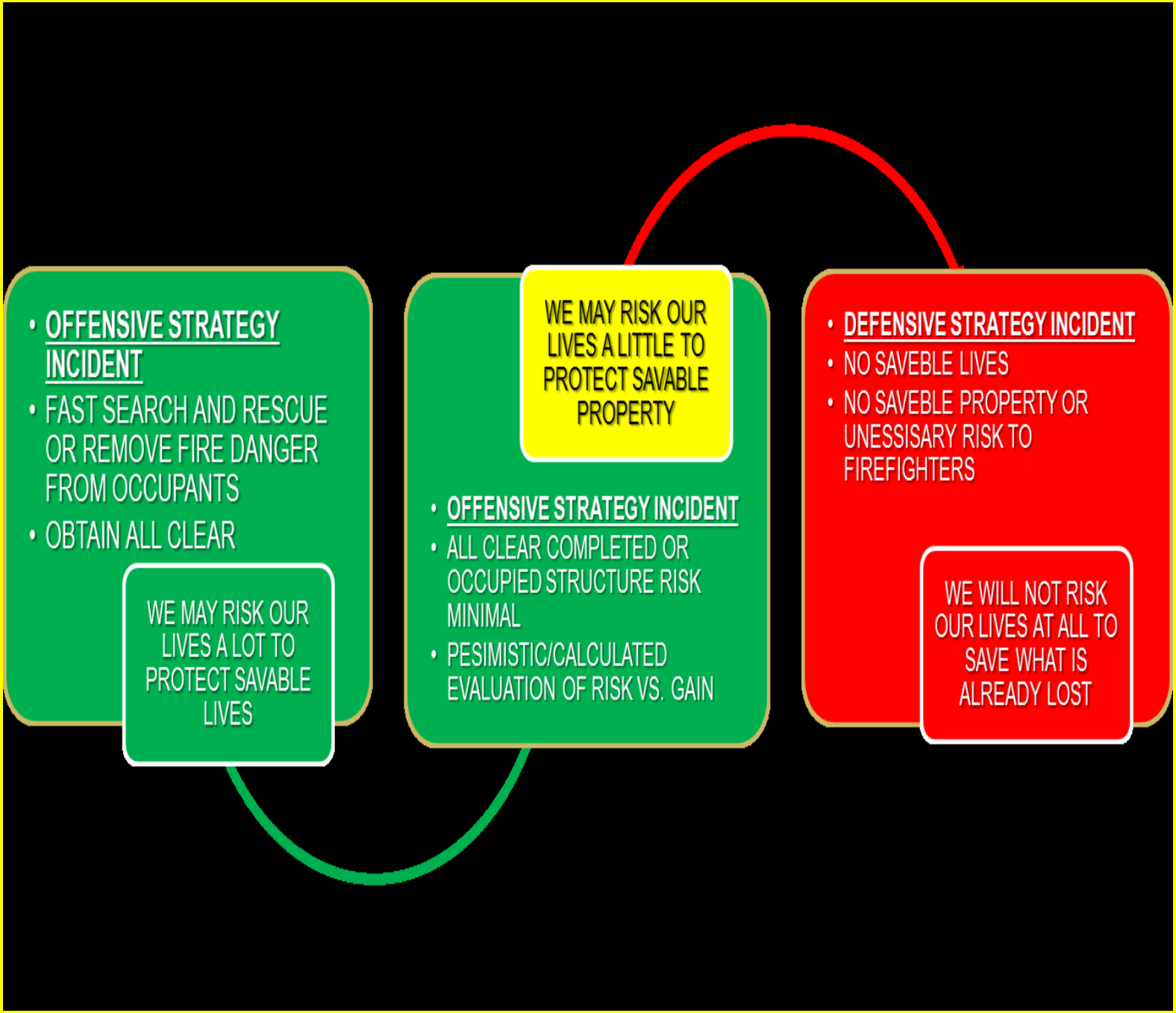
Functions of Command
4. Assumption, Confirm and Position of Command

PROJECT MAYDAY

Functions of Command
5. Strategy and Incident Action Plan

STRATEGY and INCIDENT ACTION PLAN

PROJECT MAYDAY



PROJECT MAYDAY

Functions of Command
5. Strategy and Incident Action Plan

Placing the IC in a Strategic Command position and having them Properly Manage the

CORRECT STRATEGY

has THE

BIGGEST

Safety Impact…Period!

Make sure you pick a Competent RIT TEAM

PROJECT MAYDAY

Functions of Command
5. Strategy and Incident Action Plan

Maintain situational awareness of fire and smoke conditions, as well as building conditions, as the rescue efforts are initiated.

- There is NO greater time for a clear and concise utilization of RMP / SOP / IMS.
- Don’t create another MAYDAY situation while resolving the existing MAYDAY
- Conditions and changes in these conditions must be communicated to the IC, especially as conditions deteriorate and have an immediate impact upon the rescue efforts

PROJECT MAYDAY

Strategic Decision Making Model

Size- Up of Critical Factors

RISK ANAGEMENT

STRATEGY

Incident Action Plan

Tactical Objectives

PROJECT MAYDAY

OFFENSIVE / DEFENSIVE POISITIONS - WHY?

OFFENSIVE INCIDENT ACTION PLAN

CONTROLLED AGGRESSIVE SEARCH AND FIRE ATTACK THAT PROVIDES FOR FIREFIGHTER SAFETY AND FIRE GROUND SUPPORT OPERATIONS (VENTILATION, SALVAGE, OVERHAUL)

DEFENSIVE INCIDENT ACTION PLAN

FIRST PRIORITY IS FIREFIGHTER SAFETY, ESTABLISH HAZARD ZONE, ALL CLEARS IN EXPOSURES, PREVENT EXTENSION TO EXPOSURES, MASTER STREAMS TO EXTINGUISH MAIN BODY OF FIRE

INCIDENT ACTION PLAN ACHIEVES TACTICAL PRIORITIES

PROJECT MAYDAY

Functions of Command
5. Strategy and IAP

All firefighter safety is rooted in task level competence, tactical control and operating in the correct strategy.

PROJECT MAYDAY

Functions of Command
6. Organization

ORGANIZATION

PROJECT MAYDAY

Functions of Command
6. Organization

DEMANDS OF THE INCIDENT

STRESS

STRESS

STRESS

CAPABILITIES

PROJECT MAYDAY

Functions of Command
6. Organization

PROJECT MAYDAY

Functions of Command
6. Organization

The IC cannot outperform the entire response. This set of organizational rules provides the system we use to develop & manage a single IAP for the incident, including our safety.

- **Strategy driven by risk management**
- **Resource determination (tactical reserve)**
- **Level 1 staging**
- **Assignment by the IC**
- **Standard Company work cycle:**
  Working~On deck~Recycle
- **Single tactical radio channel**
- **Tactical level managed by warm zone bosses**

PROJECT MAYDAY

How well command manages the “Mayday” and how well crews interact with one another will determine the success or failure of the toughest types of incidents we will ever work

- Activate the RIT
- Get a RIT for the RIT
- Start another alarm assignment
- Add another Chief Officer
- Ensure everybody stays on task
- Ensure accountability is accurate
- Call for medical resources

PROJECT MAYDAY

Functions of Command
6. Organization

Did you appoint another officer to run the Mayday for Fire Operations?

- **I kept Fire Operations, passed on Mayday Rescue. ..... YES 29%**
- **I kept Mayday Rescue and passed Fire Operations. .... YES 35%**
- **I kept doing both. ..... YES 36%**

PROJECT MAYDAY

Functions of Command
6. Organization

PROJECT MAYDAY

Functions of Command
6. Organization

INCIDENT ACTION PLAN

Identify the Correct Strategy
Provide Resources
Stabilize the Incident
Firefighter Safety
Fire Status vs Resource Needs

HOPE IS NOT A PLAN

PROJECT MAYDAY

Functions of Command
6. Organization

PROJECT MAYDAY

Functions of Command
7. Review, Evaluate and Revise

REVIEW, EVALUATE and REVISE

PROJECT MAYDAY

MAYDAY … resolved

“Mayday” resolved :

- The MAYDAY victim is removed from the hazard zone
- All members involved in the rescue are accounted for and are out of the hazard zone
- Hazard Zone accountability is conducted
- The IC has PAR for the entire hazard zone.

PROJECT MAYDAY

Functions of Command
8. Confirm, Transfer and Terminate Command

CONFIRM, TRANSFER and TERMINATE COMMAND

PROJECT MAYDAY

Returning to Normalcy

- After the firefighter rescue, Command should conduct another *PAR.*
- After the *PAR*, reestablish strategy
- As soon as possible, send additional crews to the scene for relief and reassign on-scene crews to necessary assignments.
- As soon as relief crews are assigned, get the original on-scene crews to a debriefing. This should be required before they are allowed to leave the scene.

Upon termination of the “Mayday” event,
Announce “Resume Normal Radio Traffic”
On the affected channel.

MAYDAY PROJECT

Does the AHJ have a "After Mayday Plan"

- On-site debriefing
- Family notification and support
- Relief schedule for affected crews
- CISD
- Internal investigation (Chief Officer/Training)
- PIO

PROJECT MAYDAY

POST INCIDENT ACTIONS

Post Mayday Incident:

- Did you make changes to SOPs? YES 41%
- Did you make any changes to your Mayday training program as a result of this incident? YES 66%
- Was any further command level training conducted as a result of this incident? …. YES 24%
- Was any disciplinary action given as a result of this Mayday? YES …. 4%

MAYDAY PROJECT

Your Comments

Your Comments:

- "STAY COOL, speak calmly and offer assurance
- " Assign an officer to run the rescue as soon as possible"
- The Bigger the structure … more MAYDAYS
- "Expect mutinies, react to them and control them"
- "Get a second RIT formed as quickly as possible"
- "The simple truth is nothing in the collective set of experiences in commanding fires translates into commanding a mayday event"

MAYDAY PROJECT

Your Comments

- Control radio communication, yelling and screaming becomes epidemic, confirm all radio reports.
- BIGGER the structure = more MAYDAYs
- Don't make every Mayday drill a rescue event have a body recovery, pull everyone out, do a PAR, regroup.
- Most IC's knew who the firefighter would be that would call a Mayday, they had a attitude, training, or experience deficiencies prior to the fire, it was predictable.

PROJECT MAYDAY

COMMENTS / RECOMMENDATION

- Watch for operational delays
- Identified uncontrolled flow paths
- Lost of compartment integrity
- Protect means egress
- Smoke (angle of smoke plume – wind driven)
- Commercial buildings with no sprinklers should be considered highly dangerous operations

PROJECT MAYDAY

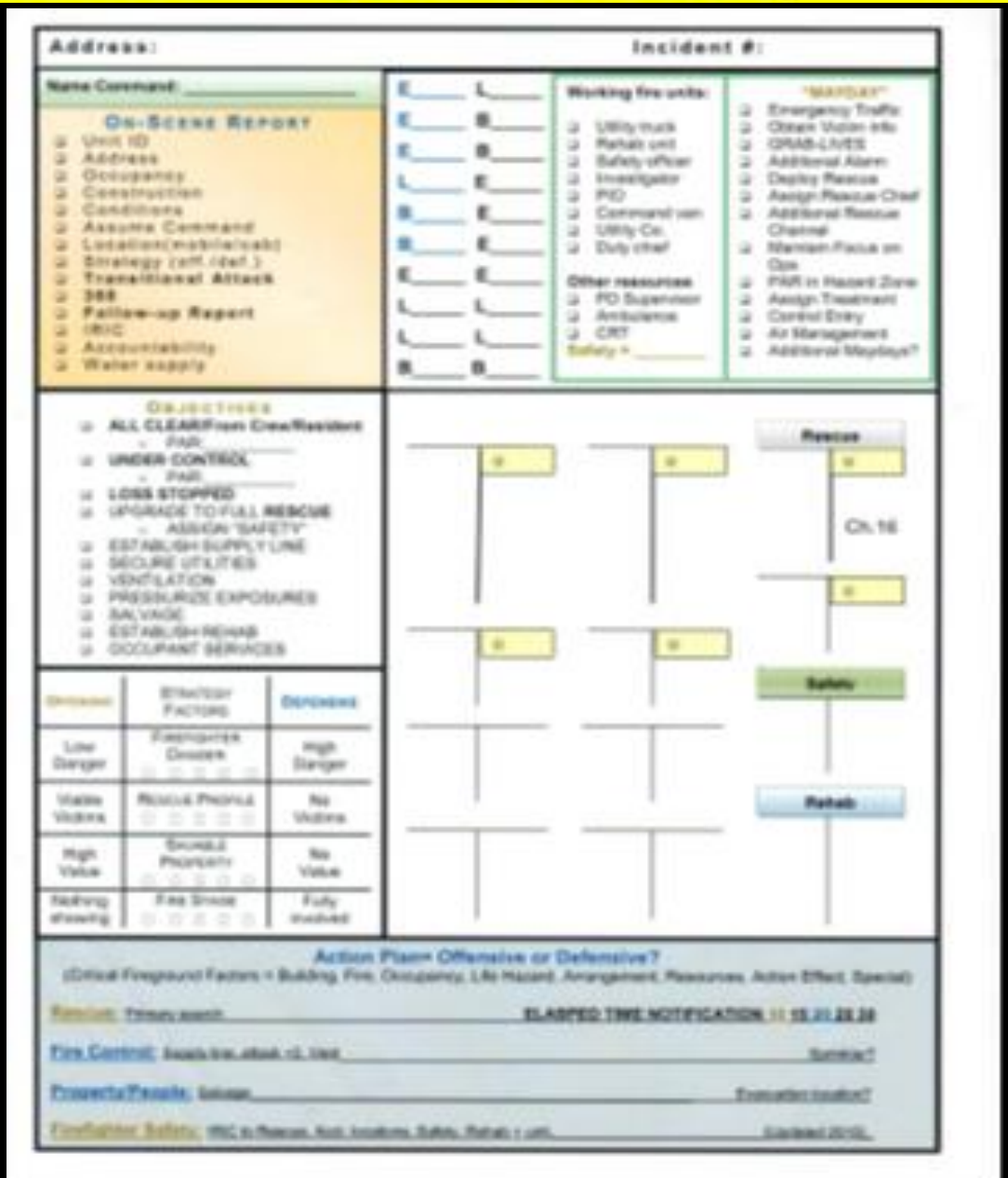
COMMENTS / RECOMMENDATION

- Do NOT flood interior with RIT crews
- Monitor air supplies during RIT operations
- Unconscious or injured firefighters require extra time
- Update information for rescue plans
- Maintain strong control at entry points
- Each Mayday will come with its own set of problems and critical factors

PROJECT MAYDAY

COMMENTS / RECOMMENDATION

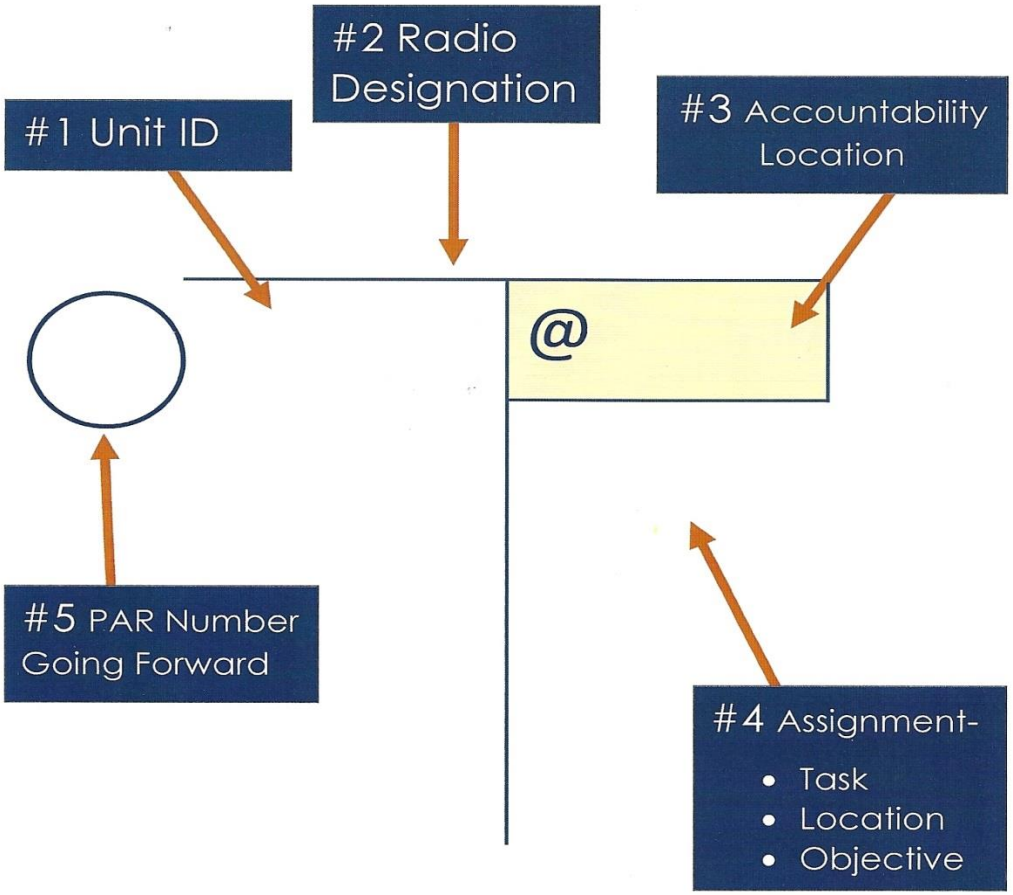
IC Worksheet



PROJECT MAYDAY

COMMENTS / RECOMMENDATION

IC Worksheet

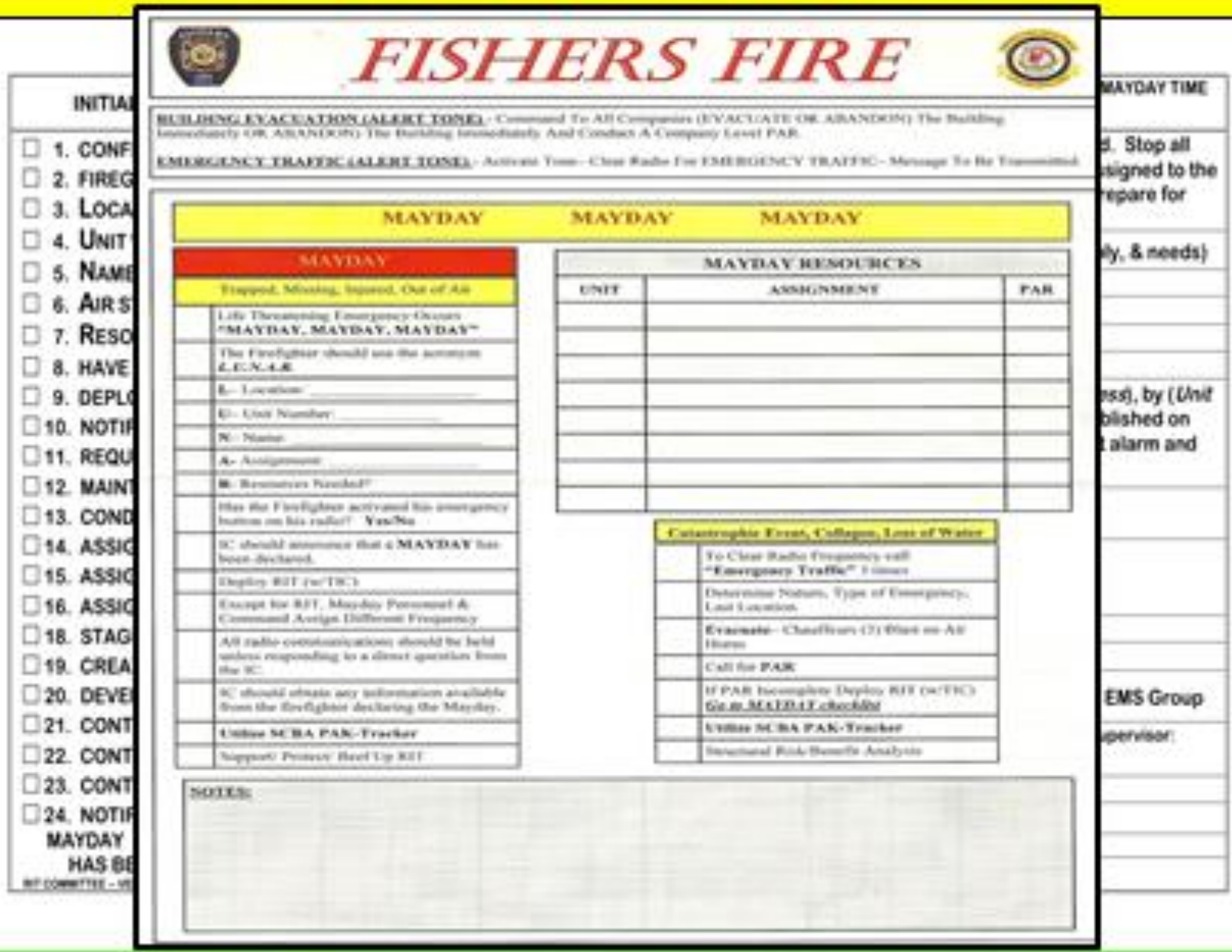


"Sequence of Assignment" is an efficient and inclusive way to make assignments. **In one transmission**, the IC can contact the fire unit, name their radio designation, announce their accountability location, give them a specific assignment with ***task***, ***location***, ***objective***, and determine the number of personnel entering the "Hot Zone" **(IDLH)**. This sequence is also very easy to repeat back to follow the communication order model.

PROJECT MAYDAY

COMMENTS / RECOMMENDATION

IC Worksheet



INITIA

1. CONF
2. FIREG
3. LOCA
4. UNIT
5. NAME
6. AIR S
7. RESC
8. HAVE
9. DEPL
10. NOTIF
11. REQU
12. MAINT
13. COND
14. ASSIC
15. ASSIC
16. ASSIC
18. STAG
19. CREA
20. DEVE
21. CONT
22. CONT
23. CONT
24. NOTIF

MAYDAY HAS BE

MAYDAY TIME

d. Stop all
signed to the
repare for

ly, & needs)

ss), by (*Unit*
blished on
alarm and

EMS Group

pervisor:

FISHERS FIRE

BUILDING EVACUATION (ALERT TONE) - Command To All Companies (EVACUATE OR ABANDON) The Building Immediately OR ABANDON) The Building Immediately And Conduct A Company Level PAR.

EMERGENCY TRAFFIC (ALERT TONE) - Activate Tone - Clear Radio For EMERGENCY TRAFFIC - Message To Be Transmitted

MAYDAY MAYDAY MAYDAY

MAYDAY	
Trapped, Missing, Injured, Out of Air	
	Life Threatening Emergency Occurs **"MAYDAY, MAYDAY, MAYDAY"**
	The Firefighter should use the acronym L.U.N.A.R.
	L- Location:
	U- Unit Number:
	N- Name:
	A- Assignment:
	R- Resources Needed?
	Has the Firefighter activated his emergency button on his radio? **Yes/No**
	IC should announce that a **MAYDAY** has been declared.
	Deploy RIT (w/TIC)
	Except for RIT, Mayday Personnel & Command Assign Different Frequency
	All radio communications should be held unless responding to a direct question from the IC.
	IC should obtain any information available from the firefighter declaring the Mayday.
	Utilize SCBA PAK-Tracker
	Support/ Protect/ Back Up RIT

MAYDAY RESOURCES		
UNIT	ASSIGNMENT	PAR

Catastrophic Event, Collapse, Loss of Water	
	To Clear Radio Frequency call **"Emergency Traffic"** 3 times
	Determine Nature, Type of Emergency, Last Location
	Evacuate- Chauffeurs (2) Blast on All Horns
	Call for **PAR**
	If PAR Incomplete Deploy RIT (w/TIC) Go to MAYDAY checklist
	Utilize SCBA PAK-Tracker
	Structural Risk/Benefit Analysis

NOTES:

PROJECT MAYDAY

COMMENTS / RECOMMENDATION

IC Worksheet

MAYDAY
Command Team Checklist

(Report of a Lost, Trapped, or Downed Firefighter)

Ascertain from Mayday Caller:

- Name: _____
- UNIT: _____
- Location: _____
- Assignment: _____
- RESOURCES NEEDED FOR RESCUE

Activate Grab-lives procedures

GRAB-LIVES

Gauge (CHECK AIR)
Radio (CALL for Help)
Activate (Pass)
Breathing (control)

Low (Stay Low)
Illuminate (Flashlight)
Volume (Make Noise)
Exit (Find Exit)
Shield Airway

Air Level:_____

Radio Transition and Alert

Emergency Traffic Declaration, Alert Fireground
That A Mayday Has Been Declared
If Needed Move Non Affected Units to Secondary Radio Channel

- Support Officer/Runs ongoing operations
- Fireground Channel/Command directs rescue

☐ PAR conducted by Operations on Secondary Channel
☐ Immediately Request Additional Alarm(s)

Deployment Considerations

☐ Deploy Rescue
- Commit additional resources to the Rapid Intervention Team

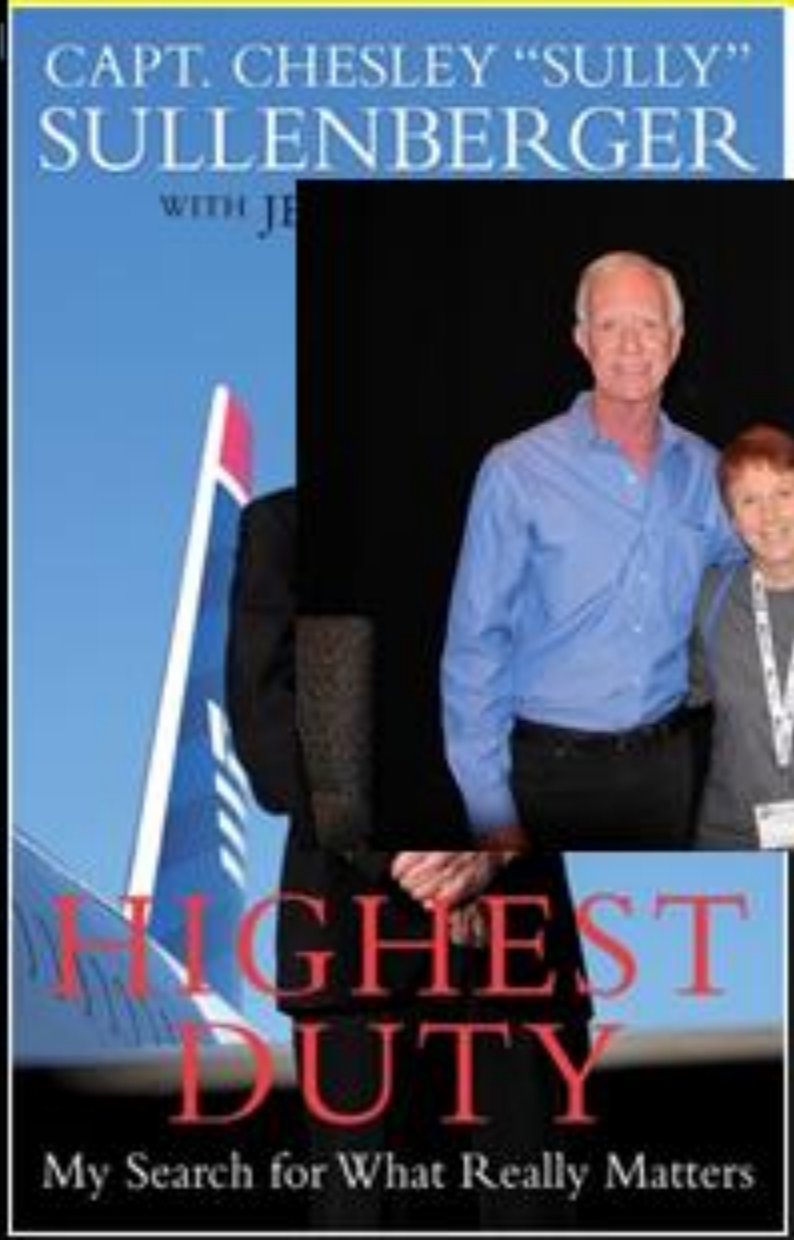
Change Plan to a High Priority Rescue Effort
Consider Withdraw Companies from Affected Areas
Re-enforce Firefighting Positions
Open / Unlock All Doors
Ventilate - Maintain Tenability
Provide Additional Lighting
Closely Coordinate and Control Search Efforts
Special Call for TRT Teams if needed
Monitor Structural Stability
Maintain Strong Supervision and Control of Crews
Assign Additional Chief Officers to Area of Rescue

Build out command and Control

Use chief Officers is Critical Location, Fill out Command Team
Build/Effective Rehab
Control the Media
Put Medical Sector in Place

PROJECT MAYDAY

Need for Checklists



- Bird strike
- Focus attention on
  y task

27:28)

oss of
engines."

QRH = Quick Reference Handbook

PROJECT MAYDAY

PROJECT MAYDAY

The CHECKLIST Manifesto

How to get things right

Atul Gawande

Fire Fighter's Check List

En route	At scene	Inside
❑Dispatched location ❑Anticipate struct. type ❑MDC text ❑Best route for access ❑Smoke ❑Radio ❑Safety ❑Structural integrity	Size-up: ❑Construction ❑Smoke re-entering ❑Tactics: ❑Cool with water ❑Vent-yes/no? ❑Structural integrity	❑Cooling effective? ❑Venting effective? ❑Hazard/Rescue? ❑Survivability profile? ❑Structural integrity

Each of us must be assessing the situation to make the decision to go in or stay out, or stay in or get out.

Yes or No?

PROJECT MAYDAY

Mayday - Command and Control for Chief Officers

This program is divided into five parts:

- **Everyday Operations**
- **Pre-Incident**
- **Incident**
- **Mayday Event**
- **Post Mayday**

Everyday Operations:

It all begins with everyday operations:

- SOPs
- Staffing
- Apparatus Status
- Unresolved issues/problems
- Weather

PROJECT MAYDAY

DC/BC Staffing Assignments

Review Daily Roster Status:

- **Personnel Working Out of Assignment**
  - **Firefighter 21%**
  - **Engineer 17%**
  - **Company Officer 11%**

  - **Overtime 27%**
  - **Crew (understaffed) 14%**

  - **Operating out of Reserve Apparatus 13%**

WHO HAS THE MOST MAYDAYS ?

ENGINEERS

PROJECT MAYDAY

Mayday - Command and Control for Chief Officers

Everyday Operations:

Crews:

- MoveUp Company Officers ….. 23%
  OT Engineer …….. 12%
  OT Firefighter …….. 29 %

  Crew running short (shift) … 28%
  Crew (several hours) …… 19%

Reserve Apparatus:

- Reserve Apparatus …… 35%

MAYDAY PROJECT

Individual Personal Survey - Incident Commander

Behavioral Reactions:

- Abnormal fatigue
- Muscle tremors
- Twitches
- Headaches
- Guilt
- Panic
- Uncertainty
- Irritability
- Feeling isolated
- Sleep problems
- Withdrawal/Isolation
- Inability to Rest/Relax
- Change in Eating Habits
- Loss of emotional control
- Reacting to Criticism (attack)
- Poor Concentration
- Drugs/Alcohol
- SUICIDES

IC

Need Rehab Too

PROJECT MAYDAY

Mayday Incident

Acknowledge YOU Have BLIND SPOTS

PROJECT MAYDAY

RESCUE vs RECOVERY

“ The department that I have served for twenty-three years, my fellow firefighters, officers, and friends … abandoned ME … at the lowest point in my career, and has left me … with NO OTHER CHOICE !

WHY

PROJECT MAYDAY

Suicides

" Communications is the art of Listening"

Please listen to the words from those who love and know us. "When they say you have changed" take it to heart.

SUPPORT

Talk and listen

- **Get active (exercise) focus on what you can control**
- **Eat your be okay? Eat healthy**
- **Fun activities (group)**
- **Laugh**

" A keen sense of humor helps us overlook the unbecoming, understand the unconventional, tolerate the unpleasant, overcome the unexpected, and outlast the unbearable." Billy Graham

PROJECT MAYDAY

RECOMMENDATIONS

Command Officers:

- YOU should be highly qualified for the position.
- YOU must have a rising standard of quality over time, and well beyond what is required by any minimum standard.
- YOU must have a healthy respect for the dangers and risk of your job requirements.
- YOU must learn ability and willingness to learn from mistakes of the past.
- Forecast your incident, building construction, fire behavior, read the smoke, and understand you're the TIME factor of your incident.
- Continue and continue to revisit your RISK Management Plan and IAP
- RIT for the RIT

PROJECT MAYDAY

COMPONENT 2: Commercial Construction / Occupancy


Vanity Lighting
Iluminación para tocador
Utility Lighting

PROJECT MAYDAY

YOUR COMMENTS

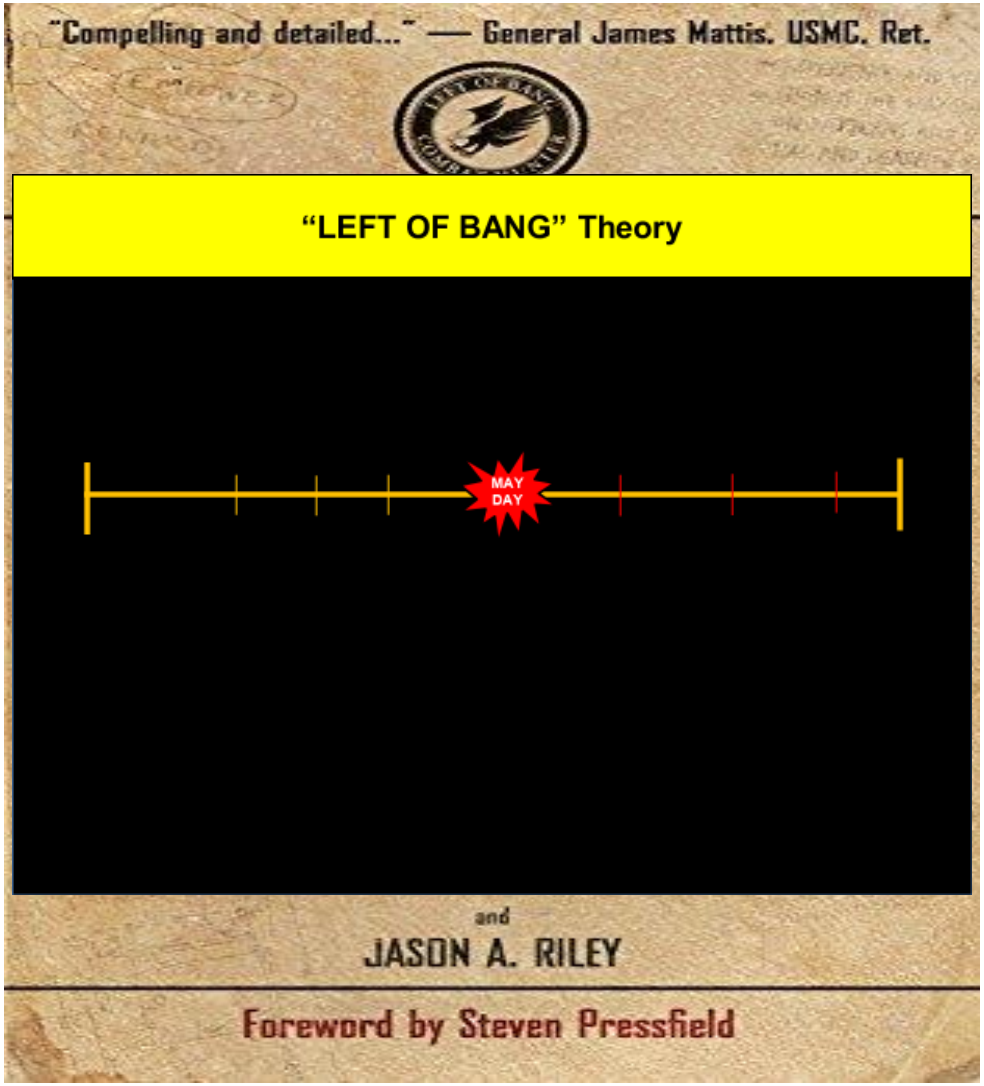
- Deteriorating conditions;
  - came faster than expected
  - couldn't react fast enough
  - crew passing on situation awareness was slow or never came to all crew members
  - moved faster than we should have
  - got off hose line, farther than I should have
  - spacing off the hose line was too far
  - when we fell into the basement, someone should have passed us a line
  - TIC didn't work as expected on the first floor with fire in the basement
  - There should have been ladders at a third floor window for escape, instead of jumping

PROJECT MAYDAY

The only way to guarantee a succeesful outcome of a “MAYDAY” is to PREVENT IT !

PROJECT MAYDAY

Mayday Incident



“LEFT OF BANG” Theory

COOL COMMAND

“Every fire situation contains a discreet number of decisions that will be made at a certain time and place – they can be made either by the IC or by the fire.

Chief Alan V. Brunacini

PROJECT MAYDAY

PRECEPTION

PREDICTABLE
Is
PREVENTABLE

PROJECT MAYDAY

CONPONENT 2: Post Mayday Incident

look for patterns of behavior "TRIGGERS"

If you have 1 / 3 / 5 of the following triggers, consider changing strategy

The following triggers from audio radio reports were reported in at least 86% of the Maydays

PROJECT MAYDAY

FIREHOUSE: Mayday Article

"Predictable is preventable" is a comment often made by risk-management specialist Gordon Graham. The same remark could be made related to some of the radio communication heard on the fireground by the incident commander (IC) just minutes before a mayday occurs—except it's too late in many cases to prevent the mayday.

Project Mayday

Basic fireground operations involve initiating, maintaining and controlling the communications process. Communications is a reflection of our operations—the good, the bad and the ugly. During many incidents, communications becomes a problem and causes the incident to become out of balance. This is especially true during maydays. Why? In most cases, there is either NO communication model or the model is not being followed.

Project Mayday—a nearly three-year study about maydays that looks at when, where and why they occur—examined nearly 3,000 recordings from audio dispatch, dash cams, helmet cams and body cams in order to identify the events and communications that occur during operations that include a mayday. The project found that in 87 percent of maydays, there is a breakdown in communications, orders issued or received, missed messages, walk-over communications, and the worst of problems, missing a mayday call the first time (54 percent mayday calls are missed). There are many reasons for this: communications equipment that does not meet the department's operational needs, too many members on the radio at one time, etc.

Through the examination of the 3,000 recordings, Project Mayday developed a system for tracking phrases repeated over the radio prior to a mayday being called. We compared what was said, when it was said, and the response by the IC. From this information, we compiled a list of 16 phrases that were said but did not result in a change to the IC's plan (strategy or tactics) or behavior. These phrases—which appeared in 88 percent of the mayday recordings we reviewed—should serve as a trigger for an IC to reconsider their current operations. For example, hearing one of these phrases could cause an IC to call for an evacuation of the structure or a call for defensive operations. Let's review the 16 trigger phrases.

DONALD ABBOTT retired from the fire service after spending 20 years working in the Indianapolis area. He then spent 10 years traveling the country and presenting an interactive fire-service training diorama called Abbottville. Abbott spent eight years helping to develop and coordinate the Phoenix Fire Department's Command Training Center. Currently, he is president of CERT (Command Emergency Response Training) and is working on the Mayday Project. In 2002, he received the ISFSI's Innovator of the Year award, and in 2006, he received the George D. Post Instructor of the Year award. In 2014, the IAFC's Hazardous Materials Committee gave Abbott the John Eversole Lifetime Achievement Award.

PROJECT MAYDAY

1 "We have fire above our heads"

PROJECT MAYDAY

1 "We have fire above our heads"

86 % occurrence

When a crew reports that they have fire above their heads (basement, first, floor, attic, etc.) could they see it or with a TIC. The IC needs more than where the fire is located. If the report, needs to obtain conditions If fire above our heads occurs within 15 – 2- minutes, after first engine arrives and cannot provides answers to the questions. IC needs to reconsider strategy and IAP.

PROJECT MAYDAY

2 "We have zero – visibility conditions"

PROJECT MAYDAY

2 "We have zero – visibility conditions"

78% occurrence

A crew reports that they have zero – visibility conditions – and then reports the same conditions 10 – 15 later. The IC should review what the structure looked like now. Have things gotten worst? Has the crew located the fire?
If not, the IC should consider a change in strategy because what they have been doing for the last 20 -30 minutes isn't working. ZVC / PZVC

PROJECT MAYDAY

3 "We are running out of air" (or indications of "low – air alarm")

PROJECT MAYDAY

3 "We are running out of air" (or indications of "low – air alarm")

73% occurrence

This alert becomes most critical when it involves multi – units at one time. Is it low-air, out of air, or an SCBA unit issues, it needs to be addressed.

PROJECT MAYDAY

4 "We have NOT found the seat of the fire"

PROJECT MAYDAY

4 "We have NOT found the seat of the fire"

66% occurrence

This report is a major concern, particularly when we have been in the structure for 15 – 20 minutes, and it appears from the outside the conditions are deteriorating. The IC needs to reconsider the issues.

PROJECT MAYDAY

5 "We have fire below us"

PROJECT MAYDAY

5 "We have fire below us"

56% occurrence

Fire located in a basement, 1st floor, 2nd floor. In many cases the follow-up communications, "reports floor collapse or hole in the floor". 33% floor collapse … 26% hole in the floor… 28% stairway collapse. This is why 360 are very important, and need to be performed by the 1st unit on the scene.

PROJECT MAYDAY

6 "We have a lot of sprinkler heads going off in here"

PROJECT MAYDAY

6 "We have a lot of sprinkler heads going off in here"

54% occurrence

**The worst situation is a commercial building,
With high rack storage, materials stored on those
Shelves get wet (soaked) containers disintegrate
And fall to the floor with their contents.**

PROJECT MAYDAY

7 "We have a hole in the floor or we have had a floor collapse"

PROJECT MAYDAY

7 "We have a hole in the floor or we have had a floor collapse"

56% occurrence

Often time this problems are not recognized for many reasons, smoke conditions, fire conditions, and a unstable structure. Remember, the basement holds the structure up.

PROJECT MAYDAY

8 "This is a hoarder structure"

PROJECT MAYDAY

8 "This is a hoarder structure"

49% occurrence

The IC needs to consider everything about the the incident and review their Risk Management Plan. These incident can become a major problem even without fire (weight-floor collapse, health concerns, and fire load.

PROJECT MAYDAY

9 "We have had a flashover"

PROJECT MAYDAY

9 "We have had a flashover"

37% occurrence

Be Prepared! Is the crew safe? How much has the Environment changed? Wet PPC?

PROJECT MAYDAY

10 "We have had a ceiling/ roof collapse"

PROJECT MAYDAY

10 "We have had a ceiling/ roof collapse"

35% occurrence

When we hear the report of a ceiling or roof collapse, we need to think about the "why" factor. How large of an area is involved? How much fire is involved? Always maintain situational awareness, could a further collapse occur?

PROJECT MAYDAY

11 "It's really getting hot in here, we are backing out"

PROJECT MAYDAY

11 "It's really getting hot in here, we are backing out"

41% occurrence

In most cases, crews experiencing this problem found that they either did not recognize the situation fast enough to fully react (situational awareness) or did not move far enough to be safe. 23% were burned.

PROJECT MAYDAY

12 "Interior: We are sending a firefighter out with a problem"

PROJECT MAYDAY

12 "Interior: We are sending a firefighter out with a problem"

39% occurrence

This is a tough call to make for any company officer, depending on the problem and the time it will take to exit. There should be a SOP for this situation, follow it.

PROJECT MAYDAY

13 "We need more line to reach the fire, extend our line"

PROJECT MAYDAY

13 "We need more line to reach the fire, extend our line"

30% occurrence

This report is usually heard at commercial structure fires. Size hose vs water requirements. NO water, when line extended. Review our resources and revisit the IAP

PROJECT MAYDAY

14 "We have lost multiple windows"

PROJECT MAYDAY

14 "We have lost multiple windows"

27% occurrence

Losing windows can create a flow path problem. when performing a 360, note the size and types of windows, higher windows may fail first.

PROJECT MAYDAY

15 "Our exit has been blocked"

PROJECT MAYDAY

15 "Our exit has been blocked"

17% occurrence

A blocked exit creates multiple problems (27% of the time when this condition exist, its not Reported as a mayday. In many cases, the crew size will dictate what actions can be taken.

PROJECT MAYDAY

Ahead of the curve...

(info provided from Project Mayday-2015-2017 Summary, 2,700+ Maydays, Don and Bev Abbott – projectmayday.net – donaldabbott@yahoo.com)

1.	We have zero visibility conditions.	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

2.	We have fire above our heads.	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

3.	We have We have fire below us.	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

4.	We need more line, extend our line.	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

5.	We have not found the fire.	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

6.	We are running out of air.	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

7.	This list is a hoarder house.	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

8.	We had a flashover.	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

PROJECT MAYDAY

9.	We have had a ceiling/roof collapse	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

10.	We have lost multiple windows	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

11.	It's really hot in here, we are backing out.	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

12.	Our exit has been blocked.	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

13.	We are sending FF_____ out with a problem	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

14.	We have a hole in / collapsed floor.	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

15.	We have a lot of sprinkler heads going off.	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

16.	Command has lost communications with crews.	
Contributing factors: (ask "Why?" up to 5 times)		Actions to prevent future occurrence: (now, next, future)

Notes: Info provided by Don & Bev Abbott – Project Mayday – projectmayday.net – donaldabbott@yahoo.net
2015-2017 Summary, 2,700+ Maydays, detailed reports available on line at the website

PROJECT MAYDAY

PROJECT MAYDAY

COMPONENT 2: The MAYDAY Event

What really works?

PROJECT MAYDAY

IAFF Fireground Survival Training Program

PROJECT MAYDAY

PROJECT MAYDAY

Abbott's thoughts after all most four years of coordinating "Project Mayday"

Is it our goal to squeeze as many Maydays as we can out of fires ..... we currently use some tactics that aren't always right for the fire and the structure we are in ..... We have options!

MAYDAYS are a precursor to firefighter LODD

How many IC have conducted assisted SUCIDES, (kamikaze firefighters) under the disguise of strategy and tactics

PROJECT MAYDAY

MAKE A DIFFERENCE

PROJECT MAYDAY

SAFD SEARCH SCENARIOS

PROJECT MAYDAY

- 85% Left
- 15% Right
- 52% Redline
- 21% LASAR Line
- 27% Wall Only
- 1 used a Cord Reel

- 16% less than 5 minutes
  - fastest was 3:54
- 50% between 5 and 10 minutes
- 34% over 10 minutes
  - Longest 38:07 w/2-bottles
- 2 Crews did not complete the drill
- 2 Actual Maydays Called during

PROJECT MAYDAY

Use of TICS and sharing that information with crew.

Use of an “Anchor” during Oriented Search.

Communications with Command- Paint the Picture.

They allow you as an IC to hone your skills.

They hold You accountable to “the boys and girls” as well as holding them accountable to you.

They help establish and develop “best practices.”

They help prepare and teach the discipline needed during a real event.

They allow all participants, including Dispatch, the chance to practice Radio Discipline.

They show US the gaps in OUR abilities, training, and policies.

PROJECT MAYDAY

Average Times:

360- 4 :30, Completed by 47% of Companies

Utilities- 4:28, Completed by 74% of Companies

Supply- 4:22, Completed by 56% of Companies

Water on Fire- 9:53, Completed by 96% of Companies

Location of First Victim- 9:22, Completed by 98% of Companies

Removal of First Victim- 5:32, Completed by 98% of Companies

Location of 2nd Victim- 16:38, Completed by 94% of Companies

Removal of 2nd Victim- 7:45, Completed by 94%

Locating May Day FF- 3:21, Completed by 94% of Companies

Removal of May Day FF- 4:40, Completed by 94% of Companies

Average Time to complete the Drill- 23:52

PROJECT MAYDAY

2nd Alarm called by the IC 72% of time.

2 IC's called for Defensive Operations upon arrival.

2 IC's withdrew Crews and went Defensive after both Victims were found and extricated.

There were 6 additional "For Real" May Days called: 3 due to low air, 3 due to losing track a of Crew Member, all resolved without injury.

The longest time for drill completion was 71:08, the shortest was 13:02.

18% were Commanded by Captains riding up.

PROJECT MAYDAY

- 2nd Alarm called by 100%
- Roof Report- 18:22 by 74%
- Accountability Named by 55%

- **If You back out the 10 drills that utilized EXTERIOR RIT the times change:**
- **Finding Mayday FF 5:02 to 3:18**
- **Mayday FF out 7:21 to 5:40**
- **That's a total change of 3:25 faster overall**
- **The Key is utilizing the Search crews already inside and having those crews on a line (Handline, Red line)**

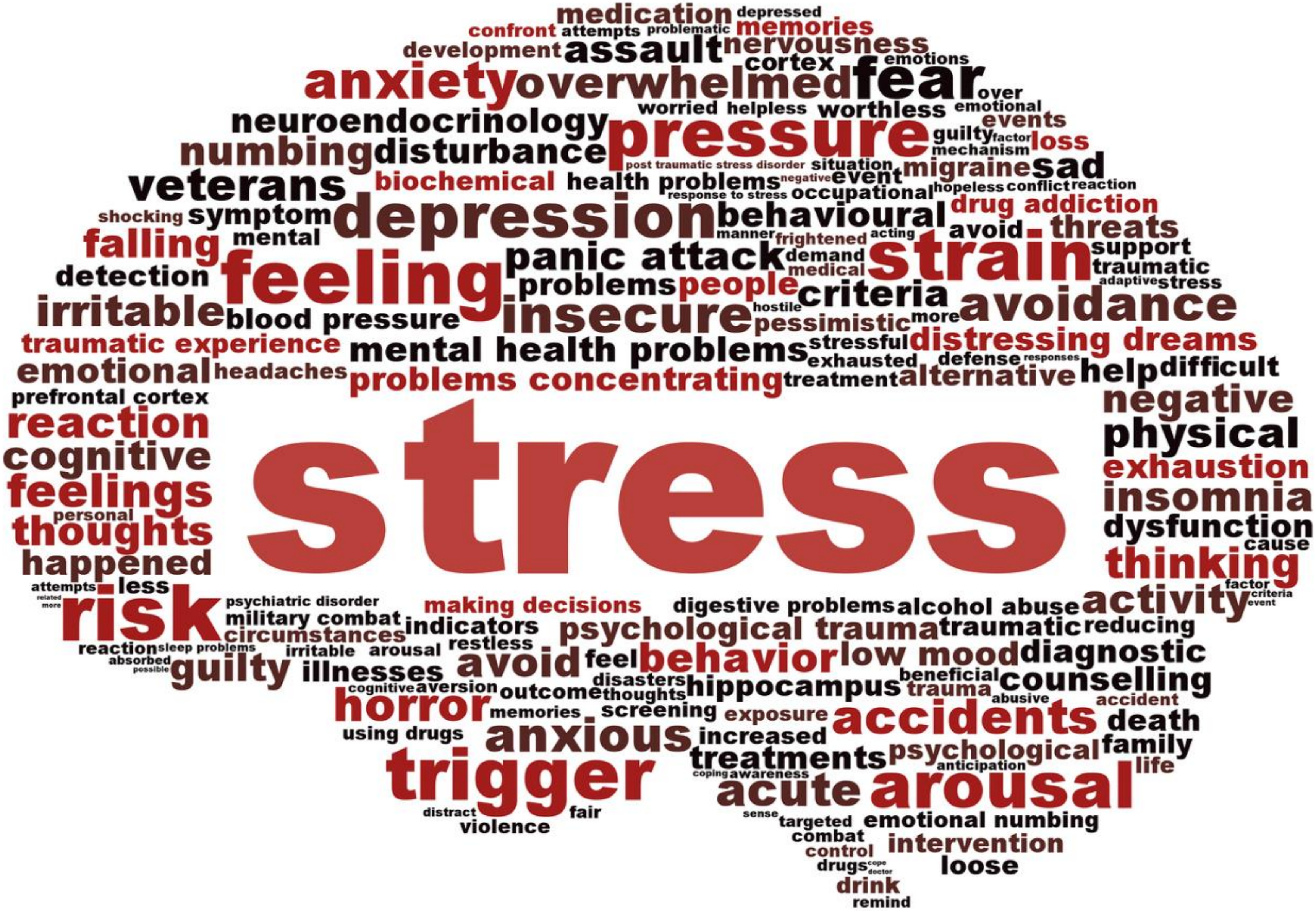
EVERY Crew needs to be on a line. Every time!!!!!

There were 9 additional Maydays- due to not having a line!!!

3 Maydays were on one drill!!!

PROJECT MAYDAY

"The Life YOU save could be your OWN



medication
depressed
confront
attempts
problematic
memories
development
assault
nervousness
cortex
emotions
anxiety
overwhelmed
fear
over
neuroendocrinology
worried
helpless
worthless
emotional
pressure
events
guilty
factor
mechanism
loss
numbing
disturbance
post traumatic stress disorder
situation
migraine
sad
veterans
biochemical
health problems
negative
event
response to stress
occupational
hopeless
conflict
reaction
shocking
symptom
depression
behavioural
drug addiction
mental
manner
frightened
acting
avoid
threats
falling
feeling
panic attack
demand
medical
strain
support
traumatic
detection
problems
people
adaptive
stress
irritable
blood pressure
insecure
hostile
criteria
avoidance
pessimistic
more
traumatic experience
mental health problems
stressful
distressing dreams
exhausted
defense
responses
emotional
headaches
problems concentrating
treatment
alternative
help
difficult
prefrontal cortex
negative
reaction
physical
cognitive
stress
exhaustion
feelings
insomnia
personal
thoughts
dysfunction
cause
happened
thinking
attempts
less
factor
risk
criteria
event
psychiatric disorder
making decisions
digestive problems
alcohol abuse
activity
military combat
indicators
psychological trauma
traumatic
reducing
circumstances
restless
reaction
sleep problems
irritable
arousal
feel
behavior
low mood
diagnostic
absorbed
guilty
illnesses
avoid
disasters
beneficial
counselling
cognitive
aversion
outcome
thoughts
hippocampus
trauma
abusive
accident
horror
memories
screening
exposure
accidents
death
using drugs
anxious
increased
psychological
family
trigger
treatments
anticipation
life
coping
awareness
acute
arousal
distract
fair
sense
targeted
emotional numbing
violence
combat
control
intervention
drugs
cope
doctor
loose
drink
remind
lose


COMMAND
CHOCKS


LOST
CRITICAL THINKING
DISORIENTED
BEWILDERED

PROJECT AVB RESEARCH and Educational Development

The purpose of this research is to examine how cognitive capacities are affected during a fire incident (simulation).

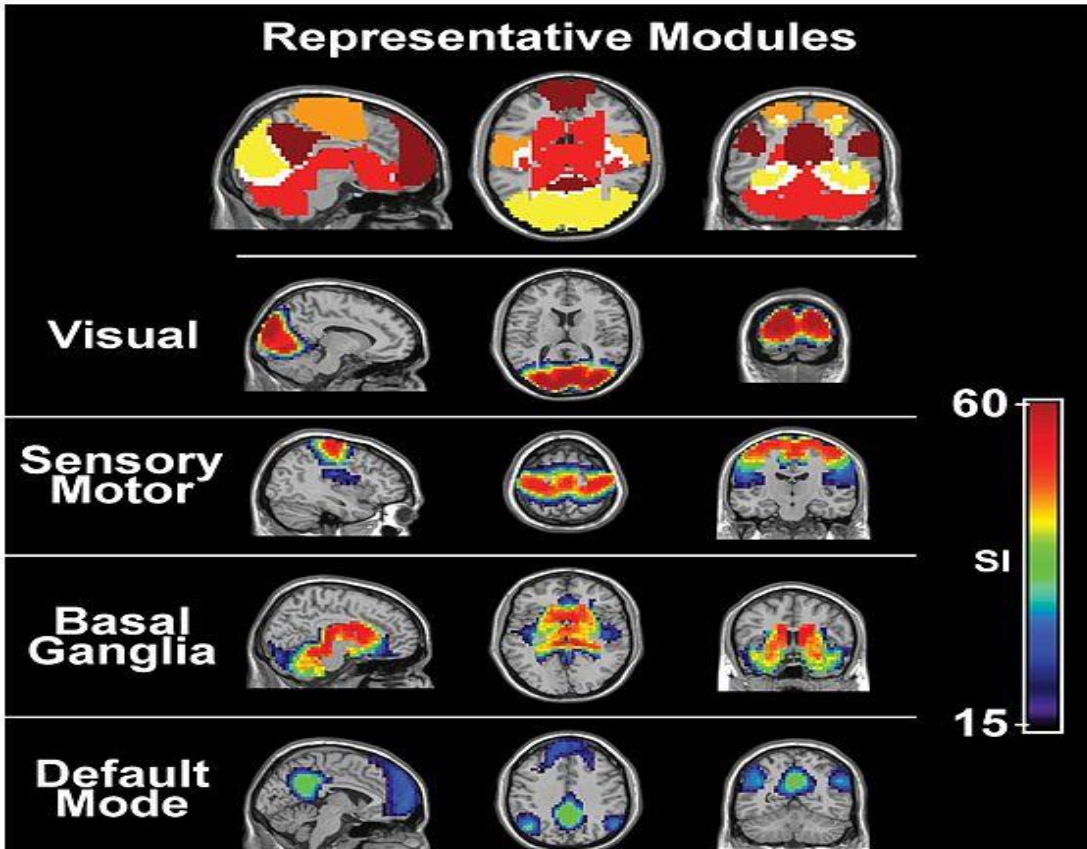
Neuroscience Center

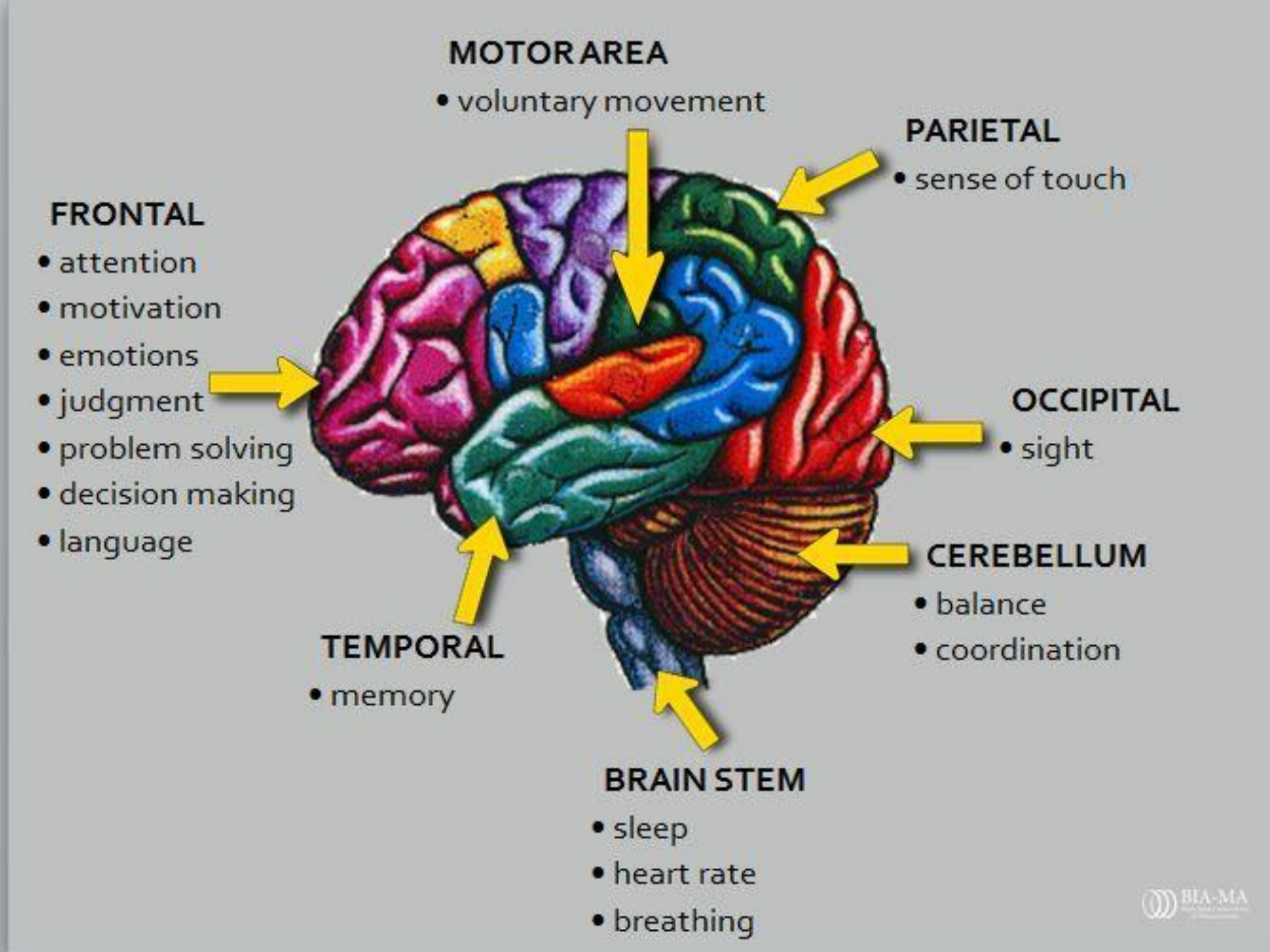
PROJECT MAYDAY

Critical Thinking and the Brain.

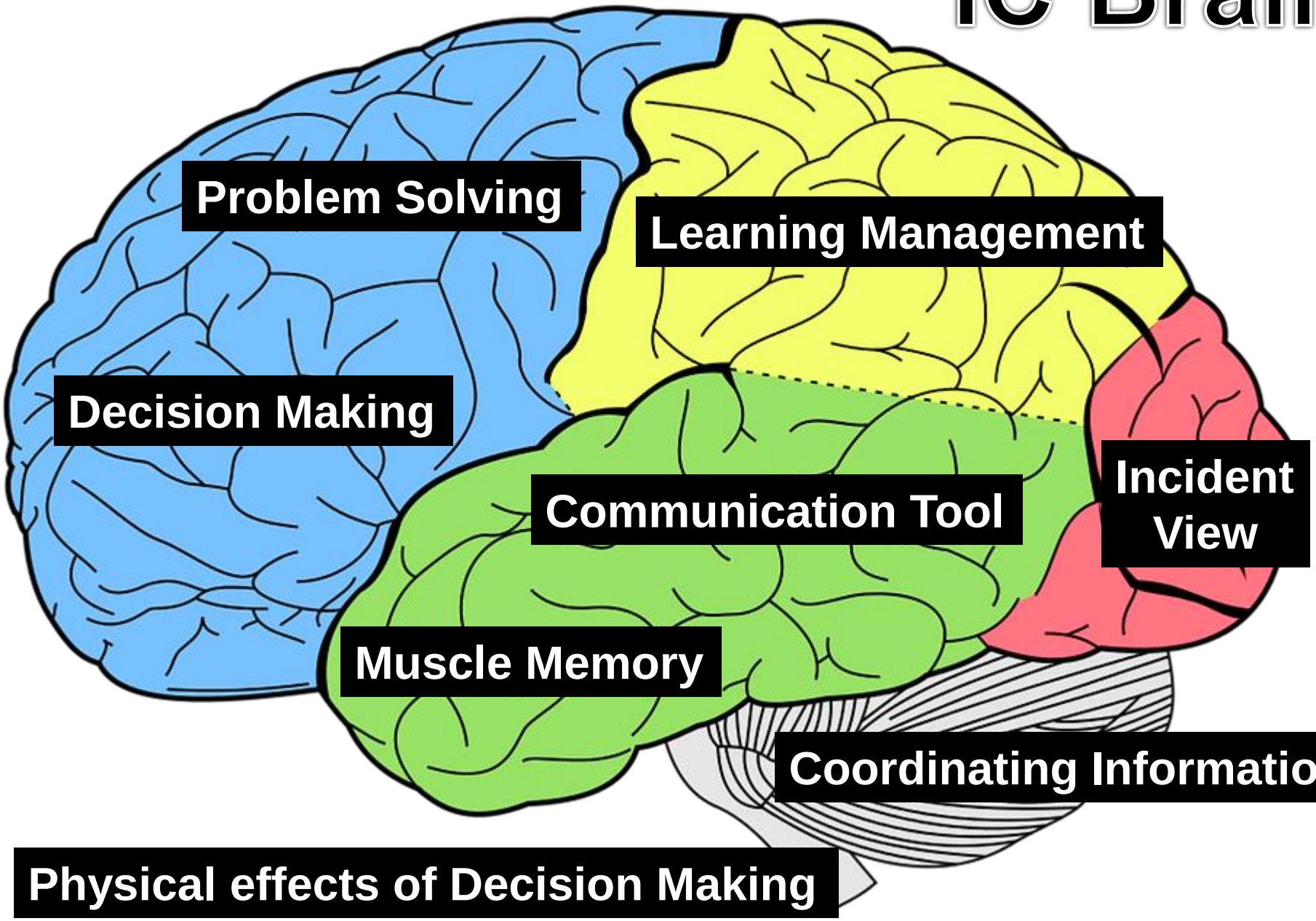
- Neurotransmitters? *chemicals that transmit signals from one neuron to another target neuron to produce critical thinking.*

- Critical Thinking – a neurotransmitter Brain Flow: Analyzing, synthesizing, developing strategies, planning outcomes and solving problems
- Brain activity occurs as people thi
  experience
  (Alridge, 2

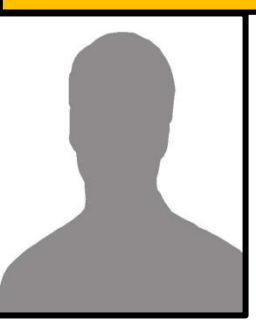
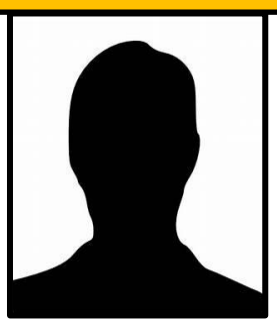


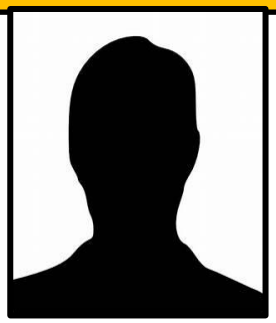
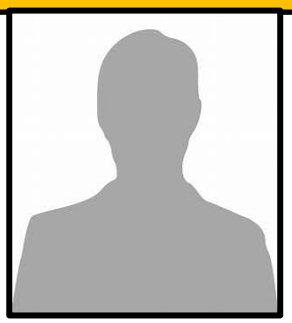
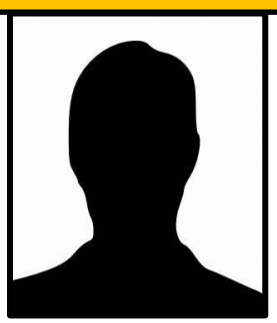
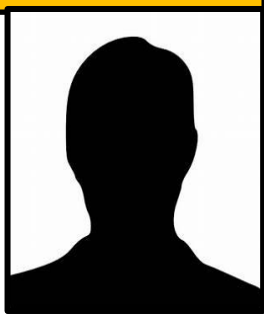

MOTOR AREA
• voluntary movement
PARIETAL
• sense of touch
FRONTAL
• attention
• motivation
• emotions
• judgment
• problem solving
• decision making
• language
OCCIPITAL
• sight
CEREBELLUM
• balance
• coordination
TEMPORAL
• memory
BRAIN STEM
• sleep
• heart rate
• breathing

IC Brain


Problem Solving
Learning Management
Decision Making
Communication Tool
Incident View
Muscle Memory
Coordinating Information
Physical effects of Decision Making

PROJECT MAYDAY - PROJECT AVB - Scenario 1

Battalion Chief – A

16yrs on the Job
3yrs as Batt Chief
2yrs as SO
5yrs as CO
Paramedic
Associate Degree

Battalion Chief – B

22yrs on the job
3yrs as Training Officer
5yrs as Batt Chief
7yrs as CO
EMT
1yr of college
3yrs US Army veteran

Battalion Chief – C

18yrs on the job
2yrs as EMS Shift Officer
2yrs as CO
Paramedic
Bachelor Degree

Battalion Chief – D

26yrs on the job
7yrs as Batt Chief
2yrs Trg .Director
2yrs Trg Instructor
5yrs as CO
Associate Degree
4yrs Air Force veteran

Battalion Chief – E

19yrs on the job
1yr as Batt Chief
5yrs as CO
Paramedic
College Certificate
4yrs Marine Corp Veteran

Battalion Chief – F

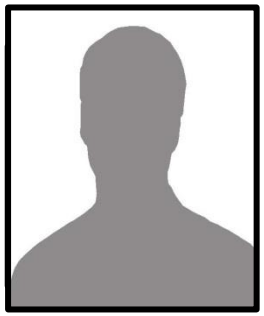
28yrs on the job
9yrs as Batt Chief
2rs in Public Ed
2yrs Batt. Aide
6yrs as CO
EMT
20yrs US Army Reserve

Battalion Chief – G

21yrs on the job
2yrs as Batt Chief
3yrs SO
4yrs as CO
Paramedic
Associate Degree
Bachelor Degree

PROJECT MAYDAY - PROJECT AVB

GROUP ONE



Battalion Chief – A

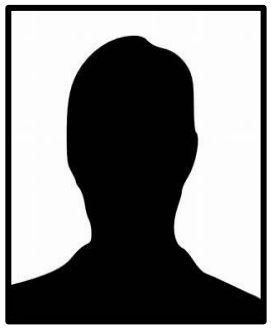
1/15/18
0900hrs (1)
1900hrs (2)

2/18/18
1300hrs (3)
0100hrs (4)
4/19/18

1100hrs (5)
2300hrs (6)
6/22/18

0700hrs (7)
1500hrs (8)
8/19/18

1600hrs (9)
0500hrs (10)



Battalion Chief - B

1/15/18
0800hrs (1)
1800hrs (2)

2/18/18
1200hrs (3)
0001hrs (4)

4/19/18
1000hrs (5)
2200hrs (6)

6/22/18
0600hrs (7)
1400hrs (8)

8/19/18
1500hrs (9)
0400hrs (10)

Battalion Chief – C

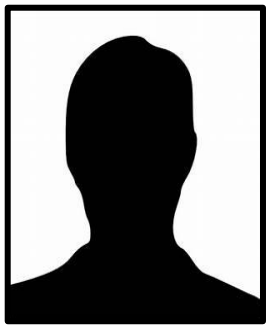
1/16/18
0900hrs (10)
1900hrs (9)

3/19/18
1300hrs (8)
0100hrs (7)

5/20/18
1100hrs (6)
2300hrs (5)

7/23/18
0700hrs (4)
1500hrs (3)

9/20/18
1600hrs (2)
0500hrs (1)



Battalion Chief - D

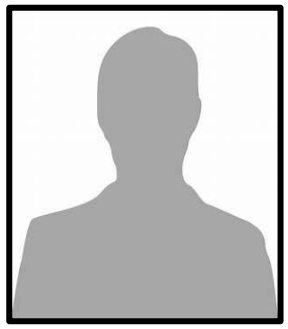
1/16/18
0800hrs (1)
1800hrs (2)

3/19/18
1200hrs (3)
0001hrs (4)

5/20/18
1000hrs (5)
2200hrs (6)

7/23/18
0600hrs (7)
1400hrs (8)

9/20/18
1500hrs (9)
0400hrs (10)



Battalion Chief – C

1/17/18
0900hrs (5)
1900hrs (4)

3/20/18
1300hrs (3)
0100hrs (2)

6/21/18
1100hrs (1)
2300hrs (6)

8/24/18
0700hrs (7)
1500hrs (8)

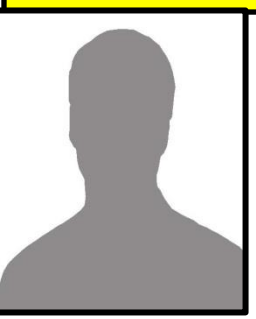
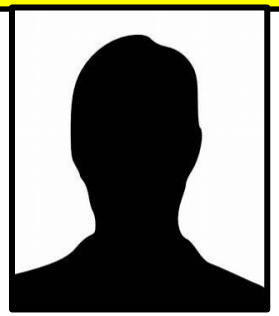
10/21/18
1600hrs (9)
0500hrs (10)

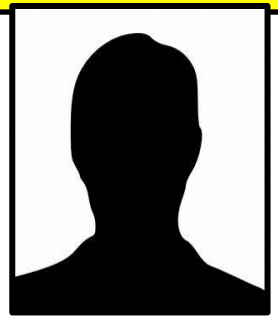
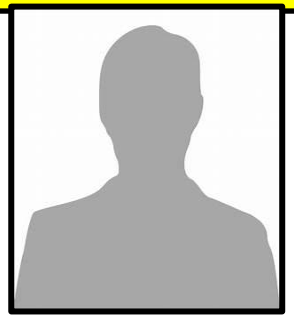
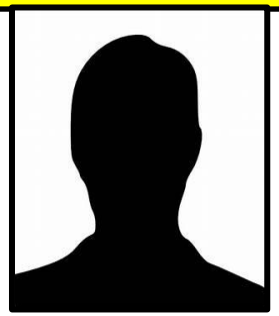
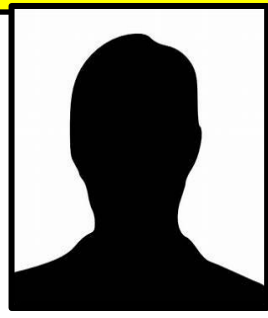
PROJECT MAYDAY - PROJECT AVB

- It takes a lot of brain energy to sort out information and to make conclusions about what is happening. Once the brain has completed to task, it tends to be satisfied with its findings and is not inclined to want to start the process over again, sometimes FF forgo the size-up. Not because they are lazy, but in their mind they aready know the situation.

PROJECT MAYDAY

PROJECT MAYDAY - PROJECT AVB - Scenario 1

Battalion Chief - A

Battalion Chief – C

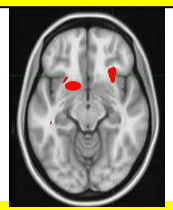
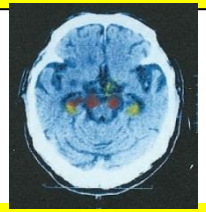
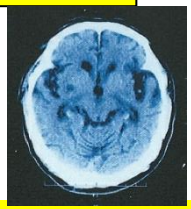
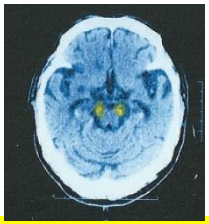
Battalion Chief - D

Battalion Chief - E

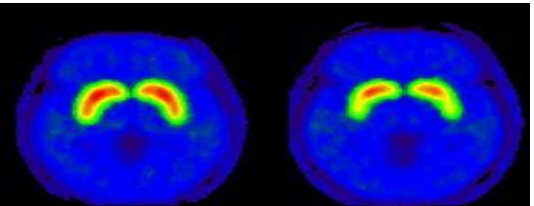
Battalion Chief - F

Battalion Chief - G

04:26:39 … " *B – 1 on the scene, 7136 Apache Way*"


17:46:10 … "E-9, FF Morris, MAYDAY .. MAYDAY .. MAYDAY , E-9, FF Morris, *MAYDAY … MAYDAY …MAYDAY .. I have fell into the basement , with floor collapse, I have injured my Right leg, I have active fire in the basement, crawling to the Bravo Side away from the fire, need help now !!*



PROJECT MAYDAY

I Chose to Look the Other Way

I could have saved a life that day,
But I chose to look the other way.
It wasn't that I didn't care,
I had the time, and I was there.
But I didn't want to seem a fool,
Or argue over a Safety Rule.
I knew he'd done the job before,
If I called it wrong, he might get sore.
The chances didn't seem that bad,
I've done the same, he knew I had.
So I shook my head and walked on by,
He knew the RISK as well as I.
He took a chance, I closed my eyes,
And with that act, I let him die.
But, I chose to look the other way.
Now every time I see his wife,
I'll know I should have saved his life.
That guilt is something I must bear,
But it isn't something you need to share.
If you see a risk that others take,
That puts their health or life at stake,
The question asked, or the thing you say,
Could help them live another day.
If you see a risk and walk away,
Then hope you never have to say,
I could have saved a life that day,
But, I chose to look the other way.

- Don Merrell, August 2003

PROJECT MAYDAY

THANK YOU
and
STAY SAFE

IF YOU WISH TO SUBMIT A "MAYDAY"

Click Here

If you wish to view the 2018 Annual "Project Mayday" General Report, click on either CAREER or VOLUNTER REPORT.

2021

CAREER

2021

VOLUNTEER

http://projectmayday.net./

"Saving Lives, Through Research and Learning"

"PROJECT MAYDAY"

CERT

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