If you have a “MAYDAY” to report between 8-15-18 and 11-30-18.

Please e-mail: donaldeabbott@yahoo.com
In the Subject Area

“Reporting a Mayday”
PROJECT
MAYDAY
CAREER
2015-2018
36 MONTHS
This program honors the memory of Brett Tarver
PROJECT MAYDAY

Saving lives, through research and learning
The “MAYDAY” Project is a comprehensive study of “mayday” incidents, responses, and prevention.

Funded for one year (2015) by a private foundation grant to:

CERT
Command Emergency Response Training, Glendale, Arizona
Don & Bev Abbott

Dr. Vinton Bennett  Dr. Jason Bebermeier
Dr. George Grant  Capt/Dr. Philip Stuart
Participation in this project is voluntary and confidential, department names or individual names are not released or used in this project without their written permission.

We thank all these departments, Chiefs, Officers and Firefighters for their time and interest in furthering firefighter safety.
Mayday Project Surveys

**Component 1:** Survey of department information; organization, number members, apparatus, runs, response type/numbers, SOPs, and training.

(92 questions)

**Component 2:** Upon the completion of Component 1, Component 2 will be sent, it deals with all the identified components of your Mayday, size-up, critical factors, IAP, communications, response, etc.

(181 questions)
Component 3: Upon completion of Component 2, Component 3 will be sent, it deals with the department’s handling post action response, critique, follow-up Training, etc. (112 questions)

“In order for a firefighter to survive the dangers of firefighting, he must know how other firefighters have died or been seriously injured.”

Vinny Dunn, Deputy Chief FDNY (ret.)
“Project Mayday” has accumulated 4,219 radio traffic audio and 679 dash/video tapes, confirming almost all of our information and data, along with tactical worksheets, notes, dispatch logs, SOPs, mayday training information, follow-up reports, internal investigation documents.
We hope that this “Mayday Project” will be the most complete informational analysis on “maydays” ever conducted and proven recommendations on communications, command/operations, response, training, and follow-up.

We have a twenty-four person Advisory Board that is preparing a “Project Mayday” Report with recommendations for prevention, training, response and follow-up.
“Mayday, Mayday, Mayday”

RED ALERT

PERSONAL EMERGENCY

TERMINOLOGY
MAYDAY ....

anytime a firefighter(s) cannot safely exit a IDLH hazard zone.
Initiation or transmission of a firefighter distress signal, “Mayday, Mayday, Mayday” produces more stress and potential chaos than any other single type of incident we may encounter throughout our careers.

A trapped or disoriented firefighter has two factors working against them. 1) Limited air supply and, 2) flame impingement barring the fact that direct physical trauma is not involved.
“Mayday, Mayday, Mayday”

RED ALERT

PERSONAL EMERGENCY
OKOK! I’ll call a Mayday...

Mayday

Mayday

Mayday

Mayday

Too late.

New Admissions

Paul Combs

Fire Engineering
- Faster fire propagation
- Shorter time to flashover
- Rapid changes in fire dynamics
- Shorter escape time
- Shorter time to collapse
- Exposure problems
- New and Unknown hazards
“MAYDAY” PROJECT
“Mayday” reports from 4,337 career fire departments representing 50 states

*Completed Components*

*(December 31, 2017)*

- **Component 1:** 4,296 departments
- **Component 2:** 4,273 departments
- **Component 3:** 3,528 departments
NOT ALL MAYDAYS ARE CREATED EQUAL
“There is a tendency to believe that since a certain practice has thus far not killed us, that it is an acceptable practice”

Capt. John Peters
We believe the following information on “Maydays” represent ONLY 8 to 10% of the actual “Maydays” taking place each year in the fire service.
WHY DECISIONS FAIL

AVOIDING THE BLUNDER AND TRAPS THAT LEAD TO DEBACLES

Lessons about What Works, What Doesn't, and Why from a 20-Year Study of 400 Decisions

PAUL C. NUTT
Component 1: Department Staffing

WHAT IS THE SIZE OF YOUR FD?

CAREER DEPARTMENT STAFFING

- 51-100: 7.6% (389)
- 101-200: 14% (675)
- 201-500: 15.7% (788)
- 501-1,000: 18% (578)
- 1,001-1,500: 15.7% (259)
- 1,501-2,000: 9.1% (302)
- 2,001-3,000: 14% (328)
- >3,000: 7.4% (319)
- 4,000+: 7% (227)

2015-2018 Total: 4,273
Component 2: Years of Service/Experience

CAREER

YEARS OF SERVICE

- 1-5 yrs: 23% (1,053)
- 6-10 yrs: 26% (1,294)
- 11-15 yrs: 26% (1,199)
- 16-20 yrs: 9% (679)
- 21-25 yrs: 5% (466)
- >25 yrs: 5% (271)

Total: 4,273

2015-2018
Component 2: TIME OF DAY

TIME OF DAY “MAYDAY”

<table>
<thead>
<tr>
<th>Time Slot</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001-0300</td>
<td>(1,142)</td>
</tr>
<tr>
<td>0300-0600</td>
<td>(1,052)</td>
</tr>
<tr>
<td>0600-0900</td>
<td>(407)</td>
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<tr>
<td>0900-1200</td>
<td>(211)</td>
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<tr>
<td>1200-1500</td>
<td>(116)</td>
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<tr>
<td>1500-1800</td>
<td>(219)</td>
</tr>
<tr>
<td>1800-2100</td>
<td>(316)</td>
</tr>
<tr>
<td>2100-2400</td>
<td>(819)</td>
</tr>
</tbody>
</table>

Total: 4,273

2015-2018
Component 2: Day of Week

CAREER DEPARTMENTS

2015-2018

4,273
Component 2: Size-Up / Initial Radio Report

CAREER DEPARTMENTS

Size Up / Initial Radio Report: (4,273)

360: NO  360:  61%
     Incomplete:  16%
     Completed:  23%

Address Confirmed:  NO:  27.4%
                   YES:  72.6%

Identify Sides of Structure:  93%

Building Description:
- Size:           54%
- Height:         86%
- Construction Type:  55%
- Occupancy Type:  95%
CAREER DEPARTMENTS

360 Completed: 23%

- Confirm Size: 95%
- Life safety issue: 87%
  (basement, etc.)
- Significant hazards: 93%
  (down power lines, angry dogs, etc.)
- Smoke/Fire from new location: 48%
- Changes to original strategy: 21%

2015-2017
Component 2: Size-Up / Initial Radio Report

CAREER DEPARTMENTS

Problem Description:

- Smoke / Fire Conditions  88*%
- Actual Location of F & S  61*%

Initial Incident Action Plan
(reported by 1st unit on-the-scene)

- Task(s)  84%
  - Supply Line  65%
  - S & R (NO hose line)  25%
  - S&R/FA Hose line  72%
- Location  79%
- Objectives  61%
CAREER DEPARTMENTS

Assume and Name Command:

- Passed Command to next unit 5%
- Assumed command 92%
- Named command 81%
- In-coming units given assignment, location, tasks 65%
- Mobile Command 71%
- Stationary Command 29%

RIT established:
- YES: 44%  - RIT Exception: 56%
- 2nd RIT established: 14%
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRIC</td>
<td>Initial Rapid Intervention Crew</td>
</tr>
<tr>
<td>RIC</td>
<td>Rapid Intervention Crew</td>
</tr>
<tr>
<td>RIT</td>
<td>Rapid Intervention Team</td>
</tr>
<tr>
<td>FAST</td>
<td>Firefighte Assist and Search Team</td>
</tr>
<tr>
<td>IRT</td>
<td>Immediate Response Team</td>
</tr>
<tr>
<td>RDU</td>
<td>Rapid Deployment Team</td>
</tr>
<tr>
<td>RICO</td>
<td>Rapid Intervention Company Team</td>
</tr>
<tr>
<td>RRT</td>
<td>Rapid Response Team</td>
</tr>
</tbody>
</table>
Declare Strategy:

- Offensive  89%
- Defensive  6%
- NO strategy declared  5%

Additional Resource:

- 1st Alarm  27%
- 2nd Alarm  12%

2015-2017
Component 2: Size-Up / Initial Radio Report

4-story Care Facility
Working fire
3rd floor
Fire control in support of rescue
(Ultimate Villor)

Small house
Working fire
(survivable space)
People live in houses
Victim down

Medium-size
Strip mall
Working fire
Quickly protectable
Big end
(lots to save)

Mega-size
Warehouse
Sprinkler controlled
Fire
Low to no visibility
throughout

Vacant
Secured
Unoccupied
Working fire

Critical Factors

High
High
Medium
LOW
LOW
Rescue Priority
Component 2: Size-Up / Initial Radio Report

**Accountability Location:**
- Location established 53%

**Transfer of Command:**
- Announced new command location 42%
- Transfer of IAP 33%
- Confirm transfer and strategy 27%

**Strategic Shift:**
- CAN Reports 38%
- Notified dispatch (emergency tones) 51%
- Announce shift of strategy 76%
- Announced abandon structure 91%
- PARs conducted after abandon structure 62%
Additional Information: Initial Operation

- Utilities Controlled: 88%
- Forcible Entry required (announced) 7%
- Ventilation:
  - Vertical 39%
  - Horizontal 12%
  - PPV 17%
  - Door Control 6%
  - Hydraulic 5%
  - None 21%
Component 2: On-Scene Information

Units/Scene involved in “Mayday”

1st Unit  | 57%
2nd Unit  | 25%
3rd Unit  | 15%
4th Unit  |  3%
5th Unit  |  2%
6th Unit  |  1%
7th Unit  |  0%

4,273
Component 2: On-Scene Information

Units/Scene involved in “Mayday”

- Engines: 55%
- Ladders: 44%
- Rescues: 1%
- EMS Unit: 0.05%

“Mayday” with mix crews

35%
Component 2: On-Scene Information

Crew Size:

- 2 persons ....... 18%
- 3 persons ....... 40%
- 4 persons ....... 42%

4,273
**Crew Size:**

- 2 persons ....... 18%
  - Not enough staffing to conduct assignment, safely
  - Splitting up crew
  - Slow in hose advancement
  - Poor situational aware by both members, too busy with other items
Component 2: On-Scene Information

Crew Size:

- 3 persons ........ 40%

- Splitting up
- Crew members off hose lines
- Failure to maintain focus on assignment
- Tunnel vision
Component 2: On-Scene Information

Crew Size

- 4 persons …… 42%
  - Splitting up
  - Not maintaining hose contact
  - One member fails to remained focused, causing crew to lose situational awareness
Component 2: On-Scene Information

Number of FF on the scene at the time of the Mayday

9 – 15 ..... 19%
16 – 22 ... 30%
23 – 29 ... 26%
30 – 36 ... 14%
37 – 42 ... 7%
43 > ... 4%
## Component 2: On-Scene Information

**Number of Apparatus on the Scene at the time of the Mayday**

<table>
<thead>
<tr>
<th>Engines</th>
<th>Ladders</th>
<th>Rescues</th>
<th>Batt. Chiefs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7%</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>33%</td>
<td>2</td>
<td>2 ... 48%</td>
</tr>
<tr>
<td>3</td>
<td>35%</td>
<td>3</td>
<td>3 ... 4%</td>
</tr>
<tr>
<td>4</td>
<td>21%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
COMPONENT 1: WORK/SHIFT HOURS

WORK/HOUR SHIFTS SCHEDULE

- 24hrs: 88%
- 48hrs: 11%
- MISC: 1%

2015-2018
COMPONENT 1: WORK/SHIFT HOURS

Work/Shift Hours - Overtime

- 55.4% for 48/72hrs (2,350)
- 44.9% for 24/48hrs (1,923)

2015-2018: 4,273
COMPONENT 1: WORK/SHIFT HOURS

24hrs Work/Shift Schedule

- 1st 12hrs: 25.5% (565)
- 2nd 12hrs: 77.5% (1,358)

2015-2018
COMPONENT 1: WORK/SHIFT HOURS

48hrs Work/Shift Schedule

- 1st 12hrs: 11% (260)
- 2nd 12hrs: 31.7% (747)
- 3rd 12hrs: 12.1% (286)
- 4th 12hrs: 45.2% (1,057)

2015-2018
ARE YOU BRAVE ENOUGH TO CALL THE MAYDAY?

Why are you listening to him?
You're alone and in trouble...
Call the freak'n MAYDAY!

Don't be a weenie -
You can get out of this...

© Paul Combs and Studio 7. All rights reserved and enforced.
To measure risk, it was thought, humans simply multiplied the probability of something happening by the consequences of it happening.

\[ \text{Risk} = \text{Probability} \times \text{Consequence} \]
2016 NFPA Fireground Fatalities and Injuries Data

- Fireground Firefighter Fatalities: 5%
- Fireground Injuries: 131%
- Fireground Permanent Disability: 223%
MAYDAY PROBLEMS

- Loss of situational awareness
  - Disorientation
  - Temporal Distortion (time)
- Attempting to fix the problem before calling for help
- Reluctance to relinquish personal control of one's situation
  - Pride
  - Denial
RISK MANAGEMENT PLAN

WE’LL RISK OUR LIVES A LOT, if necessary, 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)
Component 2: Types of Maydays

- Air Problem: 8.1% (649)
- Lost/Sep. from Hose: 4.3% (820)
- Fall Through/Off Roof: 15.2% (846)
- Falls into Basement: 19.2% (867)
- No Communication: 12.2% (106)
- Trapped: 2.5% (521)
- Medical: 20.3% (346)
- Other: 19.8% (188)

2015-2017: 4,273
Component 2: Types of Maydays - Medical
Component 2: Types of Maydays - Medical

MEDICAL EMERGENCIES
8.1%%
(346)

- Heart Attacks 56% 194
  - over the age of 50 ... 119 61.3% (9)
  - previous known heart condition .... 54
  - on high blood pressure/blood thinner meds ..... 131
  - stroke ..... 27
- Seizure 5% 17
- Diabetic emergencies 8.3% 29
- Heat Stress/Burned 30% 106
Component 2: Types of Maydays - Medical

(194) Heart Attacks
   (103) Advancing attack lines into commercial structure (2 ½ & 3”)
   (21) Hand laying supply lines (4 / 5”)

(54) Know heart condition
   (11) FD required physical/medical assessment
Component 2: Types of Maydays - Medical

- Apparatus accidents (w/entrapment) 7.8% 27
- Struck by vehicle 12.7% 44 (5)
  - apparatus blocking scene ..... 21%
  - wearing PPC only (NO vest) .. 83%
Component 2: Types of Maydays – Air Problem
TIME vs AIR = Survival
COMPONENT 2: Type of Mayday - Air Problem

Types of Air Problems (649)

15.2%

- Low Air * 46% (298) 64%
- Out of Air * 18% (113)
- Facepiece problem 11.8% (77)
- Regulator 6% (45)

- Commercial structures
Component 2: Types of Mayday - Air Problems

- Was cylinder full at time of entry? .... 86%

- Has facepiece been bench tested within the last year? YES .............. 47%

- Has regulator been bench tested within the last year? YES .............. 61%

Average Air Usage: 80L/min to 100L/min, when involved in a MAYDAY, usage increases 110L/min to 140L/min
Component 2: Types of Mayday - Air Problems

**Low on Air:**
- Why did you run low on air (low air alarm)?
  - Crew did not conduct air checks during incident? 67%
  - Went farther into the structure than realized, did not estimate exit time/air? 75%
  - Physically fatigued, tired, used more air than normal? 67%
  - Ill at the time of entry? 4%
Component 2: Types of Mayday - Air Problems

**Out of Air:**

- Why did you run out of air?
  - Thought I had enough air to exit? 81%
  - Other members had air, I thought I was okay? 83%
  - Assigned a task that had to be completed..... 4%

- 30 minute cylinder ..... 12%
- 45 minute cylinder ..... 57%
- 60 minute cylinder ..... 31%
Component 2: Types of Mayday - Air Problems

Facepiece Problem:
- facepiece displaced 36%
- facepiece damaged 1%

Regulator Problem:
- regulator malfunctions 1%
- regulator damaged .6%

Distress Signal Unit:
- DSU (PASS) unit malfunction .3%

Average Age of SCBA: 9.1 yrs
### Component 2: Types of Mayday - Air Problems

<table>
<thead>
<tr>
<th>Type</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>239</td>
<td>38.8%</td>
</tr>
<tr>
<td>Apartments</td>
<td>133</td>
<td>18.4%</td>
</tr>
<tr>
<td>Commercial</td>
<td>277</td>
<td>42.6%</td>
</tr>
</tbody>
</table>

* SOFT FACEPIECES (wiping with a glove)
Component 2: Types of Mayday - Air Problems
Component 2: Types of Mayday - Air Problems
Component 2: Types of Mayday - Air Problems

- Three factors influence every breath...
  - how fast or slow
  - deep or shallow
  - abrupt or smooth

- During high work rate, the muscles need up to 100 times more oxygen than at rest, the heart must work 8 to 10 times harder.

- Physical work brings on many changes in the body:
  - increased pulse
  - faster breathing
  - more blood per heart beat
  - perspiration
  - high blood pressure
  - higher body temperature
  - more blood to the muscles
  - greater lung absorption to maximize use of red blood cells
Component 2: Types of Mayday - Air Problems

- ALL FD members completed air consumption course (FD establish standards and guidelines)
- Establish or enforce SCBA checkout procedures
- Establish time/air tracks (commercial)
- Make sure you know mutual aid FDs SCBA policies or procedures (joint trainings)
- Communicate with victim
Component 2: Fall through Roof - Maydays
Component 2: Fall through Roof - Maydays
Component 2: Falls through the Roof

FALLS THROUGH THE ROOF (846) 19.8%

- Roof Travel (524) 65%
- Vent Point (322) 35%
  - Inspection Hole (106) 41%
  - Vent Hole Cut (216) 59%
- Fell off the Roof/Ladd (134)*

NUMBER OF FF ON THE ROOF:

1 FF......559 (66%)
2 FF.....167 (19.7%)
3 FF......79 (9.3%)
4 FF.....41 (4.8%)
Component 2: Falls through the Roof

**TYPES OF ROOFS (846)**
- Peaked.....532....63%
  - Asphalt 297 55.8%
  - Wood 77 14.4%
  - Tile 91 17.1%
  - Metal 67 12.5%

- Flat Roofs .....314 .....37.1%
  - Rubber coated 137 43.6%
  - Membrane 96 30.5%
  - Asp/Gravel 81 25.7%
Component 2: Fall Through the Roof - MAYDAYS

LADDERS: (846)
- Ground Ladder 532 63%
- Aerial 314
  - Stick 191 60.8%
  - Tower 123 39.1%

STRUCTURES:
- Residential ..........413 ..... (48.8%)
- Apartments ..........161 ..... (19.1%)
- Commercial ..........282 ..... (32.1%)
Component 2: Falls through the Roof

Roof Travel: 524

- Did the roof crew know the location of the fire prior to roof operations? 38.6%
- Was the roof sounded by all members on the roof? YES 15% NO 85%
- Operations Daytime 14% Nighttime 86%
- Had the vent hole already been cut, prior to “Mayday”? YES 30%
- Had multi-vent holes been cut, prior to the “Mayday”? YES 7%
Component 2: Falls through the Roof
Component 2: Falls through the Roof
Component 2: Falls through the Roof

**Roof Travel: 524**
- Had water been applied to the fire, prior to roof operations? 29.6%

**Roof Vent Operations: 322**
- Did the roof crew know the location of the fire? YES 30%
- Did the roof vent crew have a hose line? YES 5%
- Was a roof ladder used during vent cut? YES 6%
- Did the crew have a TIC? YES 13%
COMPONENT 2: Lost, Separated from Hose Line – MAYDAY
Component 2: Falls through the Roof

Fell through the Roof:
How far did you fall?
- Half-way through the hole? 20%
- To the rafters? 71%
- To the floor? 9%

Half-way through hole:
- did you self-rescue? 16%
- did you need assistance? 84%
- did you drop your tools? 35%
- were you injured? 23%
Component 2: Falls through the Roof
Component 2: Falls through the Roof

To the Rafters:
- Did you breakthrough the ceiling?
  YES  40%
- What happen to your facepiece?
  Dislodged 71%
  *were you able to rescue and donn facepiece, in less than a minute  13%
- Were you injured?  61%
- Were you burned?  45%
  ( pants moved up, exposed legs)
- Could you get to your flashlight?  39%
- Was there entanglement?  36%
Component 2: Falls through the Roof
Component 2: Falls through the Roof

To the Rafters:
- Did you lose your helmet/dislodged? 58%
- Could you self-rescue? 15%
- Did you have flame or heat impingement?
  Flame 13%  Heat 87%

What area of the structure were you on during collapse:
Residential:
  - Main structure 54%
  - Garage 41%
  - Porch 5%
**Component 2: Falls through the Roof**

**Comments:**
- Difficult to get to radio
- Get to a position, where you can punch a hole in the ceiling
- Had difficulty repositioning facepiece and tightening straps
- Make sure you report possible injuries
- RIT had difficulty get victim out of area if they were unable to help
Component 2: Falls through the Roof
Component 2: - Trapped / Unable to Move - Maydays
COMPONENT 2: Trapped/Unable to Move - MAYDAY

TRAPPED/UNABLE TO MOVE: 521 12.2%

- Wires, duck work, etc. (349) 67%
- Ceiling/floor collapse (146) 28%
- Structure shift/collapse (26) 5%

- Occurred during salvage/overhaul
  ..... 36.2%
COMPONENT 2: Trapped/Unable to Move - MAYDAY

Trapped by wires, duct work, drywall, etc.

If trapped by wires, did you have wire cutters (etc.)? 43%

- Were you able to reach it, in whatever pocket you had it in? 51%

- Residential ..... 244 ..... 47%
- Apartments .... 98 ..... 19%
- Commercial ... 179 ..... 34.3%
- Did you carry personal tools?
  - wire cutters ..... 65%,
    could you reach them ..... YES ..... 51%
  - rescue rope ..... 37%
  - extra flashlight ..... 34%
  - gloves ..... 33%
COMPONENT 2: Trapped/Unable to Move - MAYDAY
COMPONENT 2: Trapped/Unable to Move - MAYDAY
COMPONENT 2: Trapped/Unable to Move - MAYDAY

- Make sure all personal tools are in pockets above the waist. (i.e., extra flashlight, cutters, etc.)
- Make sure your radio in workable space
- Cut wires or whatever on the same side as you move.
- Move duct work and flatten it, rather than cutting it.
- Before breaching a wall, evaluate what you know (where you may have been) and think about what you don’t know (location, type wall, also watch for electrical wiring)
COMPONENT 2: Trapped/Unable to Move - MAYDAY
COMPONENT 2: Lost, Separated from Hose Line – MAYDAY
COMPONENT 2: Lost, Separated from Hose Line – MAYDAY

We'll have water when we need it... what could possibly go wrong?!

The line's not charged yet!

Now, let's get in there!
COMPONENT 2: Lost, Separated from Hose Line – MAYDAY

Lost, Separated from Hose Line 820 19.2%

- Lost (NO HOSE LINE) …….462 ….. (56.3%)

- Separated from Hose Line … 358 ….. (43.6%)
  - 150ft…(1 ½-1 ¾) ……………………54 … (15%)
  - 200ft…(1 ½-1 ¾) ………………108 … (30.1%)
  - 250ft…(1 ½-1 ¾) ………………127 … (35.4%)
  - 300ft…(2 ½-3) ……………………69 … (19.2%)
COMPONENT 2: Lost, Separated from Hose Line – MAYDAY

**LOST:**
- Why enter a building without a hose line?
  - SOP/SOG allows entry … YES ….. 93%
  - CO has the authority to make the call … YES ….. 66%
- Were tag lines used instead of hose? YES ….. 7%

**General Comments:**
- Easier to make a quick search
- Faster crew deployment
- Allows for multi-task actions
COMPONENT 2: Lost, Separated from Hose Line – MAYDAY

**Separated from Hose Line:**

- Why did you leave the hose line?
  - To search a larger area (rooms/floors) ..... 77%
  - Faster completion of search area ..... 58%
  - Split into two (two person) teams .... 53%
  - Given a specific assignment by the CO ....25%

- How often have you left a hose line?
  - 98.2% of the time

- Was tag used during separation … YES ..... 2%

- What do you think the average amount of time during your hose separation? ..... 3-6 mins
COMPONENT 2: Lost, Separated from Hose Line – MAYDAY

- Residential ...... 334 ..... 40.7%
- Apartments ...... 123 ..... 15%
- Commercial .... 363 ..... 44.2%
COMPONENT 2: Lost, Separated from Hose Line – MAYDAY

Hose training is critical to crew performance. Each member has a role/position that allows for a more effective use in advancing the hose line and providing potential safer and more efficient fire attack.
COMPONENT 2: Lost, Separated from Hose Line – MAYDAY

COMPANY LEVEL TRAINING
COMPONENT 2: Lost, Separated from Hose Line – MAYDAY

- Maintain crew integrity
- Consider unrestricted flow paths
- Don’t get off the line, as the structure gets bigger, the distances get longer, and the more difficult it is to get back
- Crew spacing in advancing the line, especially in commercial structures
- Select the right size hose for the fire, consider forecasting fire behavior/building construction
- Make sure the nozzle is set on the proper pattern
- Maintain door control
Component 2: - NO Communications - Maydays
**COMPONENT 2: NO Communications**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio OFF</td>
<td>24</td>
<td>22.6%</td>
</tr>
<tr>
<td>Off Channel</td>
<td>37</td>
<td>35%</td>
</tr>
<tr>
<td>Lost Radio</td>
<td>19</td>
<td>17.9%</td>
</tr>
<tr>
<td>Dead Battery</td>
<td>17</td>
<td>16%</td>
</tr>
<tr>
<td>Wet Radio</td>
<td>5</td>
<td>4%</td>
</tr>
<tr>
<td>Simplex</td>
<td>38</td>
<td>31.6%</td>
</tr>
<tr>
<td>800</td>
<td>68</td>
<td>68.4%</td>
</tr>
</tbody>
</table>

NO Communications ..... 106..... **2.5%**
San Francisco Fire Department
2 FF Killed
Lt. Vincent Perez, FF/PM Anthony Valerio
1333 Berkeley Way
June 2, 2011

1. *Radio 185°F
2. *RSM 293°F for How long?
3. *Cord 300°F

NFPA = 500°F for 5 min.

NFPA 1802:
STANDARD ON TWO-WAY, PORTABLE RF VOICE COMMUNICATION DEVICES FOR USE BY EMERGENCY SERVICES PERSONNEL IN THE HAZARD ZONE
COMPONENT 2: NO Communications

- Make sure all wires leading from radio to lapel microphone are under the coat, NOT exposed to heat.
Component 2: FALL INTO BASEMENT/TRAPPED - MAYDAY

DANGEROUS

NO

Extremely Dangerous
COMPONENT 2: Fall into Basement/Trapped – MAYDAY

Fall into Basement/Trapped ..... 846 .... 19.8%

- Floor above Basement (Collapsed) .. 339 .. (40%)  
- Floor above Basement (Hole) .... 277 ... (32%)  
- Basement Stairway Collapse ..... 149 .... (17.6%)  
- Underfloor/ceiling Collapse ..... 81 .... (9.5%)  
- Basement Visible during 360 .... 85%*
COMPONENT 2: Fall into Basement/Trapped – MAYDAY

- Basement
  - NO exterior windows .... 36%
  - Had a second exit ....... 1%
  - Finished interior .......... 37%
    w/ multi-compartments 75%
  - Bedroom (s) ................ 35%

- Basement Stairway
  - exposed steps .......... 57%
  - enclosed stairway ..... 23%
  - stairway had landing .... 20%
COMPONENT 2: Fall into Basement/Trapped – MAYDAY

• Was a basement identified prior to your entry?
  YES .... 39%

• Was floor sounded/tapped during entry?
  YES .... 25%

• Were you standing up at the time of the floor collapse?
  YES .... 74%

• How many FF were on the floor at the time of the collapse?
  (1) .... 42%  (2) .... 34%  (3) .... 19%  (4) .... 5%

• Was a TIC used to identify fire in the basement?
  YES .... 27%
COMPONENT 2: Fall into Basement/Trapped – MAYDAY

- Basement collapse conditions:
  - When you fell into the basement, how did you land .... - face down .... 31%
    - face up .... 40%
    - on side .... 29%
  - Was there fire in the basement? YES .... 91%
    - could it be controlled by a single handline YES .... 53%
  - debris (furniture, etc.) came on top of us after we fell in the basement ... YES .... 68%
  - were you able to self-rescue? YES .... 33%
  - was stairway in tack? YES .... 43%
COMPONENT 2: Fall into Basement/Trapped – MAYDAY
COMPONENT 2: Fall into Basement/Trapped – MAYDAY

- Was victim packaging required?  YES .... 35%
- Concerns while trapped in basement?
  - power was still on .... YES .... 34%
  - potential further collapse .... YES .... 92%
  - fire control .... YES .... 88%
  - being able to move to a safe position ... YES .... 59%
  - identified possible injuries, reported them to the IC .... YES ....95%
  - able to give instructions to rescuers .. YES... 65%
  - lost radio .. YES .... 42%
  - facepiece dislodged .. YES .... 88%
  - lost helmet .. YES .... 45%
Was basement drills conducted as part of RIT training 31%
Rescue Team, RIT, Mayday Officer Training
COMPONENT 2: Fall into Basement/Trapped – MAYDAY

- CONDUCT 360, ID a possible basement, when conducting the 360 make sure that person has a TIC, look for gas meters, electrical, LP tanks and etc.
- A 360 can help identify type/size of windows, window wells, possible size of basement, stairway location, and possible location of the fire in the basement.
- Sound the floor, but understand in newer homes built with silent floor materials, rugs, pads, etc. it may not sound as would expect.
- Don’t expect a TIC to show you much heat or fire in a basement through the floor.
- In most falls into a basement, floor collapse, there is little warning.
COMPONENT 2: Fall into Basement/Trapped – MAYDAY

- When calling or receiving “Mayday”, ID is it a floor collapse or a hole in the floor.
- When Mayday is ID, make sure RIT takes in the proper equipment.
- Most basement mayday victims will require victim packaging.
- In most basement Mayday’s, a priority is to get a hose line into the basement, to protect the mayday victim.
- The lost of radio occurs 42% of the time.
- Facepiece become dislodged, 75% of the time, it will need to be re established, with a seal.
COMPONENT 2: Other
COMPONENT 2: Other

Other: 188 ..... 4.3%

- Holdup (drugs) ........ 25 ..... (13.2%)
- Assaults .................. 66 ... (35%)
- Gunshots/Shootings ... 68 ..... (36%)
- Drug Lab .................... 24 ..... (12.7%)
- Near drowning ............ 5 ..... (2.6%)

2015-2017 188
COMPONENT 2: Other

TRAINING:

Live Fire:
  Acquired structure: 19
  Designed structure: 5
CALLING THE MAYDAY

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 known 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 Division boss as required
- Other Companies – Put the fire out! Stay OFF the radio – Mayday Priority and Status change traffic ONLY. Be prepared to assist if you are in a position to do so.
“The capability of our protective gear can now consistently out perform the natural limits of our anatomy and physiology…just because you can go someplace on the fire ground doesn’t mean you should go there … simply our modern turnouts can live a lot longer than our old fashioned bodies.”

Chief Alan Brunacini
COMPONENT 2: Injuries from MAYDAYS

CAREER

Injuries from Maydays

- Perm. Disab.: 30% (875)
- Hospital >72: 20.5% (1,153)
- ER Obser.: 23% (982)
- Treated On-Scene: 27% (1,281)

Total: 4,273
COMPONENT 2: Injuries from MAYDAYS

PERMANENT DISABILITY

- Quadriplegic .... 31
- Paraplegic ...... 43
- Spinal injuries ..... 157
- Head Injury ..... 171
- PTSD ..... 169

- 3\textsuperscript{rd} degree burns... 30 to 50\% of the body ..... 149
- 3\textsuperscript{rd} degree burns...50 to 70\% of the body ..... 144
- 3\textsuperscript{rd} degree burns...> 70\% of the body ..... 83
- 2\textsuperscript{nd} degree burns...> 30\% of the body ..... 209

- multi-fractures lower body ..... 136
COMPONENT 2: Injuries from MAYDAYS

DISABILITIES: 875

Estimated Cost: $1,629,540,000.00
(pension payments, medical care, insurance transportation, salary, replacement cost)

Pending Lawsuits: 121

Estimated Cost: $1,294,000,000.00

Sixteen Settlements .... $122,000,000.00
PPC Worn During Mayday:

- Nomex 46% \textit{(Wet – 4.6%)}
- PBI 54% \textit{(Wet – 6.2%)}

- Hood
  - Nomex 51% \textit{(Wet- 4.1%)}
  - PBI 49% \textit{(Wet- 6.7%)}
  - None 1%
PPC Worn During Mayday:

• Gloves
  - FF  98.4%  (Wet 9.2%)
  - Non 1.6%

• Helmet
  - Leather 37.4%
  - Syn/Pol 62.6%

• Rubber Boots 41%
• Leather Shoes 59%
### PPC Worn During Mayday

#### Under Garments:

<table>
<thead>
<tr>
<th>Shirt:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniform Non-FR (SS)</td>
<td>9.1%</td>
</tr>
<tr>
<td>Uniform Non-FR (LS)</td>
<td>4.4%</td>
</tr>
<tr>
<td>Uniform FR (SS)</td>
<td>3.8%</td>
</tr>
<tr>
<td>Uniform FR (LS)</td>
<td>2.7%</td>
</tr>
<tr>
<td>Polo Non FR (SS)</td>
<td>11.6%</td>
</tr>
<tr>
<td>Polo Non FR (LS)</td>
<td>2.4%</td>
</tr>
<tr>
<td>Polo FR (SS)</td>
<td>5.4%</td>
</tr>
<tr>
<td>Polo FR (LS)</td>
<td>2.2%</td>
</tr>
<tr>
<td>T-Shirt Non FR (SS)</td>
<td>19.8%</td>
</tr>
<tr>
<td>T-Shirt Non FR (LS)</td>
<td>5.6%</td>
</tr>
<tr>
<td>T-Shirt FR (SS)</td>
<td>6.1%</td>
</tr>
<tr>
<td>T-Shirt FR (LS)</td>
<td>3.2%</td>
</tr>
<tr>
<td>Synthetic</td>
<td>4.8%</td>
</tr>
<tr>
<td>None</td>
<td>.6%</td>
</tr>
<tr>
<td>Sweatshirt Non FR</td>
<td>4.6%</td>
</tr>
</tbody>
</table>

#### Pants:

<table>
<thead>
<tr>
<th>Long:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniform Non-FR</td>
<td>24.7%</td>
</tr>
<tr>
<td>Uniform FR</td>
<td>19.2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shorts:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniform Non-FR</td>
<td>33.4%</td>
</tr>
<tr>
<td>Uniform FR</td>
<td>11.2%</td>
</tr>
<tr>
<td>Synthetic</td>
<td>11.5%</td>
</tr>
</tbody>
</table>

* Wet: 8.7%
2 IN / 2 OUT

2 IN
DOES NOT WORK
2 OUT
COMPONENT 2: Mayday Rescues

CAREER

MAYDAY Rescues

- Self-Rescue: 31.3% (1,337)
- Mayday Crew: 28.2% (1,204)
- Interior Crew: 26% (1,110)
- RIT/RIC: 7.2% (307)
- Other: 5.3% (226)
66% of Maydays had NO accountability process in operations at the time of the Mayday
<table>
<thead>
<tr>
<th>Square Footage Range</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1,500 sqft</td>
<td>19.1%</td>
</tr>
<tr>
<td>1,501-2,400 sqft</td>
<td>20.2%</td>
</tr>
<tr>
<td>2,401-3,200 sqft</td>
<td>18.4%</td>
</tr>
<tr>
<td>3,201-4,500 sqft</td>
<td>16.2%</td>
</tr>
<tr>
<td>4,501-5,600 sqft</td>
<td>13.9%</td>
</tr>
<tr>
<td>&gt; 5,600 sqft</td>
<td>12.2%</td>
</tr>
</tbody>
</table>

The National Fallen Firefighters Memorial
COMPONENT 2: TYPES OF CONSTRUCTION/OCCUPANCY

Types of Construction/Occupancy

- Residential: 41.6% (1,737)
- Apartments: 38.2% (998)
- Commercial: 23.4% (1,432)
COMPONENT 2: Residential Construction/Occupancy

- < 1,500 sqft: 19.1%
- 1,501-2,400 sqft: 20.2%
- 2,401-3,200 sqft: 18.4%
- 3,201-4,500 sqft: 16.2%
- 4,501-5,600 sqft: 13.9%
- > 5,600 sqft: 12.2%

- 42.2%
## COMPONENT 2: Residential Construction/Occupancy

<table>
<thead>
<tr>
<th>Square Footage Range</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1,500 sqft</td>
<td>19.1%</td>
</tr>
<tr>
<td>1,501-2,400 sqft</td>
<td>20.2%</td>
</tr>
<tr>
<td>2,401-3,200 sqft</td>
<td>18.4%</td>
</tr>
<tr>
<td>3,201-4,500 sqft</td>
<td>16.2%</td>
</tr>
<tr>
<td>4,501-5,600 sqft</td>
<td>13.9%</td>
</tr>
<tr>
<td>&gt; 5,600 sqft</td>
<td>12.2%</td>
</tr>
</tbody>
</table>

- 42.2%
COMPONENT 2: TYPES OF CONSTRUCTION/ OCCUPANCY

- Define Size (small, medium, large, mega)
- Modern construction
  - non/ compartalized construction vs fire behavior
  - temperature / heat release
  - influences on fire growth
  - reading smoke
  - building materials (strength and weakness)
COMPONENT 2: Residential Construction/Occupancy

Residential Construction/Occupancy

41.6%

CAREER

1,737

< 1,500sqft (231)
1,501-2,400sqft (336)
2,401-3,200sqft (381)
3,200-4,500sqft (339)
4,501-5,600sqft (184)
5,601-7,200sqft (132)
> 7,200sqft (114)

VB/AB 19.9%
DANGEROUS?!
HOW COULD ALL
THIS POSSIBLY BE A
DANGER TO YOU?!
## COMPONENT 2: Residential Construction/Occupancy

<table>
<thead>
<tr>
<th>Size</th>
<th>Numbers</th>
<th>1 Story</th>
<th>2 Story</th>
<th>3 Story</th>
<th>Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1,500sqft</td>
<td>(231)</td>
<td>229</td>
<td>2</td>
<td></td>
<td>103</td>
</tr>
<tr>
<td>1,501-2,400sqft</td>
<td>(336)</td>
<td>258</td>
<td>68</td>
<td></td>
<td>171</td>
</tr>
<tr>
<td>2,401-3,200sqft</td>
<td>(381)</td>
<td>225</td>
<td>104</td>
<td>52</td>
<td>279</td>
</tr>
<tr>
<td>3,201-4,500sqft</td>
<td>(339)</td>
<td>223</td>
<td>88</td>
<td>28</td>
<td>108</td>
</tr>
<tr>
<td>4,501-5,600sqft</td>
<td>(184)</td>
<td>38</td>
<td>111</td>
<td>35</td>
<td>177</td>
</tr>
<tr>
<td>5,601-7,200sqft</td>
<td>(132)</td>
<td>13</td>
<td>88</td>
<td>31</td>
<td>117</td>
</tr>
<tr>
<td>&gt; 7,200sqft</td>
<td>(114)</td>
<td>11</td>
<td>56</td>
<td>47</td>
<td>83</td>
</tr>
</tbody>
</table>
**RESIDENTIAL:** Fire Protection

### Smoke Detectors:
- None  
  
  .... 5%
- Present, not working  
  
  .... 11%
- Working (1-2)  
  
  .... 44%
- Working (> 3)  
  
  .... 40%

### Residential Sprinklers:
- Yes (voluntary)  
  
  .... .8%
- Yes (mandatory)  
  
  .... 5%

### Water Supply:
- Hydrants  
  
  .... 91%
- Water Tender/Tanker  
  
  .... 9%
**RESIDENTIAL: Cause**

### Cause of Fire:
- Accidental .... 77%
- Electrical ........... 26%
- Gas leak ............. 11%
- Fireplace ............ 12%
- Appliances ........... 9%
- Cooking .............. 19%
- Kids playing with fire 9%
- Fireworks ............. 2%

### Lighting:
- 4%

### Arson:
- 11%

### Unknown
- 8%
COMPONENT 2: Apartment Construction/Occupancy

- 28.1% of apartments are under 800 sq ft
- 36.1% are between 801-1,200 sq ft
- 29.9% are between 1,201-2,000 sq ft
- 28.5% are between 1,201-2,800 sq ft
- 25.7% are greater than 2,800 sq ft

- 27.7% of apartments are under 800 sq ft
- 30.2% are between 801-1,200 sq ft
- 28.5% are between 1,201-2,000 sq ft
- 25.4% are between 1,201-2,800 sq ft
- 24.2% are greater than 2,800 sq ft
COMPONENT 2: Apartment Construction/Occupancy

<table>
<thead>
<tr>
<th>Size Range</th>
<th>2015</th>
<th>.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 800 sq ft</td>
<td>27.7%</td>
<td></td>
</tr>
<tr>
<td>801-1,200 sq ft</td>
<td>29.9%</td>
<td></td>
</tr>
<tr>
<td>1,201-2,000 sq ft</td>
<td>28.5%</td>
<td></td>
</tr>
<tr>
<td>1,201-2,800 sq ft</td>
<td>25.7%</td>
<td></td>
</tr>
<tr>
<td>&gt; 2,800 sq ft</td>
<td>8.5%</td>
<td>7.4%</td>
</tr>
</tbody>
</table>
COMPONENT 2: Apartment Construction/Occupancy

CAREER

Apartment Construction/Occupancy

- < 800sqft: 17.8% (149)
- 801 - 1,200sqft: 23.8% (162)
- 1,201 - 2,000sqft: 27.1% (271)
- 2,001 - 2,800sqft: 25% (238)
- > 2,800sqft: 16.2% (178)

Total: 23.4%
COMPONENT 2: Apartment Construction/Occupancy

<table>
<thead>
<tr>
<th>Size</th>
<th>Numbers</th>
<th>1 Story</th>
<th>2 Story</th>
<th>3 Story</th>
<th>4 Story</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 800 sqft</td>
<td>(54)</td>
<td>29</td>
<td>18</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>4 units 18), 8 units (20) 16 units (16)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>801-1,200 sqft</td>
<td>(169)</td>
<td>54</td>
<td>81</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>8 units (38), 16 units (77) 24 units (54)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,201-2,000 sqft</td>
<td>(221)</td>
<td>81</td>
<td>81</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>16 units (66), 24 units (101) 32 units (54)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,001-2,800 sqft</td>
<td>(136)</td>
<td>22</td>
<td>51</td>
<td>34</td>
<td>29</td>
</tr>
<tr>
<td>16 units (44), 24 units (61) 32 units (31)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 2,800 sqft</td>
<td>(93)</td>
<td>0</td>
<td>7</td>
<td>33</td>
<td>53+</td>
</tr>
</tbody>
</table>
Apartment: Fire Protection

Smoke Detectors:
- None .... 6%
- Present, not working .... 14%
- Working .... 80%

Sprinklers:
- Yes .... 61%
- Connect FDC
  1<sup>st</sup> E .... 3%  2<sup>nd</sup>E .... 4%  3<sup>rd</sup>E .... 15%
  4<sup>th</sup>E .... 17%  5<sup>th</sup>E .... 19%  6<sup>th</sup> E> .... 25%
  NO FDC .... 30%*

Water Supply:
- Hydrants .... 91%
- Water Tender/Tanker .... 9%
• When dealing with apartment fires we struggle with …..
  - getting crews in the apartment above the fire
  - working the side with the most exposure
  - working mirrored apartments backside
  - working center enclosed utility chases
  - apartments with center hallways, attempting to make one end with a stairway as smoke free as possible for occupants exit
  - advancing lines over balconies and pulled to the fire floor
COMPONENT 2: Commercial Construction / Occupancy
COMPONENT 2: Commercial Construction / Occupancy
COMPONENT 2: Commercial Construction / Occupancy

Commercial Construction / Occupancy

38.2%

AB/VA 23.4%
**COMMERCIAL:** Fire Protection

**Smoke Detectors:**
- None .... 5%
- Present, not all working .... 9%
- Working .... 86%

**Sprinklers:**
- Yes .... 91%
- Connect FDC
  1st E ... 6%  2ndE ... 9%  3rdE ... 10%
  4thE... 15%  5thE .... 19%  6th E> ... 21%
  NO FDC ... 20%

**Water Supply:**
- Hydrants .... 97%
- Water Tender/Tanker .... 3%
**COMMERICAL: Cause**

*Cause of Fire:*
- Accidental ........ 74%
- Electrical ........... 25%
- Gas leak ............. 15%
- Appliances ........... 17%
- Cooking .............. .8%
- Kids playing with fire .1%
- Fireworks ............. .8%
- Housekeeping ...... 31%
- Chemicals ............ 10.3%

*Lighting:* 1%

*Arson:* 24%
If you find yourself in a BIG BOX or warehouse fire on your knees...

YOU SHOULD BE PRAYING
<table>
<thead>
<tr>
<th>Component</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warehousing</td>
<td>137</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>264</td>
</tr>
<tr>
<td>Churches</td>
<td>41</td>
</tr>
<tr>
<td>School</td>
<td>9</td>
</tr>
<tr>
<td>Storage</td>
<td>151</td>
</tr>
<tr>
<td>Retail</td>
<td>536</td>
</tr>
</tbody>
</table>

1,532
COMPONENT 2: Commercial Construction / Occupancy

HIGH RISK
LOW FREQUENCY
COMPONENT 2: Commercial Construction / Occupancy ( > 100,000)

- Entanglement, 200ft hose line
- Ceiling Collapse, 150ft hose line (3”)
- SCBA Regulator problem, 200ft hose line
- Separated from hose line, 250ft hose line
- Shelving collapse, (2), 200ft hose line
- Flashover, (4) 200ft hose line
- Out of Air, 250ft hose line
- Lost off hose line, 200ft hose line
- Ceiling collapse
- Loss communication
- Separated from hose line, 300ft hose line
- Low air alarm
- Fell over pallets (leg fracture)
- Separated from hose line, 250ft hose line
- Stairway collapse
- Low air alarm
- SCBA Regulator problem, 200ft hose line
- Separated from hose line, 250ft hose line
- Heat Stress
- Separated from hose line, 200ft hose line
- Loss Water
- Medical (HA), 300ft hose line
- Lost/Separated, 100ft, 250ft hose line
- Lost/Separated, 250ft hose line (3)
- Facepiece problem, 200ft, 250ft hose line
- Roof Collapse, 250ft hose line
- Lost/Separated, 250ft hose line (3)
- Loss of water, 300ft hose line
- Lost/Separated, 150ft, 200ft hose line*
- Medical (HA0(F), 100ft, 250ft (2 ½) (2)
- NO Communication, 250ft hose line
- Flashover, 250ft hose line*
- Lost/Separated, 250ft hose line
- Out of Air, 150 (Y), 250ft hose line *
- Medical (S), 200ft (3) hose line
- Wall Collapse, 18ft x54ft ....3
- Entanglement, 200ft hose line
- Ceiling Collapse, 150ft hose line (3’’)
- SCBA Regulator problem, 200ft hose line
- Separated from hose line, 250ft hose line
- Shelving collapse, (2), 200ft hose line
- Flashover, (4) 200ft hose line
COMPONENT 2: Commercial Construction / Occupancy

- Lost/Separated from hose line 300ft
- SCBA Regulator problem, 200ft hose line
- Separated from hose line, 250ft hose line
- Shelving collapse, (2), 200ft hose line
- Partial roof collapse
- Lost off hose line, 200ft hose line
- Medical (heart attack)
- Separated from hose line, 250ft hose line
- Flashover
- Low on Air (400psi)
- Out of Air, 300ft hose line
- Lost off hose line, 200ft hose line
- Shelving collapse
- Separated from hose line, 300ft hose line
- Fell on dock area
- Breathing problem
- Lost Separated from hose line 200feet
- Lost water in hose line
- Container collapse
- Low on air (140psi)
- Missing crew member
- Lost communications
COMPONENT 2: Commercial Construction / Occupancy

- Ceiling Collapse, 150ft hose line (3”)
- SCBA Regulator problem, 200ft hose line
- Separated from hose line, 250ft hose line
- Shelving collapse, (2), 200ft hose line
- Flashover, (4) 200ft hose line
- Fell through Roof (2)
- Lost off hose line, 200ft hose line
- Medical (diabetic)
- Separated from hose line, 250ft hose line
- Flashover
- Fell into Pit
- Out of Air, 250ft hose line
- Lost off hose line, 200ft hose line
- Ceiling collapse
- Loss communication
- Separated from hose line, 300ft hose line
- Overhead door came down
- Facepiece problem
- Low alarm, 250ft hose line
- Near electrocution
- Fell down elevator shaft
COMPONENT 2: Commercial Construction / Occupancy

- Separated from hose line, 250ft hose line
- Separated from hose line, 200ft hose line
- SCBA Regulator problem, 200ft hose line
- Separated from hose line, 250ft hose line
- Heat Stress
- Separated from hose line, 200ft hose line
- Loss Water
- Regulator Problem
- Stairway collapse
- Separated from hose line, 250ft hose line
- Separated from hose line, 300ft hose line
- Low air alarm
- Fell through roof
- Medical (heart attack)
- Separated from hose line
- Lost
- Low air alarm
- Fell over pallets (leg fracture)
- Separated from hose line, 250ft hose line
- Stairway collapse
- Low air alarm
COMPONENT 2: Commercial Construction / Occupancy

- Separated from hose line, 250ft hose line
- Roof Collapse, 150ft hose line (2 ½)
- SCBA Regulator problem, 200ft hose line
- Separated from hose line, 300ft hose line
- Heat Stress
- Separated from hose line, 250ft hose line
- Loss Water
- Facepiece Problem
- Stairway collapse
- Separated from hose line, 250ft hose line
- Separated from hose line, 300ft hose line
- Low air alarm
- Fell through roof
- Medical (heart attack)
- Separated from hose line
- Lost
- Low air alarm
- Fell into hole
- Separated from hose line, 250ft hose line
- Walkway collapse
- Low air alarm (600psi)
COMPONENT 2: Commercial Construction / Occupancy

- Separated from hose line, 300ft hose line
- Shelving Collapse, 150ft hose line (2 ½)
- SCBA low air problem, 200ft hose line
- Separated from hose line, 250ft hose line
- SCBA low air problem, 300ft hose line
- Separated from hose line, 200ft hose line
- Partial ceiling collapse
- Low Air Alarm
- Shelving collapse
- Separated from hose line, 300ft hose line
- Low air alarm
- Fell from catwalk
- Medical (heart attack)
- Separated from hose line
- Lost
- SCBA low air alarm
- Shelving collapse
- Separated from hose line, 250ft hose line
- Stairway collapse
- SCBA Out of Air
COMPONENT 2: Commercial Construction / Occupancy

- Separated from hose line, 300ft hose line
- Communications problem
- SCBA low air problem, 200ft hose line
- Separated from hose line, 300ft hose line
- SCBA low air problem (400), 300ft hose line
- Separated from hose line, 200ft hose line
- Partial ceiling collapse
- Low Air Alarm (350psi)
- Shelving collapse
- Separated from hose line, 300ft hose line
- Fell onto moving belt
- Medical (heart attack)
- Separated from hose line
- Lost
- SCBA low air alarm
- Shelving collapse
- Separated from hose line, 250ft hose line
- SCBA Out of Air
- DO NOT use a RESIDENTIAL mentally in a COMMERCIAL BUILDING.
- The BIGGER the building, the greater the potential for maydays (multi maydays)
- Big Water (establish multi water supply)
- Connect to FDC early (if you see it, pump it)
- Multi crews advancing hand lines, crew spacing
- Stay on concrete/tile floor (NOT in rugged areas)
- Know your exits
- Watch the walls/roof, position aerial able to see two sides
- Watch shelving, who knows what’s on them
HI-RISE OPERATIONS:

- **Mid Rise (1-7 floors)**
  - Maydays ..... 47
  - Medical - 23
  - Air Problem – 19
  - Lost/Separated from Hose Line – 11
  - Trapped, Unable to Move – 3

- **High Rise (8 – 32)**
  - Maydays ........ 34
  - Medical - 23 (1)
  - Air Problem – 11(2)
  - Lost/Separated from Hose Line – 9 ((1))
  - Communication - 31
HI-RISE OPERATIONS:
- Sprinklered structures:
  Apartments/Cond... 47%
  Hotels... 54%
  Office... 66%
Sprinkler Problems: 4% failed to operate, 41% shut down, 67% lack maint. 5 other
- Mid-Rise (Office...41%, Hotel...39%, Apartments/Cond...34)
- Hi-Rise (Office...77%, Hotel...81%, Apartment/Cond...56%)
- Firefighting crew size (4,5,6)
- Search/Rescue crew size (5,6)
- Elevator control
- Stairway control
The only way to guarantee a successful outcome of a "MAYDAY" is to PREVENT IT!
Uh oh, looks like another recipe for disaster!

Standard operating guidelines

Outdated practices

Complacency
Normalization of unsafe practices can occur as a result of the fact that other individuals take the fact that other individuals take the same (incorrect or unsafe) actions. If, in general, nothing bad happens as a result of unsafe practice, and if everyone else in the organization participates in the same practices, then these practices become part of the normal and accepted way of accomplishing tasks. As a result, fire organizations history and traditions, can create a culture that is difficult to change
Establish the Common Terminology:

- Priority Traffic
- Urgent
- Emergency
- Emergency Traffic
- MAYDAY
• SOPs/SOGs need to be realistic, if you don’t plan on using them or enforcing them, don’t write them for the sake of having them in print.
• Make sure operational SOPs/SOGs, really work, practice them, test them, refine them and then print them and then enforce them.
• Don’t use someone else's SOPs/SOGs, in less they work for you.
• All SOPs/SOGs should reviewed, especially operational SOPs/SOGs every three years. Keep current to OSHA, NFPA standards, and national standard of care provisions.
If you fail to train... you train to fail
The trick is to embed firefighter’s behavior in the subconscious, so that it becomes automatic. This is only done by repeated and realistic training with measured competencies every six months.
PRE – MAYDAY ACTIVITIES

Training:
- Did you participate in Mayday training in the last 24 months… YES…56%
  in the last 12 months…YES…39%
- multi-company: ..... 77%
- night Mayday exercise: ..... 5%
- rescue/recovery/packaging/removal: ..... 23%
- sound effects/obstacle: ..... 27%
- training/Mayday run by BC: ..... 31%
- accountability tags/PARs: ..... 33%
- package handoff to EMS (involvement): ..... 7%
- does your FD conduct air consummation assessment annually? YES ..... 11%
MAYDAY ACTIVITIES
Training:

SKILL RETENTION
Training you had or conducted on Maydays
- Did you attend Mayday drills?   YES …96%
- Did you participate in them as an IC?  YES … 23%
- What was your position?
  Mobile: … 59%        Stationary: … 41%
- Was the entire drill played out (entry, Mayday, response, rescue, packaging, removal, load for transport)  YES … 7%
- Did you practice for two Mayday’s:  YES: … 6%
- Did you have communication issues:   YES: … 73%
- Did your drills relate to the actual Mayday event?  YES: … 11%
- Do you do simulation training annually? YES …16%
- Does your department practice accountability ALL of the time? (REAL ACCOUNTABILITY)YES…21%
- Were you trained in RIT team operations?  
  YES … 84%

- The training occurred: 2016 .... 19%,  
  2015 .... 23%, 2014 .... 37%, 2013 .... 15%

  How often do you retraining?  
  Every year .... 21%  
  two years .... 27%  
  three years .... 31% .... (21%)

- How many members of your RIT?  
  3 ... 5%  
  4 ... 71%  
  5 .... 9%  
  6 .... 15%

- How many RIT bags were on the scene for your  
  Mayday? 0 ... 5%, 1 .... 89%, 2 .... 8%, 3 .... 3%

- Was a physical rescue performed?  YES .... 8%

- What equipment did you special call for:  
  Pry bar .... 2%  
  Stokes Basket (carrier) .... 17%  
  Folding Ladder .... 13%  
  Chain Saw .... 6%
- Did your RIT team have a Mayday?
  YES … 8%
- Reason:
  Took short cut
  Did not follow hose line
  Not good instruction from the IC
  Victim moved from original location
MAYDAY Radio Call

TERMINOLOGY

LUNER
GRAB LIVES
NUCAN
PCA
SCAN
LIP
LAPN
- MAYDAY / RIT training needs to be REALISTIC, it should reflect your everyday fire ground operations.
- It should be MANDATORY for all field operation members. If you call this time training required or mandatory, enforce it. (OSHA vs Johnson City (2015).
- Have make-up trainings
- Video some of your session and trainings
- Attendance sheets don’t mean much in court (OSHA vs Johnson County (2015).
- Develop a competencies checklist that reflects your SOPs and training.
- Make your training SAFE, NO one should get hurt at training.
FIRE DEPARTMENT - Component Three

FIRE DEPARTMENT

AFTER "MAYDAY" ACTIONS
FIRE DEPARTMENT - Component Three

- Was SOP/SOG reviewed after your Mayday? YES ... 73%
- Was Mayday SOP/SOG rewritten ... YES ... 18%
- Was RIT SOP/SOG rewritten ... YES ... 16%
- Was Mayday training procedures review ... 61%
- Was the information presented to all members? YES ... 51%
- Was a After-Action report completed? ... YES ... 21%
- Was this report made available outside of the FD? YES ... 17%
• ALL MAYDAY should have some form of investigation and critique.
• Review operational actions, then review SOPs/SOGs and training
• FIX the PROBLEM (OSHA vs Johnson County (2015))
• It OK to admit mistakes, but YOU HAVE TO FIX them and if it happens again YOU GOT a problem.
Who needs to study fire behavior and tactics?! I've watched the movie Backdraft, like a hundred times... we've got this!
INDIVIDUAL PERSONAL SURVEY – MAYDAY VICTIM

MAYDAY VICTIMS
In each individual personal survey – Mayday victim were instructed that the surveys were confidential, department name or victim’s name would NOT be shared with anyone. It was requested that all information be factual and honest.

A request was made to each fire department for permission, that each mayday-victim complete the individual personal survey – mayday victim.

4,273
Male: 4,170  Female: 103
Psychology of a Mayday Firefighter involved in the Mayday

- The firefighter in distress will usually revert to what was learned and is “routine”.
- The firefighter’s sole focus will to remove themselves from danger
- Don’t expect a firefighter to accomplish a manipulative skill learned in one hour, especially if the task was learned months ago
- Finally, firefighters in distress will over compensate – they will not be able to feel safe enough
MAYDAY - Contributing Factors to Maydays

- Situation Awareness ..... 63%
- Decision Making ..... 44%
- Human Error/Individual Actions ..... 59%
- Communication ..... 13%
- Not Enough Resources ..... 17%
- Structural issues ..... 4%
- Unsafe Act Performed ..... 59%
MAYDAY - Contributing Factors to Maydays

• Delayed suppression
• FF in exhaust port
• Uncoordinated/unplanned ventilation

• Physical work:
  - increased pulse
  - more blood per heartbeat
  - faster breathing
  - perspiration
  - higher body temperature / blood pressure
  - more blood to the muscles
  - greater lung absorption to maximize use of red blood cells
It takes a lot of brain energy to sort out information and to make conclusions about what is happening. Once the brain has completed its task, it tends to be satisfied with its findings and is not inclined to want to start the process over again, sometimes forgetting the size-up. Not because they are lazy, but in their mind they already know the situation.
MAYDAY VICTIM – PERSONAL ACTIONS

- Collect your thoughts and control your breathing
- Call the MAYDAY
- Advise the IC of your intentions
- Make noise without wasting air
- It’s difficult to hear and talk (PASS alarm / Low air alarm)
- Monitor distance into the structure
- Always be accountable to someone

AIR + TIME = SURVIVAL

MANY MAYDAYS (34%) OCCUR BEFORE A FORMAL RIT TO IS ESTABLISHED
READING SMOKE KEY FACTORS

- COLOR
- DENSITY
- VOLUME
- VELOCITY

Read windows, monitor changes, rate of change
Predict and AVOID the hostile event
INDIVIDUAL PERSONAL SURVEY – MAYDAY VICTIM
Rest Activity: Dr. Allen McCourtee

- Did you nap or sleep 3 hours before Mayday: YES: … 44%
- Night Sleep, was your sleep interrupted once before your Mayday: YES: … 41%
- two times or more before your Mayday: YES: … 22%
- When returning from an after midnight run, did you go immediately to bed: YES … 61%
   ..... Did you have anything to drink (that was not water) after your midnight run: YES 47%
   ..... Did you have anything to eat, after your midnight run: YES 29%
INDIVIDUAL PERSONAL SURVEY – MAYDAY VICTIM

- Does the alarm sound for all units at your station?  
  YES … 23%

- Do you snore? YES … 56%

- Have you ever been tested for a sleep disorder?  
  YES … 16%

- Are you using a CPAT machine:  YES  36%  
  At home:  36%       While on duty:  22%
Sleep deprivation/restriction research is showing us that there is both a mental effect and physical effect. The recent information about sleep duration influences firefighter’s activity level, lower the body’s ability to recovery from some activities by as much as 50%.

Some research shows during duty periods when sleep is disrupted, when a call occurs, also suggest that sleeping with “one ear open” may disrupt sleep even more if no call occurs, this leads to some of the same problems, performance impairment and adverse health outcomes.
Firefighters being awake for prolonged periods, 12hrs, then awaken during the night, impairs performance, in many cases impairment equal to a blood alcohol concentration 0.05. Repeated sleep interruption, creates chronic sleep lost, resulting in decreased ability to think clearly, handle complex mental tasks and solve problems.
Cardiac Assessment: (Dr. Matt Walker)
- do you have a family history of cardiac disease:
  YES: … (21%)
- did you feel fatigued prior to your Mayday:
  YES: … (27%)
- are you on blood pressure or blood thinner medicine:
  YES: … (10%)
- are you a confirmed borderline diabetic:
  YES: … (17%)
- are you on any medicine for stress:
  YES: … (11%)
- are you on any sexual support medicine?
  YES … (9.6%)
Cardiac Assessment:

- On any run after midnight (sleeping) did you have hand or leg cramps: YES … 34%
- Has serious fatigue occurred after a run after midnight: YES … 19%
- Have you had any swelling of your legs or ankles after going to bed, after a midnight run? YES … 9%
FITNESS HAS TO BE A HIGH PRIORITY PERSONALLY
COMPONENT 2: On Scene

- Did you don your turnouts before stepping off the apparatus? ... YES ... 51%
- Was a water supply line laid and charged by first engine on the scene? ... YES ... 41%
- Was accountability started by first engine on the scene? ... YES ... 19%
- Was a 360 conducted by the first engine? ... YES ... 27%
- Was there any signs of a confirmed rescue? (dispatch information, someone on the scene, etc.) ... YES ... 4%
- Was there cars in the driveway, lights on in the house, etc.) ... YES ... 19%
- Did the structure show signs of being vacant? YES ... 21%
COMPONENT 2: On Scene

- Was a quick attack made from the outside? YES ... 19%
- Was forcible entry required? ... YES ... 64%
- Was a handline charged before entry? ... YES ... 87%
- How often do you check the nozzle setting prior to entry? ... Always ... 39%
  Most of the time ... 34%
  Seldom ... 27%
- Where you masked-up prior to? Always ... 83%
  Most of the time ... 89%
  Seldom ... 3%
- Did the CO stay outside, to serve as command?  34%

In My Defense,
I was left unsupervised
- Was RIT established prior to your entry? .... YES... 54%
- Did you enter standing-up? ... YES ... 88%
- How long after your entry, did you go to your knees? ... average 5/7 minutes ...
- How often do you leave your hoseline by more than 10 feet, in near zero visibility? ... Most of the time ... 87%
- Was ventilation performed prior to you mayday? YES ... 57%
  Vertical ... 77%       Horizontal ... 23%
- Was there an effort to control the entry door in regards to air flow? ... YES ... 19%
COMPONENT 2: SEARCH/FIRE ATTACK

NEVER, EVER BREAK WINDOWS AGAIN WITHOUT COORDINATING WITH THE HOSE TEAM FIRST...
GOT IT!
COMPONENT 2: On Scene

- Did you know the location of the fire in the structure? … YES 39%
- Did you sound the floor during S/R and/or FA? YES … 17%
- When conditions changed, were they immediately reported? … YES … 65%
- Did you request a second crew for assistance? YES … 25%
- Was water applied to the fire prior to your mayday? YES … 62%
- Was an air check conducted prior to your mayday? YES … 54%
  Estimated amount of air at the time of your mayday? … 1300psi
Enroute to Incident involved in the MAYDAY

- Did you wear your seatbelt?  NO ... 57%
  (working fire dispatch...83%)
- Did a discussion take place amongst the crew about the incident prior to arrival?  YES ... 21%
- Was specific orders given to crew members by the CO ?... 59%
- Was there a pre-plan for your “mayday” (commercial building) ?  YES ... 7%
- Did each member of the crew have a radio?  YES ... 58%
- Was this your first mayday? 100%
- Did you consider calling your mayday earlier? YES ... 77%
- Did you delay calling your mayday, because you thought you could fix the problem? ... YES 74%
- What does your FD use for initial mayday or personal assessment?
  LUNER ... 37%
  GRAB LIVES .... 39%
  CAN/PCAN ... 21%
  NUCAN ... 1%
  LIP ... 1%
  Other ... 1%
COMPONENT 2: The MAYDAY COMMUNICATION

BE UNDERSTOOD first time

EVERYTIME

E-16 .... Engine One Six
A side .... Alpha Side
COMPONENT 2: The MAYDAY COMMUNICATION

Location
Unit number
Name
Assignment
Resources needed

What’s missing?
COMPONENT 2: The MAYDAY COMMUNICATION

WHO
WHAT
WHERE

We make the VICTIM work
- Did you activate your “EA” button? ... YES ... 71%
- How many times did you communicate with command?
  1 ... 5%  
  2 ... 21%  
  3 ... 31%  
  4 ... 33%  
  > 5 ... 20%
- Did command offer reassuring advise? ... YES ... 66%
- Did you have adequate radio time for reporting? ... YES ... 27%
- Did you turn off your PASS device when talking on the radio? ... YES ... 13%
- Did you become frustrated with all the communications? ... YES ... 64%
COMPONENT 2: The MAYDAY Event

DON’T CHANGE CHANNELS
COMPONENT 2: The MAYDAY Event

multitasking and short term memory overload
COMPONENT 2: The MAYDAY Event

- Did you know your exact location in the structure?
  - area of room ... 77%
  - direction facing ... 43%

- Were you able to help rescuers locate you?
  YES ... 65%

- Did rescuers verbally communicate with you when found?
  - how trapped / or type injuries... YES ... 45%
  - did they listen to your report ... YES ... 61%

- Were you told who was coming to get you?
  YES ... 67%

PERCEPTIONS vs REALITY
**COMPONENT 2: The MAYDAY Event**

- During your mayday, did you …
  - … make noise … YES … 17%
  - … wave/turn off/on your flashlight … YES … 15%
  - … moved to an outside wall/door … YES … 36%
  - … don’t remember what I did … 15%
- How were you handle by your rescuers?
  - Good … 39%
  - Roughly … 54%
- Did rescuers have the proper equipment for your rescue? … YES … 49%
- If packaging was required, did they proper package you, before exiting? … YES … 31%
- Did you have on all your PPC on? … YES … 81%
  - if NO: hood … 71%
  - gloves … 12%
COMPONENT 2: The MAYDAY Event

Did you have confidence in your...

- Company Officer ..... 91%
- Incident Commander ..... 85%
- RIT ..... 24%
don’t think you are the “exception” to the rule
What happens in our brain as the floor gives way? Fear guides our reactions in every station of the survival arc. In the beginning of the deliberation phase, fear is typically at its peak, once we grasp the danger we face, we have less fear and more control.
<table>
<thead>
<tr>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Should have more people on the line or backing us up.</td>
</tr>
<tr>
<td>- I was afraid of the consequences of calling a mayday.</td>
</tr>
<tr>
<td>- Too much radio traffic.</td>
</tr>
<tr>
<td>- IC didn’t ask the right questions.</td>
</tr>
<tr>
<td>- Could not put into order some of the things I had been taught or practiced in mayday training.</td>
</tr>
<tr>
<td>- Rescuers did not listen to what I had to say.</td>
</tr>
<tr>
<td>- Radio traffic gave me more fear.</td>
</tr>
<tr>
<td>- Should be more aware of my environment.</td>
</tr>
<tr>
<td>- My crew stayed with me as long as they could.</td>
</tr>
<tr>
<td>- Never leave the hoseline</td>
</tr>
</tbody>
</table>

**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
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.
COMPONENT 2: The MAYDAY Event

window of opportunity closing?
conditions rescue
29% of Mayday situations were **NOT** reported as Maydays
Considerations / Recommendation

- The EA button is when you can’t talk. Don’t press the button if you can talk.
- BIGGER the structure = more MAYDAYs more square footage, more challenges, distance to the fire, larger are to search, more twist and turns, longer operations.
- Most MAYDAYs occur 9 - 20 minutes after arrival of first company
- Most MAYDAYs (41%) occur before a formal RIT (4 person team is established)
- Don’t expect a FF to accomplish a manipulative skill learned in a few hours, especially if the task was learned months ago.
Considerations / Recommendation

- At a certain point a person must accept they need help and must know and follow the procedures to do so.

- WHY DO WE WAIT SO LONG?
  - tunnel vision, become to focus on the wrong things.
  - under estimate existing conditions and NOT forecasting what they could become.

- YOU CALLED A MAYDAY ... NOW WHAT?
  - collect your thoughts, control your breathing
  - what are you intentions?
  - can you do those things ask by the IC?
  - keep mask on
  - exercise your Mayday call (LUNER, GRAB LIVES..)
Considerations / Recommendation

• Be realistic with your training needs, what is your weakest area, then work hard with your training.
• Become the rescuer that you want to be … that would rescue yourself
• You may need to move to a better location to call your “Mayday”
• When working with a new officer or crew, understand they expectations.
• As a officer have fire ground rules that your crew must follow.
• FF in distress will over compensate – they will not be able to feel safe enough.
YOU HAVE CALLED A MAYDAY ...
you have done everything you have been trained to do.

NOW
develop a plan, as what are you going to do if you run OUT OF AIR
don’t want it will be too late
The basic principle of RPD (Recognition-primed decision model) is that a FF on the scene mentally process similar past experience, apply what happened then to the current situation, and adapt their past decisions to fit the current situation. This is all done automatically, but the process can be actually be broken down into six stages; characterize, recognize, analysis, customize, dramatize and utilize.

Gary Klein
“When calling a “MAYDAY”, do NOT give up the radio button, until a complete “PCAN” report is given... Then acknowledge
Personal “MAYDAY” Survey

“I found myself disoriented and unable to find my way out, but I was too afraid of looking foolish in front of the other companies than I was of dying.”

Lt. Tom Westman, FDNY
IC Personal Survey

MAYDAY
IC
IC Personal Survey

4,179
Male: 4,098
Female: 81
ICs will not view a “Mayday” as a possibility, but as a probability
Considerations / Recommendation

DEMANDS OF THE INCIDENT

STRESS

STRESS

STRESS

CAPABILITIES
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
CONPONENT 2: In route to Incident – the IC

- How many incident had you been on prior to the Mayday? Average: … 6.5

In route to the Incident - the IC
- Did you have a FIT/BA/SO ride with you?  
  YES: … 24%
- Were you able to hear all the radio traffic in route?  
  YES: … 83%
- Were you a Mutual Aid IC?  
  YES: … 16%
- Did you order additional resources prior to your arrival?  
  YES: … 23%
- Was this your first Mayday incident?  
  YES: … 99%
- What was your response time: average…  
  11 minutes
- Command transferred  
  Once….57%  
  Twice…..37%  
  Three…. 6%
COMPONENT 2: Mayday Incident

**On Scene – Mayday Incident**

- Were you able to position yourself to see two sides of the structure?  YES: ... 54%
- Was the initial 1st engine, strategy correct (offensive/defensive)  YES: ... 94%
- Had there been 360 conducted prior to your arrival?  YES: ... 24%  Second 360... 34%
- Had RIT been established prior to your arrival?  YES ... 15%, then do you establish one.... YES ... 69%
- Had accountability been established prior to your arrival  YES ... 33% (Actual Accountability)
- Do you have enough resources for the incident, prior to the Mayday?  YES: ... 61%
COMPONENT 2: Mayday Incident

Acknowledge
YOU
Have
BLIND SPOTS
CONPONENT 2:  Mayday Incident

On Scene – Mayday Incident

- Was there too much radio traffic during the incident? ..... YES 31%
- Did you feel you had adequate crew and line placement? ..... YES 79%
- Did you switch radio channels for the Mayday? YES 56%
- 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%
MAYDAY COMMAND

- When a Mayday occurs:
  - Command should assign a Chief Officer or Senior Captain to be in-charge of the Mayday Rescue.
  - The IC should maintain control of the fire attack, gather additional resources.
  - Stay on original channel
  - Conduct a silent PAR

- IC NEED REHAB
COMPONENT 2: Post Mayday Incident

look for patterns of behavior

“TRIGGERS”
CONPONENT 2:  Post Mayday Incident

**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%
Your Comments:

- “STAY COOL, speak calmly and offer assurance

- “Assign an officer to run the rescue as soon as possible”

- “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”
Strategic Decision Making Model

- Size-Up of Critical Factors
- Risk Management
  - Forecast
  - Strategy
  - Incident Action Plan
- Tactical Objectives
INCIDENT ACTION PLAN

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

HOPE IS NOT A PLAN
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
PREDICTABLE
Is
PREVENTABLE
Gordon Graham
• Expect emotional mutiny, react quickly and control freelancing, re-enforce this with company officers and other command officers.

• IRIT/RIT/RIC whatever, if it’s a two or three person crew … good luck! You have checked off the box and made a joke of any rescue attempt. It really will take 4, 6 or 12 people.

• Never switch sides/division/sector names … unless necessary

• Estimate a time factor for rescue
• 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.
• Be proactive with ladders and lighting
• Call an additional alarm when you have a mayday.
• Always expect … the unexpected
• Ensure manageable span of control throughout the incident.
• Forecast and review, be prepared to switch strategy.
• Maydays are HIGH priority rescues
• Have a heighten awareness with vacant, abandon, hoarder structures, especially when deciding strategy.
• If we want safe and effective incident operations we must connect and align the three operational levels (strategic, tactical and task). This allows the IC to control and position all operating resources.

• Two types of Maydays
  Strategic and localized task level
  - Strategic mayday results from operating in offensive positions under defensive fire conditions, normally kills firefighters in bunches.
  - Task level maydays are localized events that occur to a firefighter or crew. These are situations typically involve becoming lost, trapped or missing.
• As the IC enforce fire ground SOPs/SOGs

• As the IC conduct tailboard debriefings after each structure fire. When there is a problem or things don’t go as expected, re-walk each companies actions in the fire structure.

• Listen to audio dispatch/fire alarm reports, re-visit the communications and seek improvements as necessary.
• 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
• 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
• Identify and direct hazard zone resources in order to address FF emergency
• Activate the RIT
• Delegate supervision of the RIT deployment
• Communicate survival procedures to FF experiencing the emergency
• Activate AHJ communication plan
• Perform incident PAR according to AHG procedures
• Modify the strategic plan
• Notify communication center
• Request additional resources (alarm)
• Put Chief Officers in forward locations, in charge of sectors, divisions, groups
**Fishers Fire**

**IC Worksheet**

**Comments / Recommendation**

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**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.

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### MAYDAY

<table>
<thead>
<tr>
<th>MAYDAY</th>
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<th>MAYDAY</th>
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<tbody>
<tr>
<td>Trapped, Missing, Injured, Out of Air</td>
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**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/ Beef Up RIT

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<table>
<thead>
<tr>
<th>MAYDAY RESOURCES</th>
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<tbody>
<tr>
<td>UNIT</td>
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</tbody>
</table>

**Catastrophic Event, Collapse, Loss of Water**

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

---

**RIT Committee - Versailles Fire Department**
Maydays are the precursors to firefighter LODDs. These incidents ruin firefighter’s careers and destroy fire departments.

Really good, professional fire departments manage themselves in a way that reduces or eliminate maydays from occurring in the first place. Using a true tactical level and a standard company work cycle that supports air management and sustaining the fire attack allows us to complete the tactical priorities without killing ourselves.
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
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%
AFTER THE MAYDAY

- Mayday personnel recovered, re-identified, removed
- RIT members all accounted for
- PAR for all workers in the Hazard Zone
  - Consider CSID
“Had a very difficult time, moving from rescue to recovery. Crews and other officers didn’t help”
Your Comments

YOU DO KNOW THE R IN R.I.T. STANDS FOR RAPID, RIGHT?
Rescue Team, RIT, Mayday Officer Survey

RIT
Rescue Team
Mayday Officer Crew
Rescue Team, RIT, Mayday Officer Survey
Rescue Team, RIT, Mayday Officer Survey

Rescue Team Officer, RIC Officer, Mayday Officer Personal Survey

3,429
The essence of training is to allow error without consequence.
Rescue Team, RIT, Mayday Officer Survey

RIT
Rapid Incident Team

Rescue Incident Team
NFPA 1407
Standard for
Training
Fire Service
Rapid Intervention
Crews
2015 Edition
<table>
<thead>
<tr>
<th>TABLE 4-1</th>
<th>Rapid Versus Extended Intervention Operations</th>
</tr>
</thead>
</table>

**Rapid intervention operation:**
- Usually limited to one SCBA cylinder
- Found quickly, obvious rescue (i.e., a grab and go!)
- RIC assists the fire fighter victim with self-rescue (i.e., light entanglement, disorientation in a small structure)
- RIC positions a ladder for a fire fighter in need of rescue (i.e., the fire fighter or company has been trapped by fire and needs to quickly exit a window)

**Extended intervention operation:**
- Organized search for a missing, trapped, or distressed fire fighter with an unclear location
- Use of a search (RASP) rope
- The fire fighter in trouble is in need of SCBA air immediately
- Multiple RIC teams have been activated or will be needed
- Entanglement
- Extrication (floor or ceiling collapse)
- Advanced life support (ALS) intervention (the fire fighter has experienced a traumatic injury or has a significant medical emergency and is possibly unconscious or unable to assist in his own rescue, including an initial MAYDAY radio communication)
- Initial RIC has consumed their SCBA supply and another team is needed to continue the search or assist in the rescue/removal
- Multiple fire fighters are in need of rescue (i.e., ceiling collapse trapping a company or floor collapse)
The rescue was done from the outside/in rather than inside/out.

IC's slow to take control of communications.

Accountability fragmented when using a "Rescue Branch".

The more out of balance the more freelancing.

Must be doing everything right before Mayday.

93% of successful rescues come from within the structure.
1 out of 8 IRIC/RIC/RIT has a MAYDAY
RIT used 21% more AIR than normal crews
Our research, based on Victims, ICs, IRIC/RIC DOES NOT WORK ...
It has not produced any desired results ...
- to few people
- not properly dressed
  - NO RIC bag
- mentally unprepared
  - NO plan
- NO back-up plan or team
IRIC, RIC, RIT Operations

ID the RIT

E-6 RIT ... E-11 RIT
Component 2: Rescue Team, RIT, Mayday Officer

PRE-MAYDAY ACTIONS:

- Number of RIT members:
  (2) 3% (3) 15% (4) 65% (5) 11% (6) 9%

- Was rescue/RIT given specific rescue instructions on:
  ... the problem ....... 61%
  ... method of rescue ....... 35%
  ... removal techniques ....... 21%

- Was RIT Bag obtained? YES 95%
Component 2: Rescue Team, RIT, Mayday Officer

RIT Bag Useage:

- Air .............................................. 183
  - low air ..... 151
  - out of air ..... 30
- Facepiece replacement...... 104 (77)
- Regular replacement ........ 9
- Wire Cutters ......................... 216
- Bolt Cutters ......................... 31

- Stoke Basket/Mega Mover, etc ........ 619
- Folding ladder ....................... 835
Component 2: Rescue Team, RIT, Mayday Officer

**MAYDAY RESPONSE:**

- Were you the initial rescue group: YES .... 32%
- The initial response was:
  - Mayday crew: .... 64%
  - Another Interior crew: .... 77%
  - RIT: .... 36% ..... On-deck (41%)
- Did you have difficulty locating Mayday victim? YES .... 37%
- Did entanglement occur? YES .... 15%
- Did victim require packaging? YES ..... 24%
Component 2: Rescue Team, RIT, Mayday Officer

- Was this your first real Mayday?  YES .....  99.6%

- Were you able to communicate with Mayday victim?  YES ....  92%

- Did you know the location of the Mayday victim prior to entry?  YES ....  59%

- How long did RIT physical rescue take: average 17 mins
Component 2: Rescue Team, RIT, Mayday Officer
Component 2: Rescue Team, RIT, Mayday Officer

**DID YOUR RIT, RESCUE HAVE A “MAYDAY”**

YES ….. 116 (1,306)

WHY ?
- Had NO real plan before entering.
- Rush into things without thinking them out.
- Did not follow original hose line, took short cut.
- Used way to much air!
- Too much radio traffic and suggestions
- (CO) did not process incoming information well
- Took too long to package victim.
- Crew became physical exhausted quick.

Did your RIT/Rescue have any injuries? YES … 7%
RIT/RIC LEADERS

“Personally, perhaps the most important issue brought to light through this incident is the realization that my expectations and assumptions concerning the deployment of a RIT were both inaccurate and unrealistic. While my previous Assumptions were totally Born out of a commonly held perspective from training, they were nonetheless ineffective and tragic”
- What was some of the problems that occurred during the rescue:
  - recommend, turning pass unit off and on for short periods of time
  - have a backup plan
  - don’t except much help from the victim
  - we took short cuts and cut corners, without regard for our own safety
  - more training, with sounds, debris, and radio traffic.
  - know your needs before you go
- "Too much unnecessary radio traffic"
- "Everybody rushed us as we came out the structure, making it difficult to move"
- "Had trouble multi-tasking"
- "Smoke detectors made it difficult to locate down FF from PASS alarm"
• Locating a firefighter in distress:
  - stop, listen, at times cease all activities
  - look for discarded tools and equipment, hose
  - check ceiling for beams of light
  - use a TIC

**Rapid Rescues are NOT rapid ....**

slow down, do it RIGHT the first time, be aware of your environment, don’t be surprised by anything. Be calm and reassuring, take the time to think through anything that you have never done before or hadn't been trained to do. There is a first time for everything.
• Equipment for an IRIC/RIT/FAST can be divided into two categories:
  - personal gear carried by a RIT member
  - team resources staged and ready
• Have a tarp, pre-marked with equipment location, everything that may be required for a RIT rescue (it will be noted what’s needed, missing or being used for the next RIT.)
• Listen to radio communication as what may be required for rescue, more air cylinders, special equipment.

• Don’t take short cuts and become another mayday

• RIT officer should know the strength and weakness of crew members, making sure each person has the right assignment.
California State Fire Training
Incident Management of Fire Fighter Emergency

Comprehensive program for fire fighter emergencies (Maydays)
**RECOMMENDATIONS**

*Firefighters and Company Officers:*

**Prior to Entry:**

- Wear ALL PPE (per SOPs or manufacturer design)
- 360 with target of determining arrangement of lowest level of structure (basement/crawl space) other safety concerns and hazards, affirm with physical access and verify with a TIC when possible
- Enter only with a line
- Establish crew awareness and maintain physical contact.
- Maintain physical fitness activities
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
RECOMMENDATIONS

RIT / RIT Officers:
- RIT officers conduct a 360 of the structure (if possible) and develop a plan
- Check-out RIT bag and other equipment
- Maintain air / time / conditions and situational awareness
- Make sure each member of the RIT knows the plan and their piece of the plan.
- BE PREPARED for anything
- Be realistic with the problem and the rescue
The CHECKLIST Manifesto

How to get things right

Atul Gawande
IAFF Fireground Survival Training Program
MAKE A DIFFERENCE
“The Life YOU save could be your OWN
IF YOU WISH TO SUBMIT A “MAYDAY”

Click Here

If you wish to view the 2015 Annual “Project Mayday” General Report, click on either CAREER or VOLUNTEER REPORT.

http://projectmayday.net/

“Saving Lives, Through Research and Learning”

“PROJECT MAYDAY”

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