

SAN FRANCISCO FIRE DEPARTMENT



**Safety Investigation Report
Line of Duty Deaths
133 Berkeley Way
June 2, 2011
Box 8155
Incident # 11050532**



LT. VINCENT A. PEREZ
4/09/1963 – 6/02/2011



FF/PM ANTHONY M. VALERIO
8/14/1957 – 6/04/2011

February 2012

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CHIEF OF DEPARTMENT LETTER

On Thursday, June 2, 2011 at 10:45 a.m., the San Francisco Fire Department responded to Box 8155, at 133 Berkeley Way. What was seemingly a routine working fire in a single family residence quickly transformed into a fierce and unrelenting incident with ultimately tragic results. When we answered the call to a career in the Fire Service and took our Oath of Allegiance, we were aware of the inherent danger of our occupation. Despite this awareness, we do not expect to encounter a line of duty death of a brother or sister, especially not in our very own Department. The profound loss of Lieutenant Vincent Perez and Firefighter/Paramedic Anthony Valerio has left an indelible impression in our hearts and will forever be remembered in the annals of SFFD history.

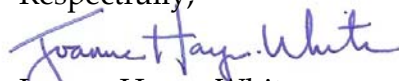
Even as we mourned our fallen brothers in the early days after the tragedy, our Department began the painful and difficult, but necessary, steps of a Line of Duty Death investigation. We were resolute in understanding what occurred during those fateful minutes and compelled to uncover any recommendations for improvement that may arise to future operations so that their passing will not have been in vain. For over six months, the Investigative Team worked tirelessly, scrutinizing every piece of evidence in order to produce a comprehensive report.

The attached Line of Duty Death Safety Investigation Report has been compiled through this extensive examination and analysis. I would like to acknowledge and express my gratitude and appreciation to the Safety Investigation Team who spent countless hours, weeks and months, to ensure that no piece of evidence, no matter how small, was overlooked. The members of the Safety Investigation Team included, retired Assistant Deputy Chief Frank Cardinale, Assistant Deputy Chief Jose Velo, Assistant Chief David Franklin, Lieutenant Richard Slattery, and Firefighter Shon Buford, as well as staff from the Division of Training who assisted with the compilation of research data. Completing this report was not an easy task for the Safety Investigation Team. Each phase of the process was an emotional challenge as every interview conducted and every piece of evidence examined relived and solidified the loss of Vince and Tony. The constant reminder of Vince and Tony's ultimate sacrifice and the desire to honor their memories kept the Safety Investigation Team strong and determined in their efforts.

I would like to dedicate this report to Vince and Tony, their families, and all of the men and women who were involved in the 133 Berkeley Way incident. We take to heart all the findings and recommendations in this report and will vow to do everything within our power to ensure a similar tragedy does not occur again in our Department.

Once again, I would like to again express my deepest sympathies to Mrs. Irene Perez, Mr. and Mrs. Frank Valerio and the all of members of the Perez and Valerio families. We will forever be grateful and blessed to have worked with and known Vince and Tony.

Respectfully,



Joanne Hayes-White
Chief of Department



LT. VINCENT A. PEREZ
4/09/1963 – 6/02/2011



FF/PM ANTHONY M. VALERIO
8/14/1957 – 6/04/2011

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DEDICATION

On the morning of June 2nd, 2011 Lt. Vincent Perez and Firefighter/Paramedic Anthony Valerio made the ultimate sacrifice. Both men died in the line of duty while making a valiant effort to extinguish a horrific blaze. Their tragic deaths have left behind many broken hearts, both in the San Francisco Fire Department and in their respective families. There are no words that can describe the pain and hurt that we all feel...no words that can even begin to do justice to the loss that we are left with.

Vincent and Tony were two men who had every gift but length of years. They were men who had dedicated their lives to serving others. Most importantly, Vincent and Tony were two men who were role models, not in how they died, but in how they lived every day.

While there is nothing we can do to change the outcome of that fateful day, we can learn lessons from this tragedy and make every effort to ensure that this does not happen again. By heeding the words of this report and by promising to implement the lessons learned, we pay the greatest tribute to Vince and Tony. By implementing the recommendations from this report, the San Francisco Fire Department will honor the courage, dedication and sacrifice that these men exhibited on that tragic day, and every day.

We dedicate this report to the Perez and Valerio families and we thank them for sharing two men who will not be forgotten.

Thomas P. O'Connor, President,
San Francisco Firefighters Local 798

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SAN FRANCISCO FIRE DEPARTMENT OVERVIEW

The City and County of San Francisco is 49 square miles with an approximate population of 825,000 residents. The weekday population increases to over 1.2 million people. San Francisco sits at the tip of a peninsula with the San Francisco Bay on two sides and the Pacific Ocean on the third side. San Francisco has two major freeways entering the City from the South, with the Golden Gate Bridge on the North and the San Francisco Oakland Bay Bridge on the East.

The San Francisco Fire Department (SFFD) is a paid department with a staff of approximately 1400 uniform members. The Department has 43 stations, which house 43 Engine Companies, 19 Truck Companies, 2 Heavy Rescue Squads and 2 Fire Boats. The Fire Operations for the City is divided into two Divisions that oversee nine Battalion Districts. The daily staffing for the Department is 294 on duty suppression members. The Fire Department also provides Emergency Medical Services and transport which is a separate Division within the Department. The Fire Department also provides fire protection services to San Francisco International Airport.

The SFFD utilizes the following response plan for all reports of for either smoke or fire in the building. A full box will be dispatched with a single phone call reporting either one. A full box consists of the following Companies and the staffing for each.

3 Engine Companies – each with 1 Officer and 3 Firefighters

2 Truck Companies – each with 1 Officer and 4 Firefighters

1 Heavy Rescue Squad – 1 Officer and 3 Firefighters

1 Division Chief – 1 Assistant Chief and 1 Incident Support Specialist

2 Battalion Chiefs – 1 Battalion Chief (3 out of 9 Battalion Chiefs have an Incident Support Specialist)

1 Medic Unit – 1 Paramedic and 1 EMT

Total personnel responding to a 1st alarm is 35 members.

Once a working fire has been confirmed by on-scene units, the response is upgraded to add the next due Engine Company as a RIC (Rapid Intervention Crew) and a Rescue Captain (as Medical Group Supervisor).

The average response time for the Department is approximately 3:30 minutes from the time of dispatch.

The Department of Emergency Management (DEM) is a separate department within the City. Within the DEM is the Division of Emergency Communications (DEC). The DEC handles all 911 calls plus dispatches for both the Police and Fire Departments. The SFFD has line Officers assigned to the DEC to oversee Fire Department dispatch operations, along with assisting the civilian Dispatchers during major incidents.

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SAFETY INVESTIGATION TEAM

The Chief of the Department directed the Department Safety Officer to conduct a Safety Investigation of this incident. The Safety Investigation Team of the San Francisco Fire Department consisted of Assistant Deputy Chief Frank Cardinale, Assistant Chief David Franklin, Battalion Chief Jose Velo, Lieutenant Richard Slattery and Firefighter Shon Buford. The Safety Investigation Team began gathering evidence, conducting interviews and sketching diagrams immediately. All of this information has been analyzed to assist in providing recommendations to the Department.

The primary purpose of this investigation is to identify and analyze the contributing factors that led to this incident as well as to create situational awareness to prevent future occurrences. The Safety Investigation Team has examined the details of the incident over the past months. The main objective of the Team's investigation and subsequent report is to discover the key factor that led to the fatal outcome of two Firefighters. This report contains the findings and recommendations to help prevent Firefighter injuries or fatalities in the future.

In analyzing and recording these events, the Investigation Team acknowledges and respects that members confronted a challenging situation. On-scene personnel reacted quickly to the changing conditions at this incident. We request that every person who reads this report show respect, appreciation and consideration for all personnel who responded to this incident.

As is a common industry practice, for this report Lieutenant Vincent Perez will be referred to as Victim 1 and Firefighter Paramedic Anthony Valerio will be referred to as Victim 2, with the exception of the *Rescue Events* Section.

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EXECUTIVE SUMMARY

On June 2, 2011 at 10:45 hours, the San Francisco Fire Department was dispatched to a report of a fire in the building at 133 Berkeley Way in the City's Diamond Heights neighborhood. The first unit arriving on the scene, Engine 26, observed light smoke showing from the garage of the 4 story (2 above grade, 2 below grade) wood framed building, detached on the Bravo side. An aggressive interior fire attack was initiated through the front door, which is on a level between the ground level and second floor. After investigating the garage (ground level), Engine 24, the second Engine on the scene, led a small line through the garage to the interior door to back up the first Company. Battalion 9 was assigned Fire Attack by Battalion 6, who had assumed Command. Battalion 9 entered the fire building and, after conferring face to face with Engine 26 on the first floor (ground level), concluded that the fire was below them. Battalion 9 exited the building and proceeded to the Bravo side to check for an entrance leading directly to the fire floor.

Engine 11 led a large line wye to the driveway with the intention of leading a 1 ¾ inch line through the garage. They were redirected by Battalion 6 to make their lead down the Bravo side of the building to Sublevel 1 (one floor below grade) to assist Battalion 9. The Division Chief, upon arrival, assumed Command. He assigned Battalion 6 to Division 3 (ground floor). Truck 15 was assigned Roof Division. Truck 11 split their crew, two members to the roof and three members to search and ventilate the top floor of the fire building. The Rescue Squad was ordered to conduct a search. Two members initially attempted to make entry through the garage but, due to extreme heat conditions, redeployed and entered through Sublevel 1 on the Bravo side. The other two members of the Rescue Squad made entry through the front door, were pushed back by the heat and then made a successful second effort and conducted a search of the top floor.

In the course of fireground operations, members of several Companies came upon the stricken members on the first level and removed them from the building. All possible efforts were employed to revive the members and they were transported to San Francisco General Hospital (SFGH). One member (Victim 1) succumbed to his injuries that day and the second member (Victim 2) succumbed to his injuries two days later. Two other Firefighters were treated at SFGH for various injuries and released that day.

The Medical Examiner determined the cause of death for both members was due to complications from external and internal thermal injuries. Both victims suffered burns to 40% of their body surface.

This fire was determined to be accidental by the SFFD Fire Investigative Unit. The fire originated on Sublevel 1, on the West side of the family room, near the large floor to ceiling windows. The ignition was a non-specific electrical sequence in the electrical wiring or appliance (handheld vacuum cleaner) in this area. There was a delay in reporting the fire due to the occupants' attempting to extinguish it on their own. (SFFD Fire Investigation Report 11-0500532)

The investigation identified that the failing of the window on Sublevel 1, located near the seat of the fire and directly across the stairwell leading to the ground floor, led to the extreme fire behavior which ultimately caused the death of two Firefighters. This fire was in a stage of deprived oxygen when the window failed, causing a rapid extreme high heat event to occur. The extreme heat followed the natural flow path up the interior stairs where Victims 1 and 2 were located.

The Safety Investigation Team found no conclusive evidence that the members were exposed to direct flame impingement during this rapid extreme heat event. However, Victims 1 and 2 received varying degree of burns up to 40% of their body. The investigation concluded that this was caused by the rapid extreme heat conditions that radiated through their Personal Protective Equipment (PPE) to their bodies. These temperatures exceed the ability for human survival regardless of PPE.

The PPE was inspected and evaluated by NIOSH and the manufacturer. Both reviewing parties concluded that the PPE performed to its specifications and design. The manufacturer concluded that the PPE was exposed to temperatures in the range of 550-700°F. These extreme temperatures were short in duration which caused limited damage to the outer shell of the PPE.

The Safety Investigation Team noticed severe heat damage to the portable radios remote speaker/microphones on Victims 1 and 2 and had the radios tested. The testing indicated that the remote speaker/microphones failed to operate correctly due to heat damage. The Safety Investigation Team was not able to determine, after testing, exactly when the remote speaker/microphones failed. The investigation has shown that multiple attempts were made to contact Engine 26 with no response. The investigation also found that no radio transmissions of distress were received from Victims 1 or 2.

Command and Control of any incident in the San Francisco Fire Department is acquired and maintained through the use of the Incident Command System (ICS). The Incident Command System provides the tools for clear objectives, a single action plan, clear and acknowledged communications, and accountability for all members assigned to an incident. At this incident, some of the components of Incident Command System that were not followed include:

- Single action plan
- Fireground Accountability

From these findings, this report makes recommendations for several areas of the Department, including:

- Training
- Equipment
- Policy Development
- Policy Enforcement

The Safety Investigation Team gathered and analyzed many facts and conducted interviews of members directly involved in this incident. The Team identified several factors that occurred that contributed to the deaths at this incident.

These factors include:

- Extreme heat conditions accelerated by the failure of a window on the fire floor.
- Layout of building
- Excessive live fuel load which contributed to the growth of the fire

Conclusion

This incident appeared from the onset to be a routine “room and contents” fire that the SFFD encounters on a regular basis. As the Companies were performing standard fireground operations, the incident rapidly deteriorated due to a hostile fire event. The failure of a window in the fire room allowed fresh oxygen to enter the room, providing a fire that was deprived of one of the key elements of combustion to rapidly intensify. Due to the growth of the fire, the room flashed, causing extreme and rapid heat conditions which traveled up the interior stairs (the flow path) to the location which our members were operating. Our members were caught in this high heat, causing the injuries that ultimately claimed their lives. Due to this fire event, other Companies attempting to conduct fireground support operations were prevented from making entry into the structure from street level (through garage) to back up Engine 26. These Companies were forced to regroup and find an alternate point of entry. In the process of doing so, crews made entry from the Bravo side directly into the fire room and extinguished the fire. This allowed members to make entry from above which led to the discovery and rescue of our members. These events happened in a time frame of less than fourteen minutes.

During the course of this investigation, the Safety Investigation Team recognized that no matter how experienced or properly prepared we are, we must always approach all incidents with the utmost awareness. This incident showed that a simple failure of a piece of glass/window caused unforeseeable and fatal consequences.

We, as a Department, need to gain further knowledge and understanding of the following:

- Having Situational Awareness prior to taking action, this would include the ongoing process when conditions change
- How Risk Management must be used when making all decisions
- Limitations of the PPE (turnouts, SCBA, and equipment)
- Building construction, including layout and how fire/smoke will move within the structure
- Ventilation practices and how they affect fire conditions
- Importance of Communications for all members operating on the scene
- Companies must use strict discipline when assigned task/locations

INTRODUCTION

Safety Investigation of 2/2 Box 8155
133 Berkeley Way
June 2, 2011
10:45 hours
Incident #1150532

On June 2, 2011, at 10:45 hours, four Firefighters were injured in an occupied, single family 4 story, type 5, wood framed building, at a first alarm fire. Two Firefighters succumbed to their injuries. Two other Firefighters were treated and released from the hospital.

The Safety Investigation Team identified the following areas of focus, including:

- Fireground Operations
- Fireground Communications
- Fireground Accountability including Personnel Accountability Reports (PAR) Procedures
- Personal Protective Equipment (PPE)
- Rapid Intervention Crew (RIC) procedures
- Portable Radios and their accessories
- Division of Emergency Communications

The Safety Investigation Team would like to acknowledge the following outside resources that assisted in reviewing and analyzing the information that was gathered during the investigation: San Francisco Department of Public Health, Dr. Ellen Moffatt (Office of the Medical Examiner), San Francisco Police Department including the Crime Lab and Arson Task Force, San Francisco City and County Department of Technology, Lion Apparel, Lieutenant John Ceriello (FDNY), Chief Rick Kolomay (Carol Stream, Illinois), Dan Madrzykowski (NIST), Chief (ret.) Bruce Varner (Santa Rosa, California), Chief (ret.) Alan Brunacini (Phoenix, Arizona), Angie Shepperd (NIOSH), Mike McKenna, (McKenna and Associates).

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STRUCTURE DESCRIPTION

Site overview: Steep downhill slope adjacent to Glen Canyon

Date of Construction: 1975

Building overview:

- Attached garage located in the front of the house. Main structure is 2 stories above grade and 2 stories below grade

Type of Construction:

- Four story, Type 5 wood framed, single family home, detached on three sides
- Approximate square footage: 4,000 sq ft.
- Four stories of living space
 - First Floor (Ground floor): garage, 3 bedrooms, 2 bathrooms
 - Second floor: dining room, living room, kitchen, bathroom and family room
 - Sublevel 1: large family room (origin of fire), mechanical room, bathroom, bedroom, balcony, side entrance on Bravo side
 - Sublevel 2: enclosed finished storage area, bathroom (no windows)
- Construction features:
 - Roof type: Flat roof, bitumen roofing membrane, normal dimensional lumber
 - Exterior: siding T1-11 plywood, 5/8"
 - Interior: drywall over normal insulated framing
 - **Note: Fire origin room had decorative plywood veneer panels over drywall**
 - Steel I beams wrapped in drywall were used as structural supports
 - Note: Fire origin room had a steel I beam that spanned horizontally from Bravo to Delta side
 - Rear of structure had extensive use of glass to capture views, including windows and sliding doors
 - Second floor and Sublevel 1 (fire origin) had large balconies
 - Flooring consisted of tile, carpet and sheet vinyl throughout the house
 - Dual glazed windows throughout, installed in 2003

- Ground level had a two car garage with access to residence
 - **Note: Two large vehicles occupying garage at time of fire**
- Main entrance was accessed by ascending a flight of stairs adjacent to the garage
 - **Note: Main entrance stairs led to an interior landing which allowed access to top floor (5 stairs up) or grade level (7 stairs down)**
- Sublevel 1 had an access door from the exterior Bravo side along with access from interior stairs
- Sublevel 2 had access door from exterior Bravo side. (no interior access)
 - **Note: Access through the Bravo side was difficult due to unfinished terrain and poor housekeeping**



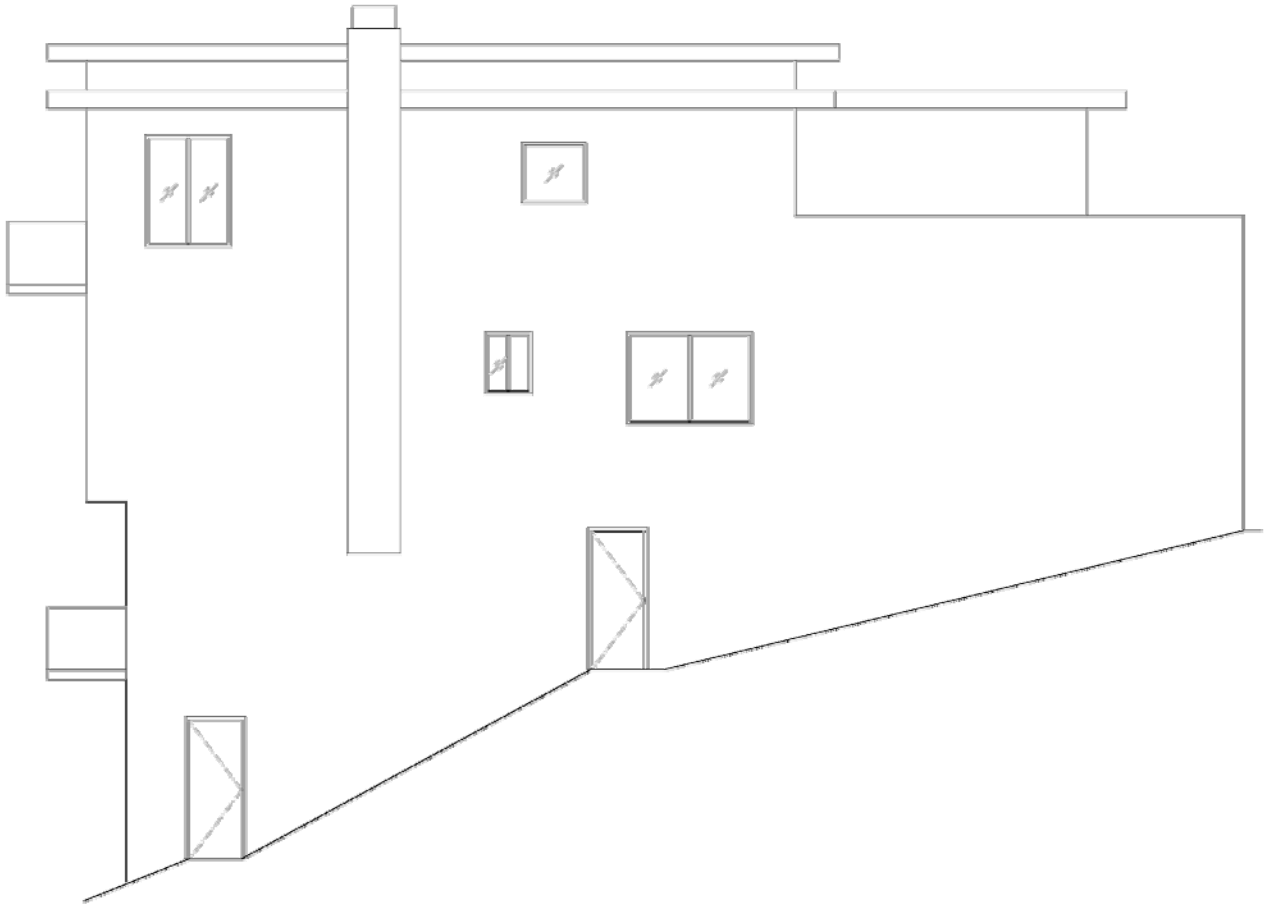
Aerial view of 133 Berkeley Way (Courtesy of Google maps)



FRONT ELEVATION



ALPHA SIDE



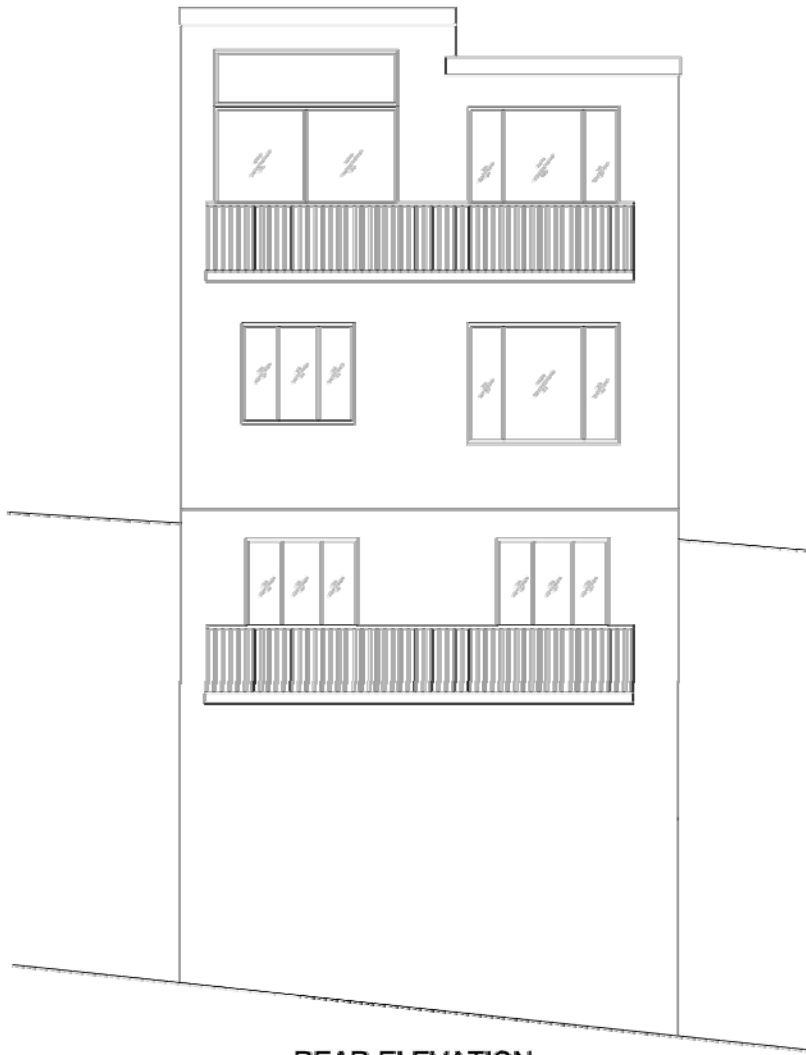
SIDE ELEVATION

133 BERKELEY, SAN FRANCISCO, CA

BRAVO SIDE



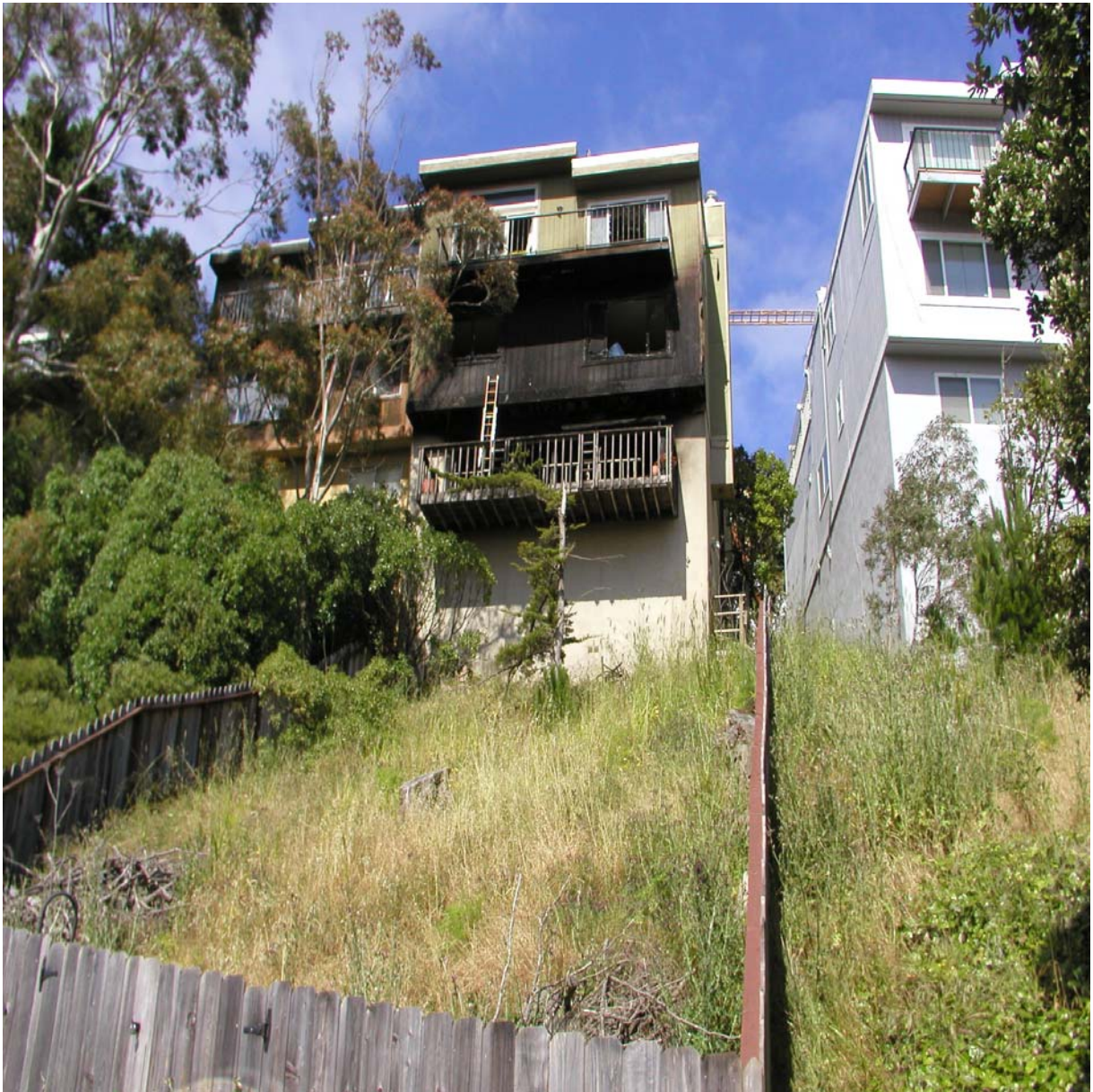
BRAVO SIDE (rear view)



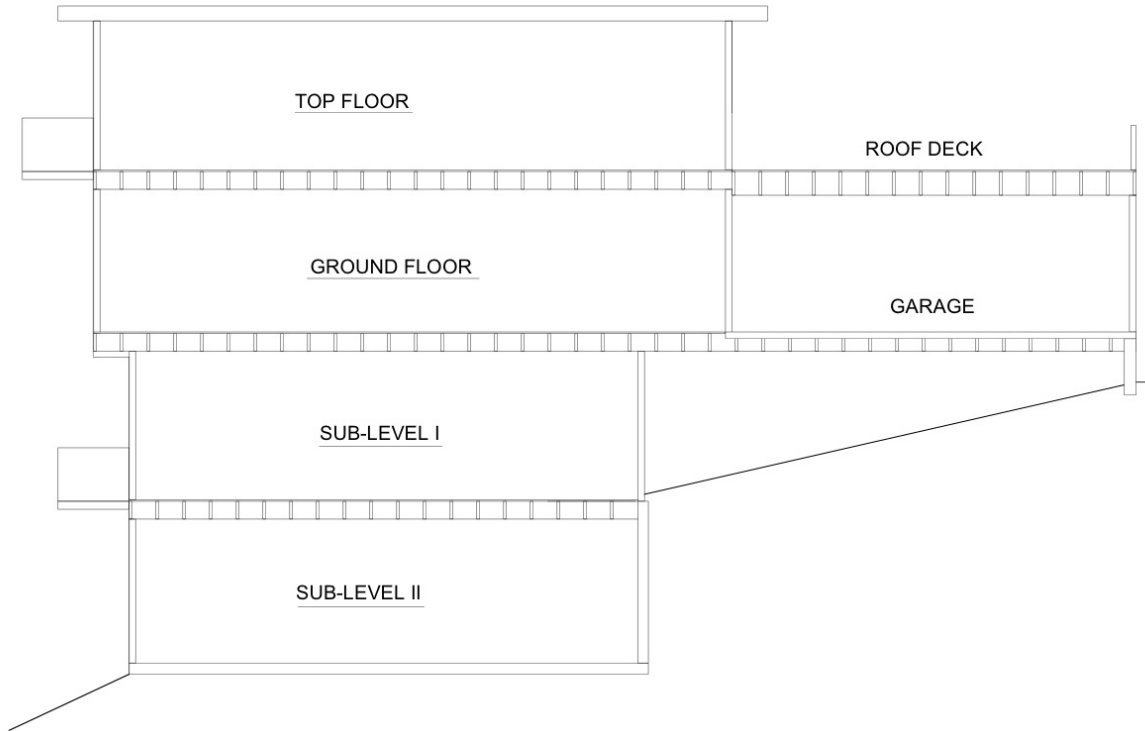
REAR ELEVATION

133 BERKELEY, SAN FRANCISCO, CA

CHARLIE SIDE

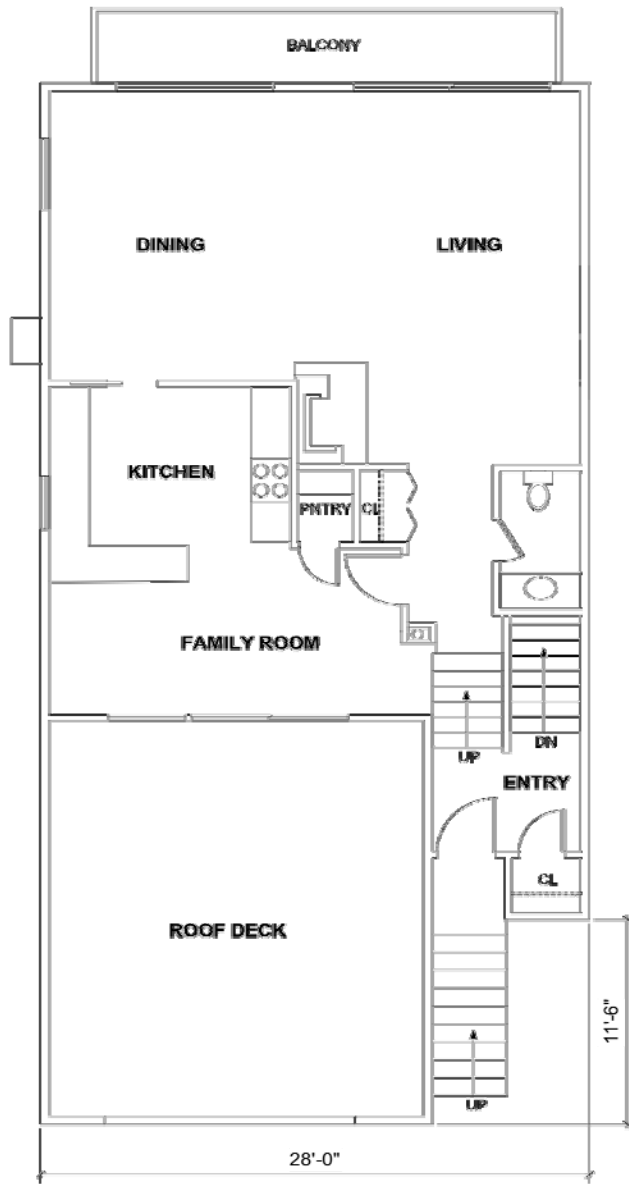


CHARLIE SIDE



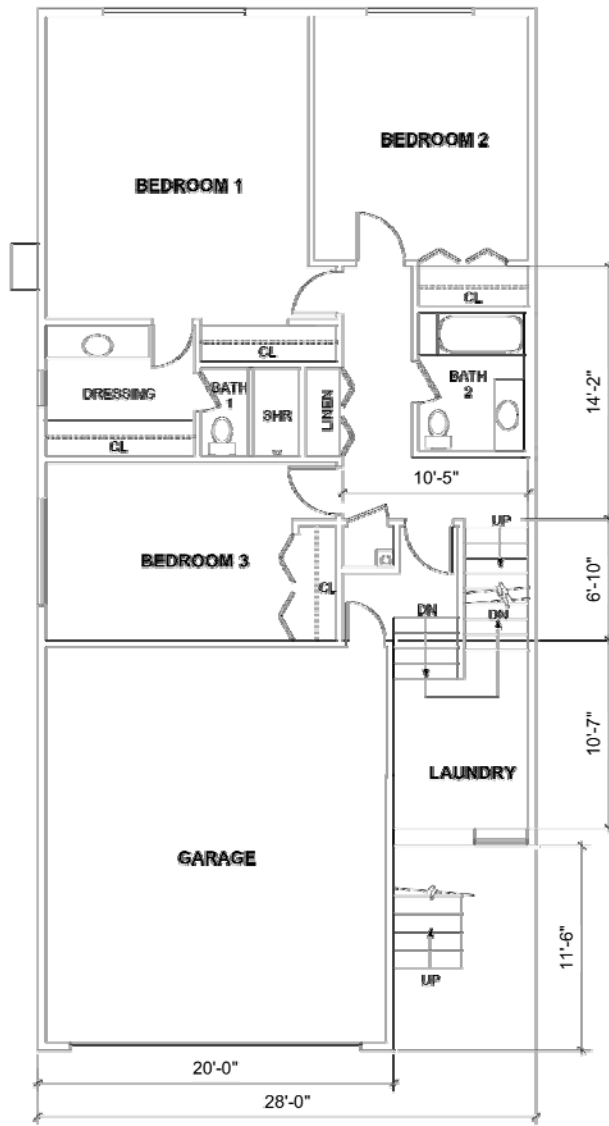
SECTION

133 BERKELEY, SAN FRANCISCO, CA



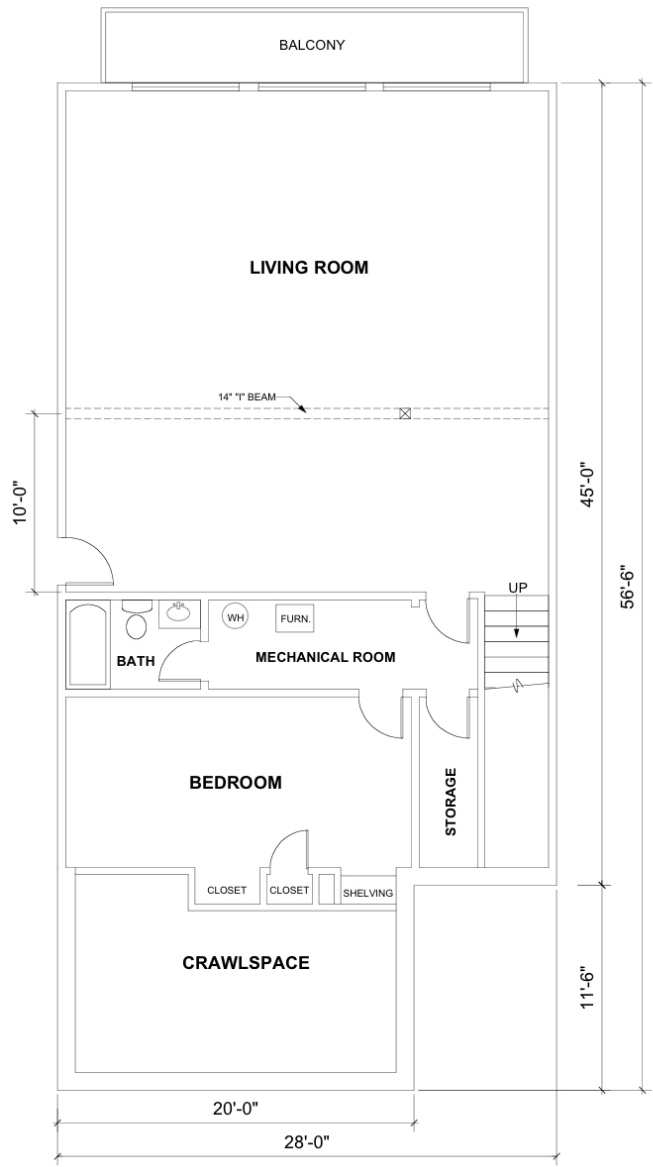
SECOND FLOOR PLAN
SCALE APPROXIMATE

133 BERKELEY, SAN FRANCISCO, CA



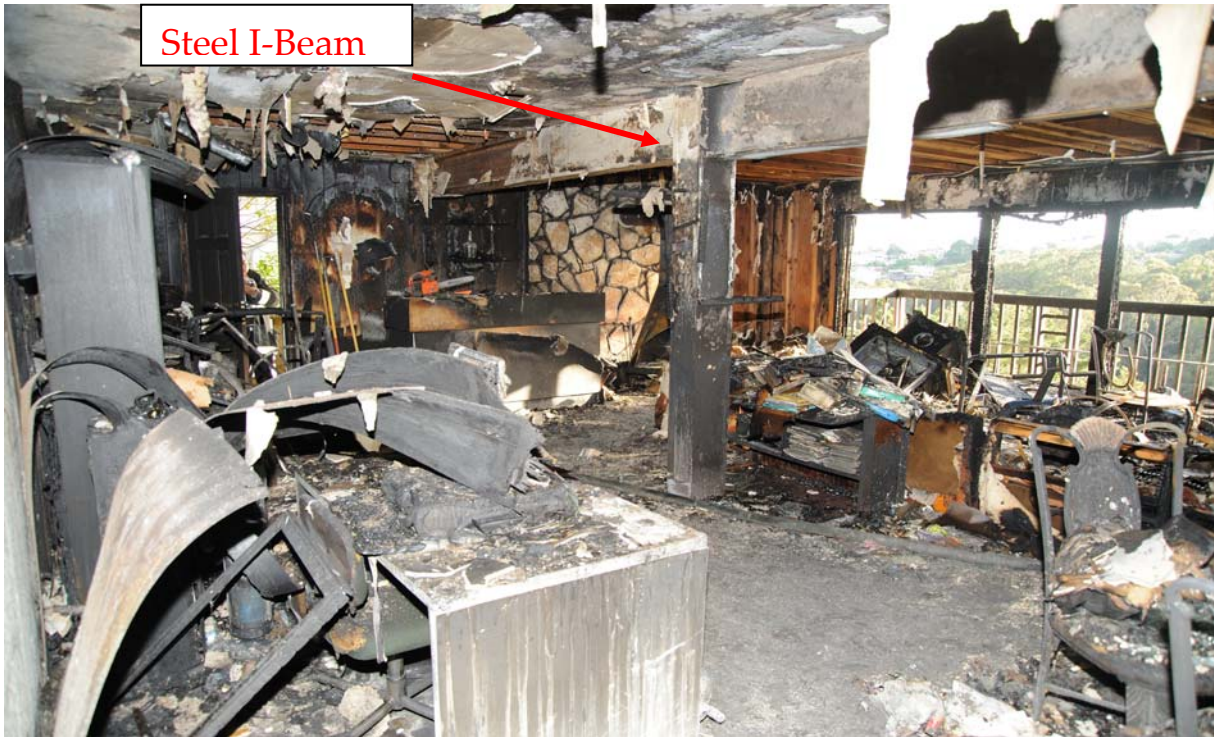
GROUND FLOOR
SCALE APPROXIMATE

133 BERKELEY, SAN FRANCISCO, CA

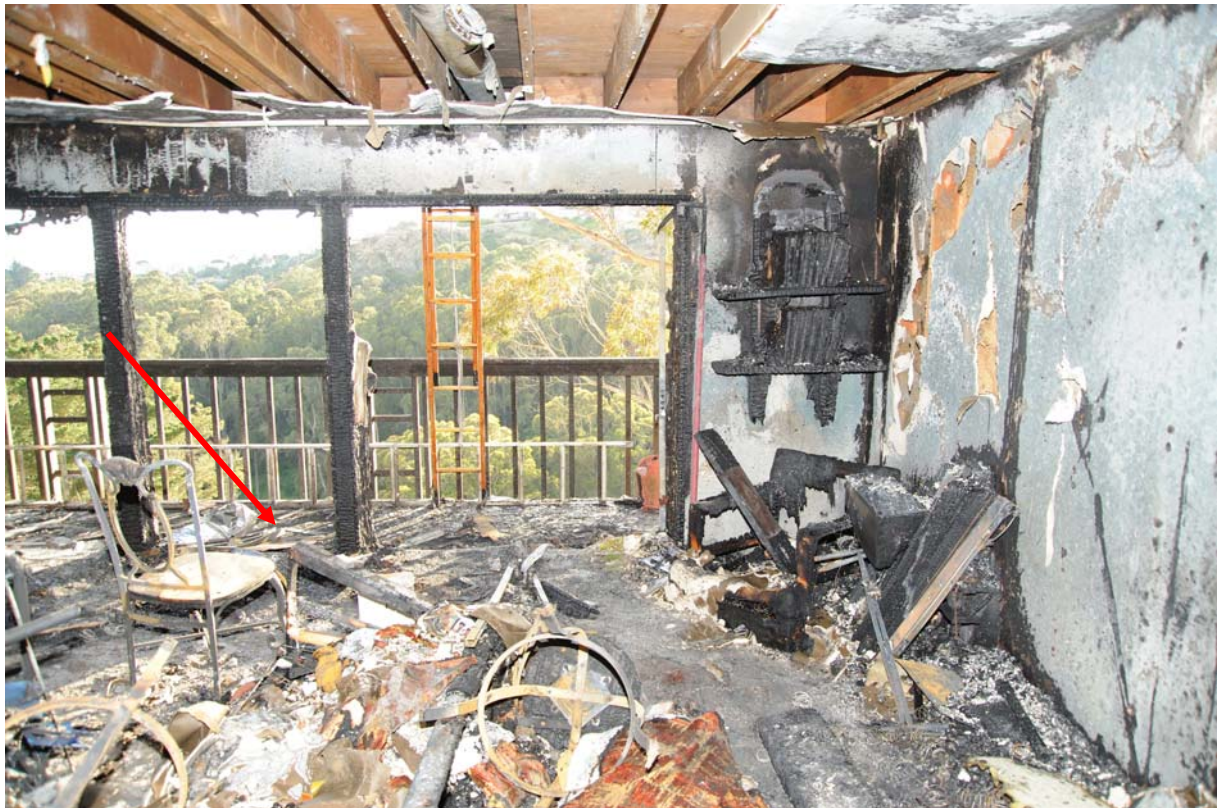


SUB-LEVEL I
SCALE APPROXIMATE

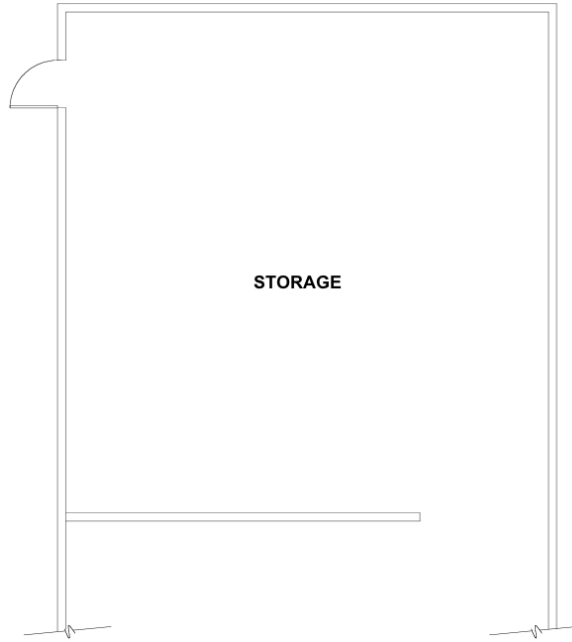
133 BERKELEY, SAN FRANCISCO, CA



Sublevel 1 (Fire Room) with steel I beam.



Sublevel 1 (Fire Room) Charlie/Delta corner with arrow on point of origin



SUB-LEVEL II
SCALE APPROXIMATE

133 BERKELEY, SAN FRANCISCO, CA



Sublevel 2 access door



Sublevel 2 looking from door

TIME OF DAY AND WEATHER

10:45 hours, Temperature 57 degrees (F), wind speed, 5.7 mph (South)
See Attachment B - Weather Report

DISPATCH TIMELINE

See Attachment C - CAD

Initial Dispatch

10:45:01 E26, E11, E24, T11, T15, B06, B09, B10, RS1, M74
(D3 replaces B10)

Working Fire

10:50:50 E32 (RIC), RC3

Replacement RIC

11:01:44 E20

Additional personnel:

11:09:09 M95, M57

11:09:18 CD2

11:10:33 B2 RIC

11:11:24 RC2

(B2 self dispatched to assist in RIC operation)

Second Alarm

11:11:50 E39, E06, E07, E09, T12, AR1, MA1, BE1

Additional personnel

E15, RS2, B8, D2

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INITIAL ACTIONS

The following is a summary of initial actions taken by Fire Department units prior to the rescue of two Firefighters:

ENGINE 26

Engine 26 responded staffed with one Officer and two Firefighters. Engine 26 arrived on scene at 10:47:58. The Officer (Victim 1) reported *“light smoke coming from garage, more to follow”*. Initial actions were to bring a CO2 extinguisher and a water extinguisher (initial dispatch indicated electrical fire). After conferring with the resident, Victim 1 directed crew to stretch 200 ft. ready line. Victim 1 updated Battalion 6, *“this is a working fire, looks like at the third level of this three story wood frame house”*. Victim 1 reported to Battalion 6 that they were making a lead from top down to the fire that was below grade.

Engine 26 (Victims 1 & 2) advanced the 200 ft. 1 ¾ inch ready line up the front exterior stairs and down the interior stairs to the bedroom level (ground level). Victim 1 gave another report to Battalion 6 *“We’re still looking for it. Zero visibility, more to follow”* (10:52:40) (last radio transmission by Engine 26). (See Diagram 1)

FINDINGS

Engine 26 responded with one Firefighter understaffed due to a Self-Contained Breathing Apparatus (SCBA) mask fitting test. Victim 1 met face to face with Battalion 9 (Fire Attack) and stated that the fire was below them. Battalion 9 replied that they were going to attack the fire from the side. Engine 26 did not exit the building with Battalion 9. Engine 26 did not respond to seven attempts to contact them by radio. Based on measurements, the amount of the 200 ft. 1 ¾ ready line that was deployed into the building was approximately 30 feet. This would have allowed Victims 1 and 2 to advance to the set of five stairs leading down to the laundry area. Both Victims were found in full PPE, including SCBA masks and hoods.

ENGINE 11

Engine 11 responded staffed with one Officer and three Firefighters. Engine 11 supplied Engine 26 from the corner of Craggs Court, North of the fire building, at Berkeley Way. Engine 11 pulled a 3 inch line with a wye and laid it out in front of the garage and proceeded to attach a 1 ¾ bundle to it. Engine 11's initial actions were intended to lead the 1 ¾ line through the garage and enter the house through the doorway leading from the garage to the house, however Engine 11 was redirected by the Incident Commander (IC) (Battalion 6) to advance the line down the Bravo side and assist Fire Attack (Battalion 9). Engine 11 advanced their 1 ¾ line down the Bravo side and met with Fire Attack (Battalion 9) who forced entry on the Sublevel 1 door. Engine 11 then proceeded to attack and extinguish the fire in Sublevel 1. **(See Diagram 1)**

FINDINGS

Engine 11 had to reconnect the wye due to an Engine 24 Firefighter attempting to connect a 2 ½ inch hoseline to the 3 inch line. During Engine 11 fire attack, they encountered heavy smoke from the Sublevel 1 door and, after opening the nozzle, heavy fire rolled above them, forcing one member back, and causing 1st degree burns to the neck. The fire room was fully involved. With a second effort, Engine 11 was able to advance the hoseline and extinguish the fire. The injured Firefighter was transported to San Francisco General Hospital and released after treatment.

ENGINE 24

Engine 24 responded staffed with one Officer and two Firefighters. Engine 24 supplied Engine 26 from a low pressure hydrant midblock on Berkeley Way. Engine 24 Officer entered the garage and located the door leading from the garage into house. Engine 24 Officer ordered the Firefighter/Paramedic to "get a large line" (member proceeded to Engine 26 apparatus and got a 2 ½ inch hose bundle). Engine 24 Officer opened the door and encountered heavy smoke conditions, floor to ceiling, with light heat conditions. Engine 24 Officer heard movement of people inside the vestibule area, and assumed this was the crew of Engine 26. Engine 24 Officer determined that leading a line through this door would be the easiest way to provide back up. Engine 24 Officer exited the garage, proceeded to Engine 26 apparatus and deployed the 150 ft 1 ¾ inch ready line. Engine 24 Officer returned to the doorway in the garage that led into the house, opened the door again and encountered heavy smoke and extreme heat conditions, which prevented them from making entry. Engine 24 Officer did not hear any movement of people inside the doorway at this time. Engine 24 Officer opened the nozzle briefly to try to cool down heat conditions, but shut the hoseline down out of concern that it would force heat/fire onto the crew of Engine 26.

After a couple of attempts, Engine 24 was unable to make entry through garage door due to extreme heat conditions. Engine 24 redeployed the 150 ft. 1 ¾ inch ready line through the front door and down the interior stairs, following Engine 26's initial ready line. Battalion 6 simultaneously gave the order to back up Engine 26 through the front door. While entering the front door, Engine 24 encountered heavy smoke conditions but moderate to light heat conditions. Engine 24 Officer, while advancing the line, came across Victim 1. Victim 1 was located at the top of the stairs in the vestibule, face down, unconscious, unresponsive with SCBA on (see Rescue Event Section). Firefighter/Paramedic of Engine 24 discovered Victim 2. Victim 2 was located in the hallway, just outside bedroom 1 and the bathroom, face down, unconscious and unresponsive, with SCBA on (see Rescue Event Section). Engine 24 Officer attempted to make a radio report of "Firefighter down" but was unable, due to radio traffic. Engine 24 Officer located the door leading to garage and proceeded to move Victim 1. Engine 24 Officer was notified by Engine 24 Firefighter/Paramedic that he located Victim 2. Engine 24 Firefighter/Paramedic brought Victim 2 partially to doorway but was blocked by the Engine 24 Officer who was attempting to move Victim 1. Engine 24 Firefighter/Paramedic exited the garage and verbally notified (via line of sight) the Incident Commander (Division 3) of two Firefighters down and the need for assistance. Engine 24 Officer received assistance from Rescue Squad 1 Officer (Team 1A) and Engine 24 Firefighter/Paramedic in carrying Victim 1. Victim 2 was carried by a Rescue Squad 1 Firefighter (Team 1A) and a Firefighter from Truck 11. Engine 24 Officer and Engine 24 Firefighter/Paramedic assisted with the medical care of Victim 1. **(See Diagram 1)**

FINDINGS

Engine 24 responded with one Firefighter understaffed due to member being authorized to obtain meal supplies for the Company. There was also a misunderstanding of terminology of hoseline selection. Engine 24 Firefighter/Paramedic thought his Officer was requesting a large line (2 ½ inch attack line), while Engine 24 Officer was actually requesting a 3 inch line with a wye. After hearing members of Engine 26 inside the door to the vestibule on the ground floor, Engine 24 Officer decided to lead a 150 ft. ready line through the garage to back up Engine 26. Aware that this line was 50 feet shorter, Engine 24 Officer felt he could reach them quicker this way. Engine 24 Officer was positioned on the nozzle. Engine 24 Officer does not recall hearing a Personal Alert Safety System (PASS) alarm until Victim 1 was moved. Engine 24 Officer does remember seeing strobe light from PASS device while moving Victim 1. Engine 24 Officer indicated that he attempted to radio "Mayday" but was unable to, due to radio traffic. Engine 24 Firefighter/Paramedic, concerned about Victim 2 suffocating, quickly removed the Victim's SCBA and checked for any signs of breathing. Engine 24 Driver secured the garage door by placing visegrips on the door channel. Engine 24 Officer received a burn to his ear and was later transported to San Francisco General Hospital and released after treatment.

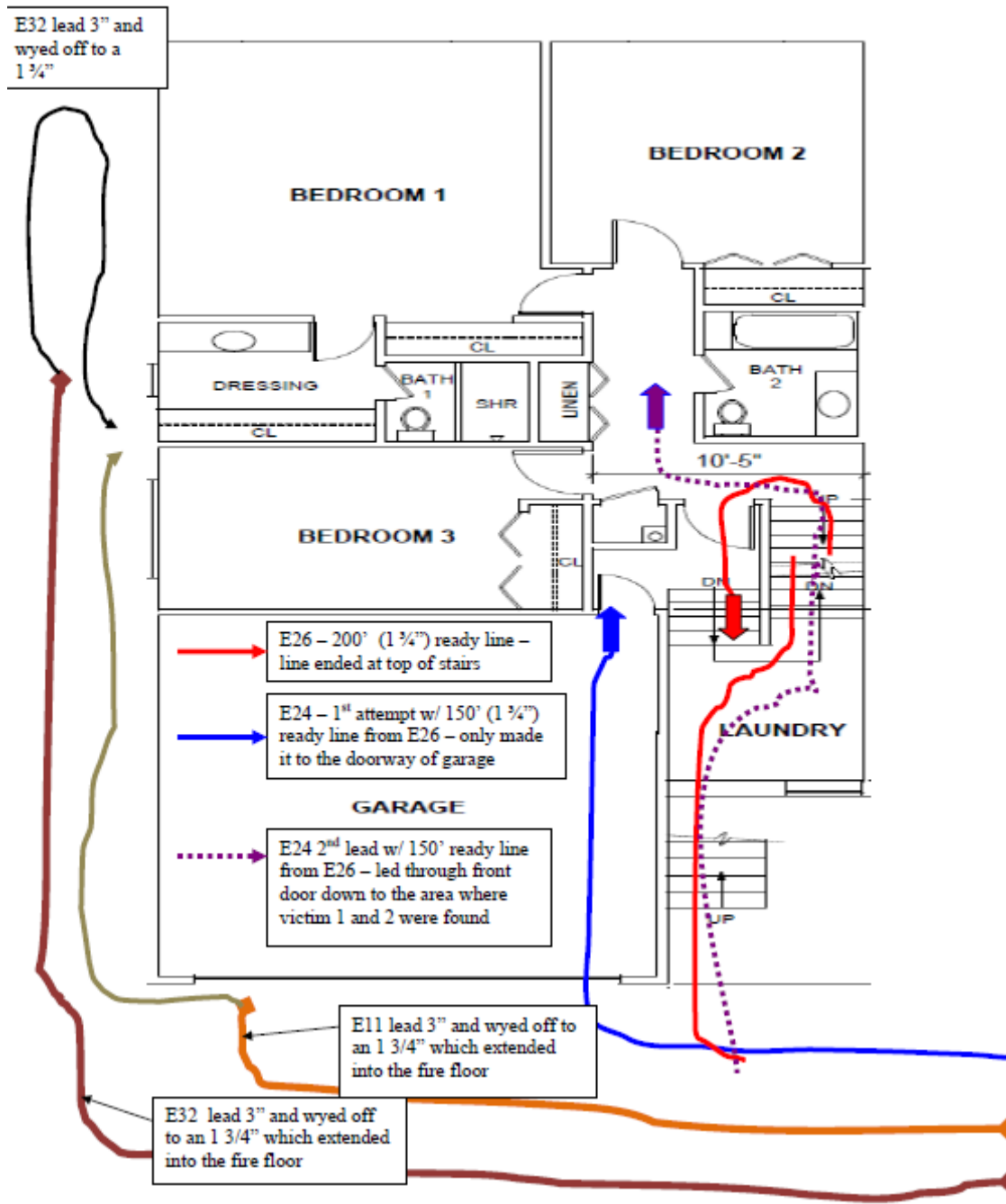


Diagram 1

TRUCK 11

Truck 11 responded staffed with one Officer and four Firefighters. Truck 11 parked apparatus in front of Exposure Bravo 2 and Bravo 3. Truck 11 laddered Bravo building and sent two members with saws to conduct roof operations. Two members on the roof reported to Truck 11 Officer that the building was detached. The members then bridged across the buildings with a 22 ft. fire escape ladder and assisted Truck 15 with ventilation. Truck 11 Officer and two Firefighters checked with Command (Division 3). Truck 11 Officer was assigned interior with Battalion 6. Truck 11 proceeded to the top floor and conducted primary search and ventilation operations. Truck 11 Driver followed the hoseline down to the ground floor where he discovered Victim 2 in the doorway to the vestibule. He joined Firefighter from Rescue 1 Team A in removing Victim 2 through the garage. Truck 11 Officer, upon hearing Command requesting assistance in front of the building, ordered his crew off of the roof and assisted with airway management and CPR of both victims.

FINDINGS

Truck 11 Officer laddered the Bravo building because Truck 15 had just laddered the fire building. Truck 11 Officer was notified by the crew that the Bravo exposure was detached. Upon receiving this information, Truck 11 roof crew bridged from the Bravo building to the Fire building (see picture next page). Officers should thoroughly size up a structure before committing to a course of action to ensure safe and effective ladder placement. Bridging the buildings was not the proper course of action for this situation. A safer alternative would have been to ladder the Delta exposure which is connected to the fire building and is similar in height. Truck 11 Driver became separated from the Officer and proceeded to go down the stairs instead of up the stairs. Truck 11 Driver stated that he did not know who he was with.



Truck 11 bridging between Bravo and the Fire Building. Bridging is an extremely dangerous maneuver and should only be used in an emergency/life saving situation.

TRUCK 15

Truck 15 responded staffed with one Officer and four Firefighters. Truck 15 parked in front of exposure Delta 5. Truck 15's crew proceeded to ladder the fire building with a 35 ft. ladder on the Bravo side to the garage roof. They opened the sliding doors on the top floor and heavy smoke came out of those doors. Truck 15 laddered the roof with a ridge ladder from Truck 11. The Incident Commander assigned Truck 15 as Roof Division. Two Firefighters from Truck 15 entered the top floor from the garage roof to initiate a search. The Officer and two Firefighters proceeded to the roof and joined two Firefighters from Truck 11 and opened a ventilation hole in the roof.

FINDINGS

Truck 15 split their crew but did not inform the Incident Commander of this fact and therefore, the Incident Commander did not have a true account of where personnel were on the fireground. This caused a duplication of efforts on the top floor with multiple Companies searching the same floor.

RESCUE SQUAD 1

Rescue Squad 1 responded staffed with one Officer and three Firefighters. Rescue Squad 1 parked in front of Bravo 4. Rescue Squad 1 Officer split his crew into Rescue 1 Team A (RS1A) and Rescue 1 Team B (RS1B). RS1A was comprised of the Officer and a Firefighter. RS1B was comprised of the Driver and a Firefighter. RS1A entered through the garage, meeting up with Engine 24 at the door to vestibule. RS1A, along with Engine 24, made two attempts to gain entry into the building (residence) through the garage door and was confronted with an extreme heat condition emanating through the entry door into the garage. Due to these conditions, RS1A decided to withdraw and look for an alternative way of entry. Visibility was very low at this time, to the point that the Firefighter of RS1A believed someone closed the garage door. RS1A Officer signaled by hand gestures to Division 3 from the edge of the garage that RS1A would go to the Bravo Side and RS1B would go above the fire, to the second floor.

RS1A then proceeded down the Bravo side, checked the rear of building, and then the Sublevel 2. RS1A then followed Battalion 9 and Engine 11 into the fire room. Upon entering the fire room, RS1A split into a Left hand and Right hand search and proceeded to perform a primary search on the fire room. They met up at the stairs that led up to ground level. RS1A proceeded upstairs, and the RS1A Officer found Engine 24 Lieutenant moving Victim 1 to the door leading into garage and assisted him. RS1A Firefighter arrived at top of stairs, encountered Victim 2 (who was discovered by Engine 24 Firefighter/Paramedic) and proceeded to move him out of the residence with assistance of the Firefighter from Truck 11. RS1A assisted with CPR to the Victims.

After positioning the apparatus, the RS1B Driver located his designated partner, RS1B Firefighter, in front of the structure. Upon attempting to enter the structure through the front door, they were confronted with heavy black smoke and extreme heat conditions. RS1B returned to the street, regrouped and reentered behind the crew of Engine 24 who was leading a 1 ¾ hoseline. Upon reentering the building, they proceeded to the top floor and performed a primary search. Upon completion, they made their way to the ground level and performed a primary search of the bedroom area.

FINDINGS

Members of RS1A were not wearing full PPE (hood) when making initial entry attempts.

BATTALION 6

Battalion 6 responded from the Division of Training. Engine 26 declared on the Tactical Channel that this was a working fire, below grade. Division 3 reported this on the Dispatch Channel for Battalion 6. Battalion 6 parked his vehicle close to Engine 11 and away from the street in a driveway. Battalion 6 requested a progress report from Engine 26 upon arrival. Engine 26 reported as follows “*zero visibility, we’re looking for it*”. Battalion 6 radioed to Engine 26 to look for an alternate means of egress as he was considering “*attacking it from the side*” but received no reply.

Battalion 6 received a report from Battalion 9, that Battalion 9 was going inside, Battalion 6 assigned him (Battalion 9) as Fire Attack. Battalion 6 positioned himself across the street from the fire building to establish the Command Post. He requested a progress report from Engine 26 but there was no response. Battalion 6 saw Engine 11 assembling a 3 inch hoseline with a wye, and ordered them to go down the Bravo side. Battalion 9 exited the building, and signaled to Battalion 6 that he was going to go down the Bravo Side. Battalion 6 then ordered Rescue Squad 1 to split his crew and send one team through the garage door (RS1A) and one team (RS1B) through the front door. Battalion 6 again asked Engine 26 for another progress report with no reply. Battalion 6 ordered Engine 24 to back up Engine 26.

Battalion 6 transferred Command to Division 3 following a face to face meeting. Division 3 ordered Battalion 6 to obtain a layout of the building. Battalion 6 then conferred with the resident, gathered information, and relayed it to Command. Battalion 6 was then assigned as Division 3 by the Incident Commander. At the front door, Battalion 6 encountered Engine 24, Rescue Squad Team B (RS1B) and Truck 11. Battalion 6 assigned RS1B to conduct a search on the top floor. He assigned Truck 11 to assist in advancing Engine 24’s hoseline. Battalion 6 followed Engine 24 through the front door.

As Battalion 6 proceeded downstairs, smoke was banked down to ground level and was “*hot but not unbearable*” heat. Battalion 6 heard a PASS alarm and received an oral report that they found a “*man down*”. Battalion 6 transmitted a “*Mayday*” over the Tactical Channel, this Mayday was stepped on by other radio traffic and was not heard by the Incident Commander. Battalion 6 was then ordered outside by Command. Once at the Command Post, he was assigned to supervise the RIC Operation. Battalion 6 assisted with the care of the Victims and kept track of members departing with the Medic Units.

FINDINGS

Battalion 6 initially did not have a clear understanding of the exact location and extent of the fire. Battalion 6 believed that Engine 26 was on the fire floor based on communications from Engine 26. Battalion 6 requested Engine 26 to locate another means of egress but received no confirmation from Engine 26 of this transmission. Battalion 6 made several requests to Engine 26 to obtain their location in the fire building. However, Battalion 9 did not inform Battalion 6 that Battalion 9 had met Engine 26 at the ground floor level or the conditions in that area. Once the plan of attack was to make

entry from the Bravo Side, Command (Battalion 6) did not notify all Companies operating on the fireground that the point of entry to attack the fire had changed. During transfer of Command, Battalion 6 informed Division 3 that the exact location and status of Engine 26 was unknown. Once Battalion 6 was assigned Division 3 (ground floor), Battalion 6 tried to use the Thermal Imaging Camera but could not get a clear image due to sooting on his mask and the high temperatures. Battalion 6's initial Mayday transmission was not received by the Incident Commander due to radio traffic.

BATTALION 9

Battalion 9 responded staffed with one Battalion Chief and one Incident Support Specialist (ISS). Battalion 9 responded from Station 39. Battalion 9 parked in front of 93 Berkeley Way, South of the fire building. As he approached the fire building, he reported in to Battalion 6 (via radio) and was assigned Fire Attack. Battalion 9 proceeded into the fire building, while the Incident Support Specialist reported to the Command Post to assist the Incident Commander.

Battalion 9 followed the initial hoseline from Engine 26 into the building through the front door and met with Victim 1, who was located on the landing at the bottom of the stairs. The area was fully charged with smoke but very little heat. Victim 1 told Battalion 9 that he believed the fire was on the floor below. Battalion 9 agreed with his assessment and told Victim 1 that they would attack the fire from the side. Victim 1 and Victim 2 began to proceed through the hallway door leading into the vestibule area which had an opened door that led into the garage. Battalion 9 reported that he could see the street from the doorway and that he had intended to exit through that door, but because the passage way through the garage was narrow, he turned around and followed the hoseline back up the stairs and out the front door to the street.

Once outside in front of the building, Battalion 9 informed Battalion 6 that the fire was on a lower floor and that he was going to look for a side entrance and attack the fire from there. Battalion 6 said that he would send Companies down to assist.

Battalion 9 proceeded down the Bravo side of the building and immediately noticed two doors. The door on the Sublevel 1 had a security gate. Battalion 9 then called Command and requested that a Chicago Door Opener be sent down. Battalion 9 stated that there was no sign of smoke or fire along the Bravo side of the building at this time. Battalion 9 forced the door to Sublevel 2 to check for fire and found only light smoke in the room. Battalion 9 reported to Command that the floor was clear.

Battalion 9 then exited the building and went up the exterior staircase to the landing of Sublevel 1, where he found that the door was hot to the touch. At this time, he was

joined by the crew of Engine 11. Battalion 9 radioed Command and informed Command that he had *"located the fire on the second floor"* (Sublevel 1) and was making entry. Battalion 9 also requested a second line. Battalion 9 forced the door and heavy black smoke immediately came out of the doorway. Engine 11 then began to flow water and make entry to the fire room. Heavy fire then appeared in the doorway pushing Engine 11 back out onto the landing. Battalion 9 was informed by the Firefighter/Paramedic from Engine 11 of the heavy fire that was showing from the back of the building. Battalion 9 reported conditions to Command and recommended that units be sent to the floors above to check for auto exposure. Additionally, Battalion 9 recommended a Second Alarm.

Approximately 4 minutes later, Battalion 9 reports *"we got it knocked down here in the second level,"* (Sublevel 1). Engine 32 then reported to Battalion 9 and was ordered to bring the second line into the fire room. Moments later Battalion 9 heard a RIC operation announced over A16, at which time Battalion 9 switched his radio to A1 as per Department's RIC protocol. After hearing normal radio traffic on A1, Battalion 9 switched his radio back to A16. Battalion 9 then heard a call from the Incident Commander for any Battalion Chief to respond to the Command Post. Battalion 9 assigned Engine 32's Officer in charge of fire attack and reported to the Command Post. Battalion 9 was directed to assist in the efforts to provide care for the victims.

Battalion 9 Incident Support Specialist monitored the Control Channel, interviewed residents and assisted the Incident Commander's Incident Support Specialist with the Incident Command Worksheet.

FINDINGS

Battalion 9 had a face to face meeting with a member of Engine 26 Officer (Victim 1) in zero visibility with no remarkable heat conditions. Engine 26 reported that the fire was below them. Battalion 9 then relayed to Victim 1 that they were going to see if they could get it from the side. Because of the smoke conditions, Battalion 9 did not see the stairs leading to the fire floor. Battalion 9 exited through the interior stairs and assumed Engine 26 was going to exit through the garage *"because it looked like they were going that way"*.

As Battalion 9 exited the building, he did not inform Battalion 6 that he had met Engine 26 at the ground floor level or the conditions in that area.

Battalion 9's Incident Support Specialist did not respond in Full PPE (did not have SCBA). He did not start an SFFD Incident Command Worksheet.

ENGINE 32

Engine 32 responded staffed with one Officer and three Firefighters. Engine 32 was designated and dispatched as the Rapid Intervention Crew (RIC), which is Standard Operating Procedure when a working fire was declared. Engine 32 arrived on the scene and was immediately reassigned by Command to assist Battalion 9 and Engine 11 on the Bravo Side of the building. Engine 32 dragged a large line with a wye and brought a 1 ¾ hose bundle in order to deploy another attack line. Engine 32 assisted in extinguishment and checked for extension of the fire room. **(See Diagram 1)**

FINDINGS

No significant findings of the actions of Engine 32 were found.

ENGINE 20

Engine 20 responded staffed with 1 Officer and 3 Firefighters. Engine 20 was dispatched as the replacement RIC team, as requested by the Incident Commander, due to Engine 32 being reassigned to assist with Fire Attack. Engine 20 extinguished hot spots on the fire floor and stood fire watch.

FINDINGS

Engine 20 did not acknowledge response via Mobile Data Terminal (MDT) or radio. The Division of Emergency Communications (DEC) attempted to contact Engine 20 (via radio and landline for approximately 5 minutes) to verify response along with the activation of the emergency button in a portable radio. A member of Engine 20 accidentally pressed their emergency button on a portable radio. When Engine 20 did not respond to the DEC about their response and the emergency button activation, the DEC alerted the Incident Commander on the Tactical Channel with the following message *“Engine 20 has activated their emergency alarm and has not confirmed a response for 5 minutes”*. This message congested radio traffic and caused confusion. Eventually Engine 20 responded to the DEC that they were on the Tactical Channel.

DIVISION 3

Division 3 responded staffed with one Division Chief and one Incident Support Specialist. Division 3 was out of service at Headquarters when the incident was dispatched. Division 3 placed himself on the incident and recalled the last Battalion Chief (Battalion 10). Division 3 monitored the Tactical Channel and heard Engine 26 give a progress report to Battalion 6 of a working fire, below grade. Division 3 advised Battalion 6 that he would update the DEC on the Control Channel. Upon arrival, Division 3 parked behind Truck 15, North of the fire building.

Division 3 performed a size up of the incident. Truck 15 reported in and they were assigned Roof Division. Division 3 observed *“lightly pushing black smoke at the top of the garage door”*. Division 3 asked for the location of all Companies on the scene and a transfer of Command from Battalion 6 took place. He ordered Battalion 6 to get a general layout of the building and locate the fire. The Incident Commander (Division 3) observed a rapid increase in the volume and velocity of the smoke to the point that it covered the Command Post causing him to step aside to the Alpha/Bravo corner.

After Battalion 9 had cleared Sublevel 2 for fire, the Incident Commander asked him which Companies he had with him, Battalion 9 replied he had Engine 11. After receiving a report from Battalion 9 that they had located the fire and a request for a second hoseline, the Incident Commander reassigned Engine 32 (RIC) to assist Battalion 9. The Incident Commander then immediately asked via radio for another RIC Company. The Incident Commander asked Battalion 9 if Engine 26 was with them, but the reply was unintelligible. The Incident Commander and Battalion 6 tried calling Engine 26 several times but did not receive an answer. At this point, Incident Command received a transmission from the DEC on the Tactical Channel, stating that Engine 20 had activated their emergency alarm and had not confirmed their response for 5 minutes. The Incident Commander acknowledged the transmission, and responded *“I copy that, I’m going to look for them right now.”* At which point the Incident Commander looked down the street and saw Engine 20 walking up to the Command Post.

Immediately following this transmission, the Incident Commander observed a Firefighter exiting the garage and reporting that he had *“two guys down”*. Command reported on the Tactical Channel that he had a RIC operation in progress and requested 2 additional Medical Units. He reassigned a Battalion Chief to assume Command of the RIC Operation and two Companies on the fireground to assist. He directed Companies not assigned to the RIC operation to continue firefighting operations. The Incident Commander requested Division 2 to respond and oversaw that medical care was given to the downed Firefighters. Recognizing the magnitude of the incident, the Incident Commander ensured that the scene was preserved for both the fire investigation and the serious injury investigation. Once Division 2 arrived on the scene, a transfer of Command took place and Division 3 responded to San Francisco General Hospital.

Division 3 Incident Support Specialist placed obstructions in the doorway of the garage door to prevent it from coming down and tracked Companies on the fireground using the SFFD Incident Command Worksheet.

FINDINGS

There was not a clear transfer of Command with an understanding of the location of the fire and all Companies on the fireground. Based on hoseline placement, initial reports of Engine 26 and the assignment of Battalion 9 as Fire Attack, Division 3 presumed that Engine 26 was with Fire Attack. On the transfer of Command, Battalion 6 reported to Division 3 that *“he had not heard from Engine 26 in a while.”* Division 3 attempted to locate Engine 26 several times.

Just prior to receiving a report from the DEC regarding Engine 20, the Incident Commander attempted to locate Engine 26 once more and this time traffic was received but the Safety Investigation Team could not determine who made that transmission. On two occasions there were transmissions that Division 3 believed to be Engine 26 answering his call, however, one of them was Battalion 6 looking for Engine 26 and the other remains undetermined.

Division 3 did not feel it was necessary to switch radio channels, as per RIC Standard Operating Procedure, due to the members already being extricated from the garage. Due to Division 3 not notifying Companies, Companies operating on the fireground switched to Channel A1, as per RIC Standard Operating Procedure. Companies reverted back to the original Tactical Channel when they recognized that there was normal Channel A1 traffic and no fireground traffic.

Division 3 saw two Firefighters being removed from the garage, but did not know if any other Firefighters were missing. A Personnel Accountability Report was not conducted immediately to account for any other possible missing Firefighters.

Division 3 recognized the need to preserve the fire scene and to call for another Division Chief to assume Command. Division 3 immediately notified a Lieutenant from the Division of Training, present at the scene, to contact the Department's Safety Officer and initiate the investigation of this incident.

Division 3 and Division 3 Incident Support Specialist did not respond in Full PPE (turnout pants).

RESCUE CAPTAIN 3

Rescue Captain 3 (RC3) responded when a working fire was declared, as is Standard Operating Procedure. RC3 reported to the Command Post and observed nothing unusual. The crew of Medic 74 reported in to RC3, where they reviewed the multiple O2 valve. While reviewing the equipment, large volumes of smoke engulfed their location across the street. Upon hearing of Firefighters down, RC 3 proceeded to the front of the garage and supervised crews in medical care of the victims.

FINDINGS

RC3 was preparing for possible injury to civilians and/or Firefighters by reviewing procedures for multiple victims with Medic 74.

MEDIC 74

Medic 74 responded on the first alarm assignment staffed with one Paramedic and one Emergency Medical Technician (EMT). Medic 74 positioned their apparatus out of the way and ready for transport. Medic 74 reported in to RC3 where they reviewed the use of the multiple O2 valve. While reviewing the equipment, large volumes of smoke engulfed their location across the street. Upon hearing of Firefighters down, Medic 74 immediately reported to the front of the garage and started medical care on Victim 1. Medic 74 provided ALS treatment and transported Victim 1 to San Francisco General Hospital.

FINDINGS

Medic 74 was well prepared to start immediate medical care to the downed Firefighters, and provided proper Advanced Life Support (ALS) care to Victim 1.

MEDIC 95

Medic 95 was special called as one of two Ambulances requested by the Incident Commander. Medic 95 responded staffed with one Paramedic and one Emergency Medical Technician and they transported Victim 2 to San Francisco General Hospital.

FINDINGS

Medic 95 provided proper Advanced Life Support (ALS) care to Victim 2.

DEPUTY CHIEF OPERATIONS

The Deputy Chief of Operations (CD2) responded to the fire upon hearing of the RIC operation. He checked in with the Incident Commander and ensured that the downed members were receiving medical attention. The Deputy Chief made notification to the Chief of Department and Deputy Chief of Administration on the circumstances and the destination of the injured members. He responded with Division 3 to San Francisco General Hospital, where he met with the Chief of Department and the Deputy Chief of Administration.

FINDINGS

No significant findings on the actions of the Deputy Chief Operations were found.

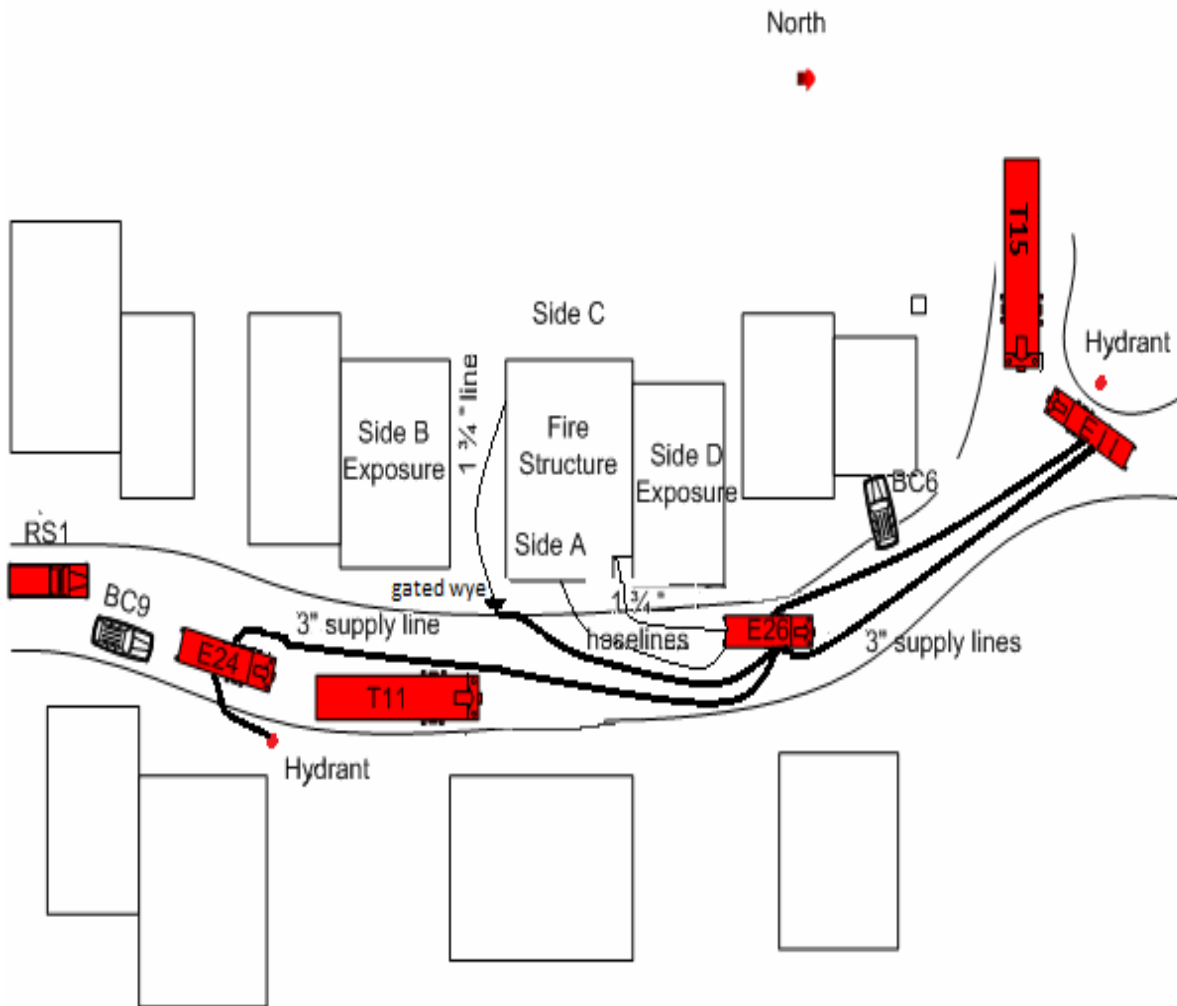
DIVISION OF EMERGENCY COMMUNICATIONS

The Division of Emergency Communications (DEC) received a 911 phone call reporting a fire in the building at 133 Berkeley Way. DEC dispatched a full first alarm assignment. DEC received additional information regarding the incident and notified responding units, which included that the fire had spread to the drapes and the building had been evacuated. DEC followed current RIC procedures when notified of a RIC Operation which included upgrading to a Greater Alarm. DEC kept the Command Staff updated on the incident through the use of the paging system. DEC helped coordinate the request for outside agencies (San Francisco Police Department, San Francisco Municipal Transportation Agency [Parking and Traffic], American Red Cross – Bay Area Chapter).

FINDINGS

DEC recognized an issue with Engine 20 not acknowledging their response to their dispatch. DEC attempted to reach Engine 20 via radio and phone call to Station 20 with no response. When Engine 20 activated their emergency button on a portable radio, DEC notified Command via the Tactical Channel that *“Engine 20 has activated their emergency alarm and has not confirmed a response for 5 minutes”* By using the Tactical Channel instead of the Control Channel, the DEC was stepping over units that were attempting to transmit an Emergency Traffic/Mayday of the two Firefighters down.

During the course of the investigation, the Safety Investigation Team found that the safety feature of the radio system which logs all push to talk transmissions was turned off. DEC advised that this feature had not been turned back on after the breakdown of the mobile data communications portion of the radio system on May 12, 2011 (See Recommendation #9). The Safety Investigation Team has verified that this feature has been restored at the time of this report.



Apparatus placement diagram (not to scale)

THE FIRE EVENT

This fire was determined to be accidental by the SFFD Fire Investigative Unit (Arson). The fire originated on Sublevel 1 on the West side of the family room near the large floor to ceiling windows. The ignition was a non-specific electrical sequence in the electrical wiring or appliance (handheld vacuum cleaner) in this area. There was a delay in reporting the fire due to the occupants attempting to extinguish it. (SFFD Fire Investigation Report 11-0500532).

A resident noticed the drapery for the windows on fire on the Charlie Side. The resident stated that she went upstairs to obtain an extinguisher and returned to the location of the fire in an attempt to discharge the extinguisher. Unable to extinguish the fire, the resident left the fire area, notified other occupants and exited the building. At approximately 10:44 hours, Division of Emergency Communications received a phone call from the resident reporting the fire.

The resident stated that she spoke with the first arriving unit (Engine 26) regarding the location and materials on fire.

Upon Engine 26's arrival, Victim 1 reported light smoke showing from the garage. An additional report to Battalion 6 was communicated that it was a working fire, below grade.

Several minutes later, Engine 26 reported *"we're still looking for it, zero visibility, more to follow."*



10:52:28 Officer of Engine 24, Engine 26's 200 ft. ready line deployed. Resident standing by car (0853)



10:53:52 Battalion 9 in front doorway, prior to descending stairs to meet with Engine 26.

In this picture, Engine 11 has deployed large line and a member from Engine 11 is breaking a hose bundle to connect to the wye. Engine 24 Officer is in rear of garage near the front right corner at the door leading into the house checking conditions and access. Resident is standing next to car. (0855)

Battalion 9 informed the Safety Investigation Team that when he met with Engine 26 inside the fire building that the conditions were heavy smoke with little heat. Engine 26 and Battalion 9 discussed the fire being below them and possibly attacking it from the side. Battalion 9 exited the building and proceeded down the Bravo side, and assumed Engine 26 was going to exit through the garage.

In this series of pictures, note how quickly the fire and smoke conditions progress from light smoke, with no fire visible, to heavy black smoke and the entire fire room involved. These pictures were taken from a resident on the other side of Glen Canyon over a ten minute time span. Note pictures from the front will be inserted when available and the time frame corresponds.



10:57:09 **Battalion 6** as initial IC (857 S.B.)



10:57:11 First picture showing conditions from the rear of the building. Note **Battalion 9** coming down the hill side on the Bravo side. Noticing a metal gate on the door to Sublevel 1, Battalion 9 requests a forcible entry tool. (6565)



10:57:18 **Battalion 9** forcing entry into Sublevel 2. Note fire in lower right hand window (6567)



10:57:45 Battalion 9 has entered Sublevel 2 to check for fire (6568)



10:58:21 Battalion 9 is checking door to Sublevel 1. Note fire in window is growing (6572)



10:58:21 **Division 3** assumes Command from **Battalion 6** (858 S.B.)



Div. 3

10:58:42 Window in the rear of Charlie Side fails. Battalion 9 and Engine 11 at door of Sublevel 1. Crews have not made entry into Sublevel 1. Note smoke conditions change in the front of the building and IC has moved due to smoke obscuring the Command Post. (6574)



10:58:49 (6575)



10:58:50 (860)

These two pictures were taken one second apart. Top picture shows rapid fire spread in Charlie/Delta corner. Note Engine 11 and Battalion 9 have not yet breached door. Bottom picture shows Battalion 6 conferring with the Incident Commander (not in frame). At this time, Engine 24 and Rescue 1 Team A are inside garage attempting to gain entry through access door from garage. During the post incident interviews, both crews reported that they confronted extreme heat conditions (See Rescue Squad 1 Findings).



10:58:54 Note fire growth on Sublevel 1. Crews have not yet made entry. (6576)



10:59:23 **Engine 11** and **Battalion 9** make entry to Sublevel 1. Battalion 9 requests additional hoseline to assist. Note the smoke change on the Bravo side along with the change in the front. (6577)



10:59:25 (6578)



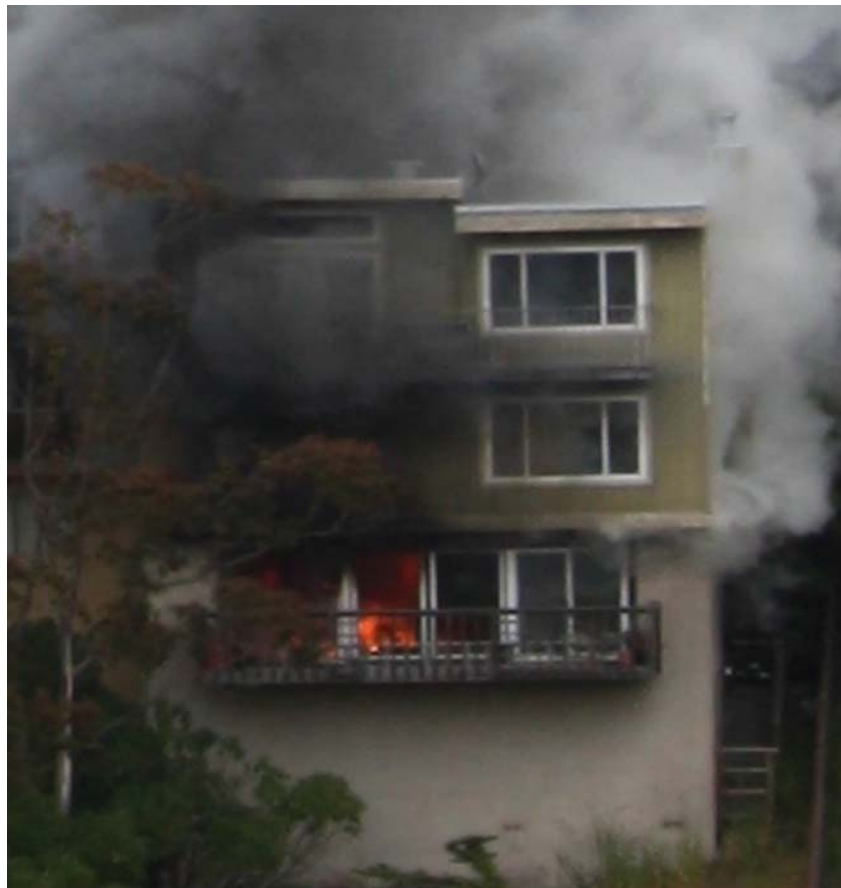
10:59:27 (6579)



10:59:54 Note change of smoke color coming front Sublevel 1 door (Bravo Side) due to water application (6580)



10:59:58 Note second window from the left has failed. Smoke conditions continue to change, due to application of water. (6582)



11:00:00 (6583)



11:00:06 (6584)



11:00:20 (6585)



11:00:25 (6586)



11:00:30 (6587)



11:00:31 Bottom picture shows a still image from a cell phone video taken from the building across the street. The image is not clear due to being shot through a glass window. Rescue 1 Team A is coming out of the garage and Team B is preparing to make entry through front door. (Still from video.)



11:00:33 (6588)



11:00:58 (6589)



11:01:00 (6590)



11:01:39 (6592)



11:01:40 (6593)



11:01:58 (6594)



11:02:01 (6595)



11:02:21 Note bulk of fire has been knocked down (6596)



11:02:34 (6598)



11:03:33 (6600)



11:04:08 **Engine 32** on hill and **Rescue 1 Team A** on stairs to fire room (6602)



11:04:44 **Engine 32** at the bottom of stairs (6604)



11:04:51 Battalion 9 reported in this time frame that fire was knocked down (6605)



11:05:07 (6608)



Note Truck 15 and Truck 11 crews on roof and **Battalion 9** on the balcony (6620)



Looking up the stairs from the fire room, note the heat damage on the walls



Color of the smoke being generated, indicates a hot and high carbon based fire



Top of stairs leading down to fire room, note amount of carbon material deposited on the surfaces



Note amount of carbon material that has been baked onto the SCBA of Victim 1



Note heat damage to helmet and the carbon material on the helmet



Note Engine 24 Officer's gear (clean)



Note Engine 24 Officer's gear (sooted after attempting to make entry through the garage)



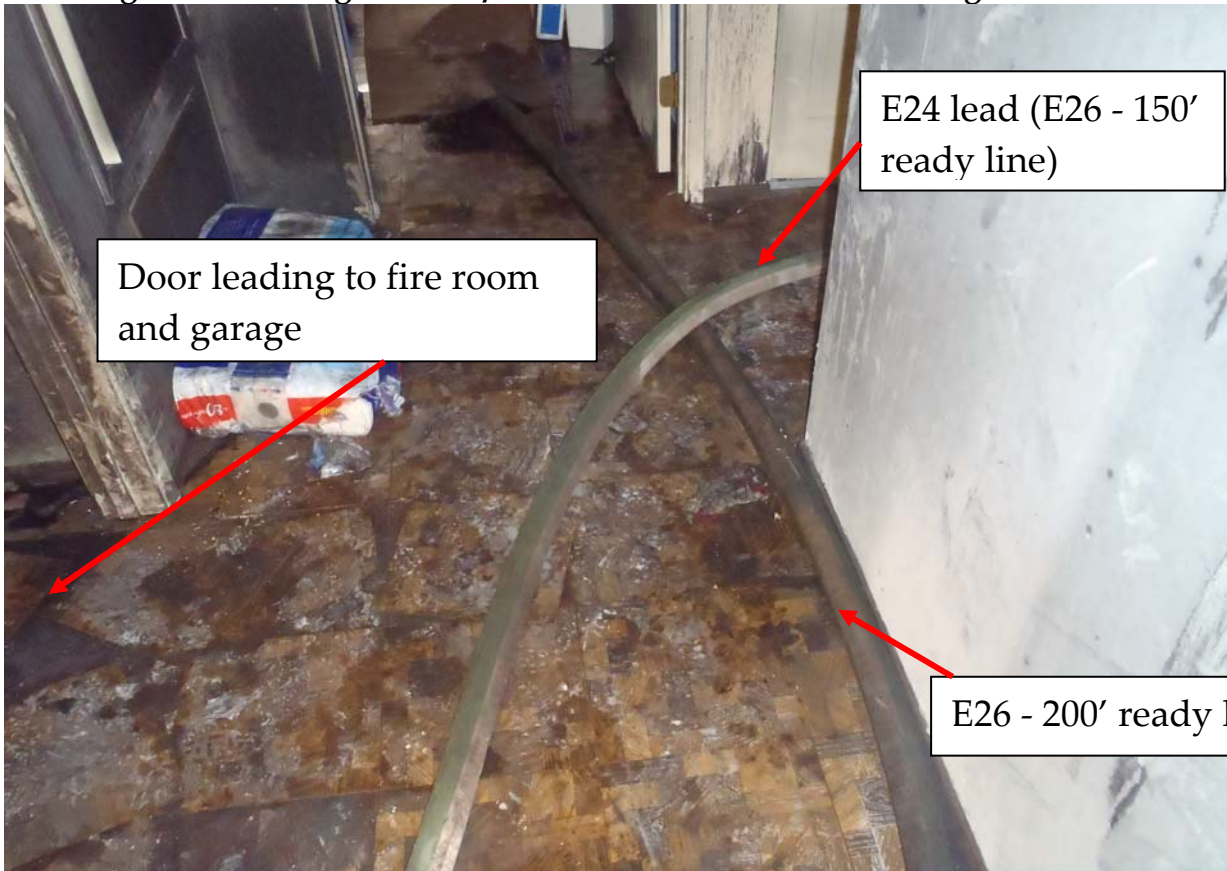
Looking from the bottom of the stairs out the windows and the room of origin



In the fire room looking out towards the door on the Bravo side, this is the door that Engine 11 and Battalion 9 made entry from.



**From the front door area looking down the stairs.
Engine 26 and Engine 24 1 3/4" hose leads down the stairs to ground level**

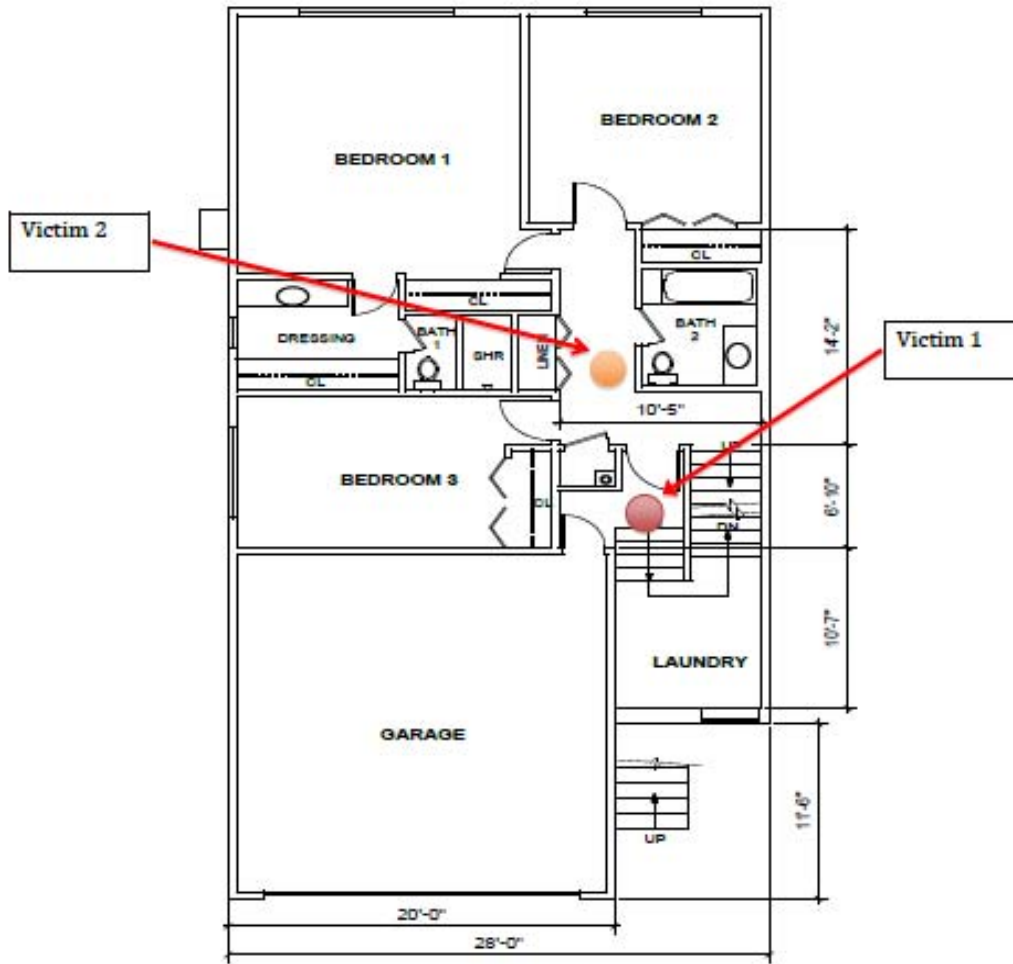


**Looking left from the bottom of the stairs to the left.
Hoselines are Engine 26 and Engine 24 location after the fire.**

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RESCUE EVENTS

Multiple Companies and Department members assisted in the rescue of Lieutenant Vincent Perez and Firefighter/Paramedic Anthony Valerio.



GROUND FLOOR
SCALE APPROXIMATE

133 BERKELEY, SAN FRANCISCO, CA

Location of Victims



Lieutenant Perez was found in the vestibule area on the ground floor, located just inside the garage door leading into the house. He was found unconscious, unresponsive, face down on or near the stairs leading up from laundry area by Engine 24 Officer (Approximate location indicated by arrow).



Engine 24 Officer and Engine 24 Firefighter/Paramedic, with the assistance of Rescue Squad 1 Officer, carried Lt. Perez, exiting through the garage door. While moving Lt. Perez, members encountered obstacles due to homeowner's contents, which hampered the rescue. In the process of the rescue, Lt. Perez's SCBA mask got caught under a car tire, which required the members to cut the air hose to the mask. Once Lt. Perez was brought outside the building, members performed CPR.



FF/PM Valerio was located in the hallway outside the bedroom/bathroom on the ground floor. He was found unconscious and unresponsive, face down, by Engine 24 Firefighter/Paramedic who moved him to the doorway leading to the vestibule (Approximate location indicated by arrow).



Rescue Squad 1 Firefighter along with Truck 11 Firefighter carried FF/PM Valerio by exiting through the garage, following behind the crew that was carrying Lt. Perez. Once FF/PM Valerio was brought out of the building, members performed CPR and provided medical care. This picture shows the door that both Lt. Perez and FF/PM Valerio were carried out of, through the garage during the rescue.



Crews caring for Lt Perez and FF/PM Valerio

Lt. Perez and FF/PM Valerio were transported to San Francisco General Hospital (SFGH) with a San Francisco Police Department escort. Upon arrival at SFGH, Emergency Room Staff, including Trauma and Burn Specialists worked on both members. After all possible efforts and medical intervention, Lt. Perez succumbed to his injuries and was pronounced deceased in the Emergency Room. FF/PM Valerio was stabilized in the Emergency Room and then moved to the ICU for further care. FF/PM Valerio succumbed to his injuries two days later, on June 4, 2011.

The Safety Investigation Team recognizes that the members of the San Francisco Fire Department and San Francisco General Hospital did everything possible to care for and treat both Lt. Perez and FF/PM Valerio.

KEY EVENTS / TIMELINE

(A)= Audio tape , (C) = CAD record, (P) = Photograph

- 10:44:22 (A) Resident calls 911 and reports fire (resident delayed calling 911 in an attempt to extinguish fire herself)
- 10:45:22 (A) Box 8155 dispatched. E26, E11, E24, T11, T15, B6, B9, B10, RS1, M74, Dispatched (Div 3 recalls B10 and responds immediately)
- 10:47:58 (C) E26 arrives on scene (via MDT)
- 10:48:09 (A) E26 Officer gives on scene report to Communications Center *“Three Story wood frame, light smoke showing from garage, more to follow”*
- 10:49:20 (A) E26 Updates Battalion 6 on the Tac Channel *“working fire, below grade, making a lead from top down”*
- 10:50:50 (C) Division of Emergency Communications upgrades Box to Working Fire, calling E32 as RIC and Rescue Captain 3
- 10:51:00 (C) Engine 24 on scene
- 10:51:09 (C) Engine 11 on scene. E11 Officer pressed on scene button after arriving on scene
- 10:51:51(C) Battalion 6 on scene (via MDT)
- 10:52:40 (A) *Last transmission from E26 (to Battalion 6), “we’re still looking for it, zero visibility, more to follow”. Battalion 6 replies “copy that, see if you got a second egress off that lower floor, if we could attack it from the bottom as well from the outside” (this transmission was not acknowledged).*
- 10:53:50 (A) Battalion 9 assigned Fire Attack by Battalion 6. Battalion 9 goes inside, meets with E26 and has a face to face. E26 reports that the fire is below them and Battalion 9 replies that they are going to try to get it from the side. Battalion 9 exits the building and proceeds to the Bravo side.
- 10:56:00 (A) Division 3 arrives on scene
- 10:56:33 (A) **Battalion 6 attempts to contact E26 with no reply**
- 10:57:20 (A) **Battalion 6 orders E24 to back up E26. Battalion 6 asks E26 for their location with no reply.**
- 10:57:40 (A) Battalion 9 requests a forcible entry tool and checks Sublevel 2. Battalion 6 attempts to contact E26 to get an update but receives no response.
- 10:58:20 (A) Division 3 assumes Command via radio
- 10:58:42 (P) *Window fails in Charlie side on basement. Seconds after this, Rescue 1 Team A and Engine 24 report untenable conditions in the garage door to house that forces them to look for an alternate way to enter the structure.*
- 10:59:20 (A) Battalion 9 reports that Engine 11 is making entry in Sublevel 1 with a hoseline and requests an additional hoseline.
- 11:01:44 (C) E20 dispatched as back up RIC to replace E32 that was reassigned to assist Fire Attack.
- 11:02:00 (A) **Division 3 asks Battalion 9 if Engine 26 is with them.**
- 11:03:00 (A) **Battalion 6, inside the building, asks E26 for their location with no reply**

- 11:04:00 (A)** Division 3 believes E26 had made a transmission and attempts to get an update from them. (*“Engine 26, slow down your traffic and let me know where you’re located”*). This was Battalion 6 attempting to transmit.
- 11:05:40 (A)** Battalion 9 reports *“fire knocked down in the basement”*
- 11:07:20 (A)** Communications Center reports on Tac Channel that E20 has activated their emergency alarm and has not responded for 5 minutes. Command acknowledges this and observes that E20 is not on scene yet. (At approximately this time Battalion 6 attempted to broadcast a Mayday but was stepped on by Dispatcher).
- 11:08:00 (A)** Command reports on Tac Channel that there is a RIC operation in progress. Lt. Perez and FF/PM Valerio were removed from the building and EMS care given.
- 11:12:50 (C)** Second Alarm upgraded by Division of Emergency Communications at the request of Division 3 Command.
- 11:23:00** Victim #1 arrives at San Francisco General Hospital
- 11:34:00** Victim #2 arrives at San Francisco General Hospital

Victim #1 pronounced deceased on June 2, 2011 at 11:55 hours
Victim #2 pronounced deceased on June 4, 2011 at 07:37 hours.

PERSONAL PROTECTIVE EQUIPMENT FINDINGS

Victims 1 and 2 were wearing full PPE which included Coat, Helmet, Pants, Hood and Gloves. Victim 1 was wearing the following items under his PPE: Wool Station pants, t-shirt, socks, undergarments. Victim 2 was wearing the following items under his PPE: t-shirt, socks and undergarments.

NIOSH

The complete PPE garments of Victim 1 and Victim 2, along with several additional items from members that suffered other injuries, were shipped to the National Institute for Occupational Safety and Health (NIOSH) facility in Morgantown, West Virginia for inspection and review.

NIOSH completed visual inspections of all garments provided by the San Francisco Fire Department.

On December 9, 2011, the Safety Investigation Team met with the NIOSH representative who inspected the PPE garments. The NIOSH representative indicated that her findings were that the PPE performed as it was intended. The conclusions were that the PPE worn by Victims 1 and 2 were exposed to temperatures of approximately 500°F.

At the time of the writing of this report, the final report from NIOSH has not been completed.

LION Apparel (PPE manufacturer)

A representative from LION Apparel traveled to the NIOSH facility in Morgantown, West Virginia on July 19, 2011 to conduct a review and inspection of the PPE.

Lion Apparel's conclusion is as follows:

The turnout gear coat of Victim 1 showed dye sublimation from high levels of heat exposure, indicating extreme levels of heat exposure in those areas. The pants of Victim 1 and the coat and pants of Victim 2 do not indicate any dye sublimation. In both cases, although the heat may have been at severe emergency levels, the materials used in the gear did not reach extreme temperatures to have destroyed the fabrics. The degradation temperature of the high heat and flame resistant fibers used in the various outer shells of the garment are approximately 800°F to 1000°F for the Fusion (Nomex and Kevlar) outer shell and 1000°F-1200°F for the PBI Matrix (PBI and Kevlar) outer shell.

Based on the condition of the materials, the surface temperature of the garment fabrics did not reach degradation temperature, otherwise heavy charring or break open would have occurred. Flashover conditions can expose Firefighters to air temperatures of approximately 1800°F. In these extreme conditions, in less than 45 seconds, enough heat can transfer through the protective clothing system to cause severe injury or death to a Firefighter wearing full protective clothing, however, depending on the conditions, the exposure may not be high enough and long enough to cause the garment materials to reach degradation temperature.

Compared to existing samples of new outer shell materials exposed to various thermal conditions for 5 minutes, it is estimated that the surface temperature of the gear reached the 550°F -700°F range. The critical thermal protection components such as the outer shell, thermal liner, moisture barrier, reinforcements and major A seams appeared to have been in good condition prior to the incident, and were not worn out or damaged. The garments performed as intended.

SELF CONTAINED BREATHING APPARATUS (SCBA) REPORT FROM NIOSH

SCBAs were collected from Victims 1 and 2 at the scene and held in a secure location. The San Francisco Police Department Crime Lab photographed the units in the presence of a SFFD Safety Investigation Team member. The units were secured in Police Custody to await NIOSH Investigators.

After consultation with the NIOSH On-Scene Investigation Team, the SCBAs were packaged and shipped to the NIOSH Facility in Bruceton, PA. The SCBAs arrived on June 22, 2011 at the NIOSH facility.

A general inspection of the SCBAs was conducted on August 24 and 25, 2011. The main findings of the inspection were:

- Both units exhibited minimal heat damage
- Both units exhibited signs of wear and tear
- Both units had the cylinder valves in the closed position and empty
- Visibility through both lenses was poor as the lenses were black and covered in soot
- The backpack harnesses on both units were in good condition with no fraying or tears.
- The mask head harness on both units were dirty
- Both PASS devices functioned properly when activated manually and Unit #2 functioned properly when activated automatically. (Not tested against NFPA 1982, Standard on Personal Alert Safety System (PASS), 1998 Edition).

On September 18 and 26, 2011, Unit #2 was operationally checked in accordance with NFPA 1981 Standards, 1997 Edition. The SCBA Unit passed all testing.

SCBA Unit #1 was not tested by NIOSH due to the damage level of the SCBA (low pressure air hose to regulator was cut, NIOSH is not certified to conduct repairs to equipment). Upon arrival back at the SFFD, Unit #1 was tested by a certified technician (SFFD member). Technician replaced low pressure air hose and duplicated the same test that NIOSH conducted on Unit #2. Unit #1 passed all tests.

Neither NIOSH, nor the SFFD technician, tested SCBA mask on Unit #1 due to missing voice emitters.

Unit #1 and Unit #2 SCBAs were manufactured and put into service in 2001. In 2005, the NFPA issued an alert notice entitled "PASS alarms signals can fail at high temperatures". According to this report, high temperature exposures can cause the volume of PASS alarm signals to be reduced. While there are no reports of SCOTT SCBA with this problem, the Investigation Team through interviews, has concerns regarding the PASS audible operations. Several members interviewed reported not hearing any, or hearing low volume PASS alarms, at this incident. The new 2007 edition of NFPA 1982 addressed this issue along with water ingress in the electronic and power supply compartments. The SFFD's current SCBA do not meet the 2007 edition.



Victim 1's SCBA note the heavy sooting



Victim 1's SCBA low pressure hose. This hose was cut during rescue operation (hose/mask was wedged under vehicle's tire in garage).



Victim 2's SCBA with Helmet, note the heavy sooting.

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PORTABLE RADIOS

All members operating on the fireground were equipped with an 800 Mhz Fire Department issued portable radio. All Firefighter's radios were equipped with remote speaker/microphones. Victim 1 and 2's radios showed extreme heat damage.



Victim 1 had a portable radio located in the large lower left coat pocket with the remote speaker/microphone running along the outside of the coat to the collar area.



Victim 1's radio



Victim 1's radio

Victim 2 had a portable radio. The Safety Investigation Team was unable to determine the location to which the portable radio was carried (picture of radio in coat pocket not available).



Victim 2's portable radio at the scene (on driveway)



Victim 2's portable radio



Engine 24 Officer had a portable radio located in the upper radio pocket on the left side of the coat with the remote speaker/microphone attached to the radio speaker/microphone tab on left side of coat.

Findings of the radio test were:

The portable radios were tested on July 14, 2011 by a technician at the City and County of San Francisco's Radio Shop. The report is included as Attachment I. For this report, Victim 1's radio is the second radio tested, Victim 2's radio is the third radio tested and Engine 24 Officer's radio is the first radio tested.

Victim 1's remote speaker/microphone failed due to high heat/fire, causing constant transmit condition. This disabled the radio from transmitting or receiving after 60 seconds.

Victim 2's remote speaker/microphone failed due to high heat/fire, causing no transmit or receive functions.

Engine 24 Officer's radio and remote speaker/microphone functioned normally.

The test results showed that when the remote speakers/microphones on Victim 1 and 2's portable radios were removed, the radios operated correctly.

The test also showed that even with the damage that the remote speaker/microphone cord received, the Emergency Button on Victim 1 and 2's portable radios still operated correctly.

After testing, the Safety Investigation Team was unable to determine when the remote speaker/microphone's failed. The Safety Investigation Team does know that 7 attempts were made to contact Engine 26 via the radio, with no response. The Safety Investigation Team has found no information that an Emergency Traffic or Mayday transmission was received from either Victim 1 or 2. The Investigation Team has found no record of either Victim 1 or 2 activating their emergency button on their portable radio.

The Safety Investigation Team has determined, through manufacturer's specifications, that the remote speaker/microphone has an operating temperature of -30°C to +60°C (22°F to +140°F). The manufacturer testing of the system is for a Thermal Shock level of -57°C to +80°C (-71°F to +176°F) (See Attachment K).

At the time of writing this report, the National Fire Protection Association (NFPA) has no standard that manufacturers must meet regarding portable radios for firefighting use. The Chief of Department sent a letter on November 3, 2011 to NFPA requesting a standard to be adopted (See Attachment M).

The Safety Investigation Team spoke with members from the National Institute of Standards and Technology (NIST) regarding NIST Technical Report 1477 "Testing of Portable Radios in a Fire Fighting Environment" published August 2006. The findings in this report indicated that portable radio remote speaker/microphone were subject to heat damage under fire fighting conditions. A finding noted in this report is that, since Firefighter turnout gear is designed to protect Firefighters exposed to thermal Class III conditions*, handheld radios should be constructed to handle these conditions. NIST also recommended that the NFPA develop a radio standard that would include requirements for the thermal testing of handheld radios.

The Safety Investigation Team met with representatives from Motorola regarding the portable radios (See Attachment J).

*NIST defines Thermal III Class as a maximum exposure of 5 minutes with Maximum temperatures of 260°C/500°F.

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RECOMMENDATIONS

- 1. Incident Commanders should ensure that when a Company/(and/or) personnel has not responded to several radio attempts, immediate steps shall be taken to deploy resources to locate the Company/personnel.**

Engine 26 was called via radio multiple times with no response. At one time, the Incident Commander thought Engine 26 responded, however this could not be verified. The Safety Investigation Team, after carefully reviewing audio tapes, discovered that it was Battalion 6 looking for Engine 26 (See Recommendation 9).

ICS Manual Section 2-6: Should a situation occur where a later arriving Company or Chief Officer cannot locate or communicate with Command (after several radio attempts), they will assume and announce their assumption of Command and initiate whatever actions are necessary to confirm the safety of the missing crew.

- 2. Incident Support Specialist shall initiate an Incident Command Worksheet immediately and begin the tracking of all resources. An accurately completed fireground Incident Command Worksheet should assist in the transfer of Command.**

The Investigation found that the initial Incident Support Specialist's Incident Command Worksheet did not have the location and assignments of all assigned resources.

- 3. All Companies operating on the incident scene must keep the Incident Commander updated when changing from one location to another. The ISS tracking resources on the SFFD Incident Command Worksheet must ensure this information is documented (*i.e. Engine 65 moving from second floor up to third floor*).**

Battalion 9 (Fire Attack) changed point of entry for Fire Attack from Interior stairs to making entry from Bravo Side. This was not reflected on the Incident Command Worksheet.

- 4. The Incident Commander should use all available resources to increase his/her situational awareness during an incident.**

The Safety Investigation Team found that the Incident Commanders were presented with significant challenges in gaining critical information, such as the building layout, and location/ extent of fire. The Incident Commanders made several attempts to acquire this information by contacting the building occupant, as well as attempting to contact the Companies operating at the scene. The use of all available resources, including Incident Support Specialists if available, should assist in the gathering of information to increase situational awareness.

- 5. Crews on the fireground should update the Incident Commander when they are unable to complete an assignment due to a change in conditions/events.**

Engine 24 and Rescue Squad 1 were unable to make entry through the garage due to extreme heat and smoke conditions. While the Incident Commander was able to see Engine 24 and Rescue 1 exiting from the garage, the Incident Commander was never informed of the conditions that prevented Engine 24 and Rescue 1 from entering the house through the garage.

ICS Manual Section 3-9: Command must be advised immediately of significant changes, particularly those involving the ability or inability to complete an objective, hazardous conditions, accidents, structural collapse, etc.

- 6. Second due Engine Companies should ensure that the first due Engine Company's hoseline is in position and operating correctly.**

Multiple Engine companies on the scene proceeded to deploy and advance hoselines prior to confirming that Engine 26's hoseline was in the proper location and operating correctly.

- 7. Truck and Rescue Squad Companies should notify Command when they split their crews with the assignment/location of each team, so that they are accurately accounted for in the Incident Command Worksheet.**

Truck 11 and Rescue Squad 1 appropriately split their crews to conduct various tasks which were not accurately documented on the Incident Worksheet.

8. The Department should reinforce that Officers are not to be on the nozzle.

The Investigation found that Officers were on the nozzle instead of being in the position to function as the Company Officer. The Company Officer has the responsibility for the actions of their entire crew. Officers need to be in a position to observe conditions and monitor the radio. Company Officers need to stay aware of changes in conditions that may influence their situational awareness.

9. The Division of Emergency Communications shall ensure that all features of the radio system are available and functioning.

The Division of Emergency Communications experienced a breakdown of the mobile data communications portion of the radio system on May 12, 2011. After the system was restored, a secondary component of the Fire Communications was not reactivated. This component allows the Division of Emergency (DEC) to track the Push to Talk buttons of every radio on the fireground and is able to create a report that would allow Investigators and Dispatchers to monitor which radio transmitted, at what time, and for how long. This would have allowed the Investigation Team to identify any unintelligible transmissions. At the time of the writing of this report the Investigation Team has confirmed that this feature has been restored in the radio system, however, it is recommended that a checklist be developed to ensure full functionality of this feature in the event of a future breakdown.

10. The Department shall work with the DEC to develop policy and protocols regarding critical communications between DEC and the Incident Command Post. The policy should clarify the roles of the Department and DEC in the coverage and monitoring of the Control Command and Tactical Channels (if activated).

Engine 20 accidentally activated their emergency alarm while en route to the incident. DEC communicated over the Tactical Channel this information to the Command Post while fireground units were attempting to relay Emergency Traffic/Mayday information to the Incident Commander.

When the Incident Commander became aware of a Firefighter emergency, he notified the DEC via the Tactical Channel that a RIC operation was in effect and requested additional resources. This could have stepped over other transmissions on the fireground and/or could have been missed by the DEC.

- 11. The Department should research and determine feasibility of purchasing radio systems to enhance verbal and radio communications in conjunction with properly worn SCBA.**

The Department should research and determine feasibility of purchasing integrated systems that will allow Firefighters to communicate more clearly while wearing their SCBA.

- 12. The Department should work with manufacturers in order to research radio equipment that can sustain heat conditions which Firefighters experience.**

The damage on the radios of Victims 1 and 2 was to the coiled cord between the radio attachment and the remote speaker/microphone. According to manufacturer's specifications the maximum operating temperature of the remote speaker/microphones is +140 °F with a thermal shock of +176°F. *(As of the writing of this report the Department is working with Lion Apparel to develop a protective sleeve for the remote speaker/microphone cords.)*

- 13. The Department should make a request to the NFPA to develop a standard on the use of Portable radios under firefighting conditions.**

At the time of this report, the NFPA does not have a standard for portable radios used under firefighting conditions. In 2006, NIST recommended that a standard be developed regarding the use of portable radios for Firefighters. *The Chief of Department sent a letter on November 3, 2011 to NFPA making this request (See Attachment M).*

- 14. The Department should review and update a standardized location and type of name identification for the Personal Protective Equipment (PPE).**

At the scene of this incident, members were unable to readily identify who the victims were inside or outside the building. Also during the investigation, while analyzing photographic evidence, the names of members on a uniformed/ designated location on the turnouts would have allowed for a quicker identification of members located on the fireground.

15. The Department should work toward updating SCBA to the current NFPA standard.

The SFFD should purchase SCBA that meet the 2007 edition of the NFPA 1982 Standard. The SFFD has applied for a grant to purchase the new SCBA and replace all the units in the Department. (See Self Contained Breathing Apparatus Report from NIOSH, page 91.) Current SCBA meet the 1997 edition of the NFPA 1982 Standard.

16. The Department should establish a Line of Duty Death/Serious Injury Investigation policy, including on scene procedures for the Incident Commander.

At the current time, the Chief of the Department, following a serious event, evaluates and determines if an investigation is warranted. If it is determined that an investigation will be conducted, the Chief will assign a Safety Investigation Team. *(At the time of this report, the Department is reviewing a draft Line of Duty Death/Serious Injury Investigation Policy.)*

17. The Department should develop an all Risk Management Policy.

Members should be able to use a procedure which includes a risk/benefit analysis in order to choose the appropriate action plan. *(At the time of this report, the Department is reviewing a draft Risk Management Policy.)*

18. The Department should develop a standardized transfer of command procedure for all incidents that would include situational status and complete accountability report.

During the transfer of command, there was not a clear understanding on the location and extent of the fire. In addition, all assigned resources were not accurately accounted for, nor was their location and assignment. The investigation found that the building description was inconsistent with ICS terminology as to the location of the fire and the assignment of resources *(At the time of the writing of this report the Department is reviewing a draft policy for Command Post Operations).*

19. The Department should develop a Standard Operating Guideline (SOG) for fighting fires in residences built on downhill slopes.

First arriving units started initial attack as they would with any normal single family residence. Buildings of this type, with large windows and with limited or no Fire Department access to the Charlie side, present a unique situation. Fires on lower levels of these buildings could place our members in extremely dangerous positions while conducting standard fireground operations.

20. The Department should develop a policy and procedure for coordinating ventilation operations.

At this incident, a window in Sublevel 1 failed (due to heat conditions), influencing the fire and causing the rapid extreme heat conditions to travel up the stairwell. All members operating on the fireground must understand how ventilation will influence the fire including the intensity and path. Ventilation must be coordinated with interior crews to ensure that members will not be placed in the "flow path".

21. The Department should update their communications protocols to include Company acknowledgment of new assignments and critical information via radio.

At this incident, Command made multiple transmissions with critical information that was not acknowledged by multiple units. All Companies that received critical information or are assigned a task/assignment from Command via radio should acknowledge it by repeating it (i.e. *"Fire Attack, this is Command, be advised you have heavy fire in the attic space; Command, Fire attack copies, heavy fire in the attic"*).

22. The Department should develop a procedure in which Companies that are due for administrative duties (i.e. hearing, mask fitting, etc.) shall do so as a Company, in order to minimize understaffing of crews.

At this incident, two Engine Companies responded understaffed by one member.

- 23. The Department should develop a policy in which Companies will notify the responding Chief Officer/s when responding understaffed.**

At this incident, the first two Engine Companies were responding understaffed and the Incident Commanders were not aware of this until late in the incident.

- 24. The Department shall ensure that all members wear appropriate Personal Protective Equipment (PPE) at incidents.**

At this incident, not all members responding to the fire were in complete Personal Protective Equipment (PPE).

- 25. The Department should reinforce to the public the importance of calling 911 immediately in the event of an emergency.**

The resident at the incident attempted to extinguish the fire prior to calling 911.

The Safety Investigation Team identified a need for a comprehensive and continuous training program that encompasses many of the recommendations that were listed above. The training program would include simulations that would enhance our members' knowledge and skills in the following areas:

- **Situational Awareness**
- **Risk Management**
- **Command Post Operations**
- **Fireground Tactics including Engine and Truck Operations**
- **Safety**
- **ICS Terminology**
- **Mayday/Emergency Traffic/RIC**
- **Communications**
- **Building Construction**
- **Fire Behavior**
- **Single Action Plan**

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ATTACHMENT LIST

Attachment A - Green Sheet

Attachment B - Weather report

Attachment C - CAD printout

Attachment D - SFFD Incident Command Worksheet

Attachment E - SCBA Report from NIOSH

Attachment F - SCBA Report from SFFD

Attachment G - Mask Fit Reports

Attachment H - Personal Protective Equipment report from NIOSH

Attachment I - Portable Radios Report

Attachment J - Motorola Response to SFFD

Attachment K - Remote Speaker Microphone Fact Sheet

Attachment L - Bureau of Equipment E26 Pump test

Attachment M - NFPA request for Portable Radio Standard by Chief Hayes-White

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ATTACHMENT A - GREEN SHEET

Preliminary Injury Investigation 11-01 Green Sheet

Date	06/02/11	Time	1045 hrs	Inc.#	11050532	Location	133 Berkeley Way
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Incident Facts	<p>3 story Type 5 single family residence with no visible fire but light smoke showing. The first Engine on the scene, Engine 26 led a 1 3/4" line through the main entrance in search of the fire. The 2nd engine led line through the garage and then was redirected to take the lead through the front door. The 3rd and 4th engines led lines to the 2nd level below grade where they found the fire and made an aggressive attack. The 1st truck laddered the building and conducted an interior search of the 2nd floor. The 2nd truck ventilated the roof of the building. During a primary search and checking for fire extension, members of Engine 24, T11, and Rescue Squad 1 found members of Engine 26 on the floor above the fire.</p>
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Civilian Injuries/Deaths	None
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Firefighter Injuries	Injury	Location	Cause	Comments
Firefighter #1	Fatality	Under Investigation	Under Investigation	Firefighter was wearing full PPE
Firefighter #2	Fatality	Under Investigation	Under Investigation	Firefighter was wearing full PPE
Firefighter #3	burn	Neck	Heat of fire	Firefighter was wearing full PPE
Firefighter #4	Burn	Ear	Heat of fire	Firefighter was wearing full PPE

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ATTACHMENT B - WEATHER REPORT

History : Weather Underground

<http://www.wunderground.com/history/airport/KSFO/2011/6/2/Dail...>

History for San Francisco, CA

Thursday, June 2, 2011 — [View Current Conditions](#)

Thursday, June 2, 2011

« Previous Day

June 2 2011 View

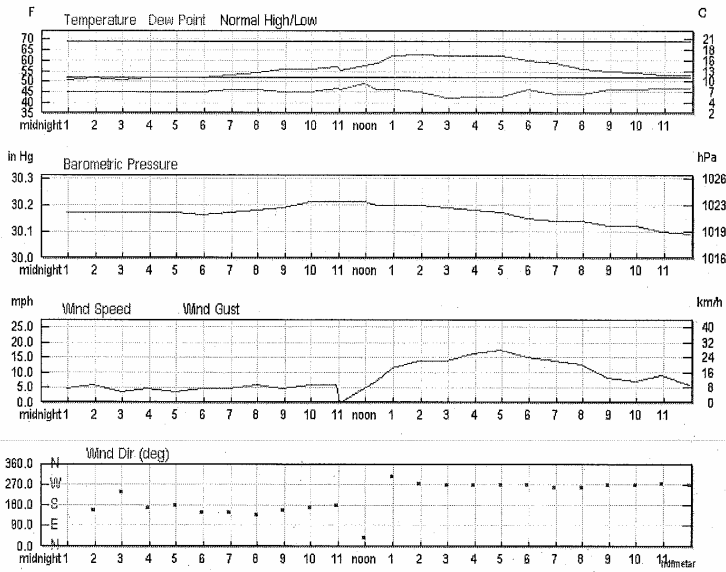
Next Day »

Daily Weekly Monthly Custom

	Actual	Average	Record
Temperature			
Mean Temperature	57 °F	60 °F	
Max Temperature	63 °F	69 °F	91 °F (1989)
Min Temperature	51 °F	52 °F	43 °F (1954)
Degree Days			
Heating Degree Days	8	5	
Month to date heating degree days	16	10	
Since 1 June heating degree days	16	10	
Since 1 July heating degree days	2631	2752	
Cooling Degree Days	0	0	
Month to date cooling degree days	0	0	
Year to date cooling degree days	6	14	
Since 1 June cooling degree days	0	0	
Growing Degree Days	7 (Base 50)		
Moisture			
Dew Point	45 °F		
Average Humidity	63		
Maximum Humidity	77		
Minimum Humidity	48		
Precipitation			
Precipitation	T in	0.01 in	0.10 in (1961)
Month to date precipitation	0.15	0.02	
Year to date precipitation	12.38	13.30	
Since 1 July precipitation	21.64	20.02	
Sea Level Pressure			
Sea Level Pressure	30.17 in		
Wind			
Wind Speed	8 mph (SW)		
Max Wind Speed	20 mph		
Max Gust Speed	23 mph		
Visibility	10 miles		
Events			

T = Trace of Precipitation, MM = Missing Value

Source: NWS Daily Summary



Certify This Report

Hourly Observations

Time (PDT)	Temp.	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
12:56 AM	51.1 °F	45.0 °F	80%	30.17 in	10.0 mi	South	4.6 mph	-	N/A		Scattered Clouds
1:56 AM	52.0 °F	45.0 °F	77%	30.17 in	10.0 mi	SSE	5.8 mph	-	N/A		Scattered Clouds
2:56 AM	51.1 °F	45.0 °F	80%	30.17 in	10.0 mi	WSW	3.5 mph	-	N/A		Clear
3:56 AM	52.0 °F	45.0 °F	77%	30.17 in	10.0 mi	South	4.6 mph	-	N/A		Overcast
4:56 AM	52.0 °F	45.0 °F	77%	30.17 in	10.0 mi	South	3.5 mph	-	N/A		Mostly Cloudy
5:56 AM	52.0 °F	45.0 °F	77%	30.16 in	10.0 mi	SSE	4.6 mph	-	N/A		Mostly Cloudy
6:56 AM	53.1 °F	46.0 °F	77%	30.17 in	10.0 mi	SSE	4.6 mph	-	N/A		Mostly Cloudy
7:56 AM	54.0 °F	46.0 °F	75%	30.18 in	10.0 mi	SE	5.8 mph	-	N/A		Mostly Cloudy
8:56 AM	55.9 °F	45.0 °F	67%	30.19 in	10.0 mi	SSE	4.6 mph	-	N/A		Mostly Cloudy
9:56 AM	55.9 °F	45.0 °F	67%	30.21 in	8.0 mi	South	5.8 mph	-	0.00 in		Overcast
10:56 AM	57.0 °F	46.9 °F	69%	30.21 in	10.0 mi	South	5.8 mph	-	0.00 in		Mostly Cloudy
11:03 AM	55.4 °F	46.4 °F	72%	30.21 in	10.0 mi	Calm	Calm	-	N/A		Mostly Cloudy

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Time (PDT)	Temp.	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
11:56 AM	57.9 °F	48.9 °F	72%	30.21 in	10.0 mi	NE	4.6 mph	-	N/A		Mostly Cloudy
12:22 PM	59.0 °F	46.4 °F	63%	30.20 in	10.0 mi	Variable	6.9 mph	-	N/A		Overcast
12:56 PM	62.1 °F	46.0 °F	56%	30.20 in	10.0 mi	NW	11.5 mph	-	N/A		Mostly Cloudy
1:56 PM	63.0 °F	45.0 °F	52%	30.20 in	10.0 mi	West	13.8 mph	-	N/A		Mostly Cloudy
2:56 PM	62.1 °F	42.1 °F	48%	30.19 in	10.0 mi	West	13.8 mph	-	N/A		Mostly Cloudy
3:56 PM	62.1 °F	43.0 °F	50%	30.18 in	10.0 mi	West	16.1 mph	-	N/A		Mostly Cloudy
4:56 PM	62.1 °F	43.0 °F	50%	30.17 in	10.0 mi	West	17.3 mph	-	N/A		Scattered Clouds
5:56 PM	60.1 °F	46.0 °F	60%	30.15 in	10.0 mi	West	15.0 mph	-	N/A		Scattered Clouds
6:56 PM	59.0 °F	44.1 °F	58%	30.14 in	10.0 mi	West	13.8 mph	-	N/A		Mostly Cloudy
7:56 PM	55.9 °F	44.1 °F	64%	30.14 in	10.0 mi	West	12.7 mph	-	N/A		Mostly Cloudy
8:56 PM	55.0 °F	46.0 °F	72%	30.12 in	10.0 mi	West	8.1 mph	-	N/A		Scattered Clouds
9:56 PM	54.0 °F	46.0 °F	75%	30.12 in	10.0 mi	West	6.9 mph	-	N/A		Scattered Clouds
10:56 PM	53.1 °F	46.9 °F	80%	30.10 in	10.0 mi	West	9.2 mph	-	N/A		Scattered Clouds
11:56 PM	53.1 °F	46.9 °F	80%	30.09 in	10.0 mi	West	5.8 mph	-	N/A		Scattered Clouds

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ATTACHMENT C - CAD

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Printed for: FHQC/STN56                               Wed Jan 25 12:00:10 2012
Tiburon/CAD      EVENT HISTORY DETAIL:      S111530113      01-25-12
                  SAN FRANCISCO FIRE              12:00

S111530113 3 FIB    133 BERKELEY WY,SF (D=3H ONIQUE LN & CRAGS CT)

10:44:45 DP04 ENTRY   AD:W911-██████████, SF #W911-██████████
                  ██████████ ORIGIN:E911
10:44:45 DP04 ZIPCODE 94131
10:45:01 DP22 DISPATCH E26:E E11:E E24:E T11:T T15:T B06:B B09:B B10:B RS1:RS
                  74:M TCA16:TC 11050532 assigned
10:45:01 DP22 PERS-ID E26 ██████████ Perez,Vincent A ██████████>Martin,Bruce D
                  ██████████ Valerio,Anthony M ██████████>Chew, Wayne
10:45:01 DP22 PERS-ID E11 ██████████ MURRAY, David L ██████████>Dicker, Joshua
                  ██████████ O'KEEFE, Tracy L ██████████>Casey,Daniel V
10:45:01 DP22 PERS-ID E24 ██████████ Farmer,Timothy J ██████████>EGAN, Matthew V.
                  ██████████ Holl,Nicholas ██████████>Bryan,Patrick
10:45:01 DP22 PERS-ID T11 ██████████ Novo,Dustin C ██████████>Clark,Michael D
                  ██████████ RCKERDT, Dewayne W ██████████>Kotake,Chuteh M
                  ██████████>Ramos, Edwin
10:45:01 DP22 PERS-ID T15 ██████████ Bendik,Anthony J ██████████>Ferguson,Chauncey J
                  ██████████ BUSBY, Thomas J ██████████>DACALANIO, M
                  ██████████>Barreto Jr,Ramon
10:45:01 DP22 PERS-ID B06 ██████████>ABBOTT, THOMAS F
10:45:01 DP22 PERS-ID B09 ██████████>Johnson,Mark J ██████████>Ewart,Brett F
10:45:01 DP22 PERS-ID B10 ██████████>Vannucchi,James M
10:45:01 DP22 PERS-ID B01 ██████████>Kircher James S ██████████>Cleland,Jay M
                  ██████████>Chiang,Jerry ██████████>Quesada,Geoffrey R
10:45:01 DP22 PERS-ID 74 ██████████ Diaz, Edwin Antonio ██████████>ONG, Peter
10:45:15 F451 RESPOND B06
10:45:16 F446 RESPOND 74
10:45:17 DP34 DISPOSTN FIR
10:45:19 DP04 SUPP   TX:CURTAIN IN THE LIVING ROOMS CAUGHT FIRE
10:45:48 F196 RESPOND T15
10:45:51 DP34 DSPINFO TCA16 A3/8155/TCA16
10:46:22 DP34 ON-RADIO B10
10:46:25 F195 RESPOND RS1
10:46:26 DP04 SUPP   TX:CALLER STATES SOME WIRES SHORTED OUT AND FLAMES ON
                  THE CURTAIN
10:46:33 F457 RESPOND B09
10:46:36 F501 RESPOND E11
10:46:43 DP04 SUPP   TX:ALL OCCUPANTS ARE OUTSIDE THE BLDG NOW
10:46:43 DP34 BRSP   B06 D3:D
10:46:43 DP34 PERS-ID D3 ██████████ Siragusa,Thomas A ██████████>Chan,Wing C
10:46:44 F494 RESPOND E26
10:46:47 F225 RESPOND T11
10:47:13 F503 RESPOND E24
10:47:17 DP34 RESPOND TCA16
10:47:58 F494 ONSCENE E26
10:48:31 DP34 MISC   E26, 3S WOOD FRAME HOUSE.....LITE SMOKE, MTF .
10:50:42 DP30 MISC   WF ON 3RD FL 2S BELOW GRADE
10:50:50 DP34 FNLTYPE E26 finaltype:FIB-->WF
10:50:51 DP34 BACKUP E32:E RC3:RC
10:50:51 DP34 PERS-ID E32 ██████████ Wilson,Chase ██████████>Bradney,Mark
                  ██████████ LEAHY,ELIZABETH ██████████>Maxion,David M
10:50:51 DP34 PERS-ID RC3 ██████████>PAZACKERLEY,JIM
10:51:00 F503 ONSCENE E24
10:51:03 DP25 DSPINFO E32 RIC
10:51:08 F109 RESPOND E32
10:51:25 DP26 MISC   *** PD CAD .1166
10:51:39 F501 ONSCENE E11
10:51:49 DP34 MISC   D3, PER E26, THIS IS A LOW GRADE WORKING FIRE
10:51:51 F451 ONSCENE B06
10:51:58 F446 ONSCENE 74
10:52:27 DP22 MISC   ACV ALL DONE BY HS
10:52:36 DP30 MISC   PAGR FIRST, WF AT 133 BERKELEY WY ..D3 SIRAGUSA..B06
                  ABBOTT..3S T5 RESIDENTIAL..2S BELOW GRADE..FIRE ON 3RD
                  FL.
10:53:08 F400 RESPOND RC3
10:53:22 DP30 MISC   TCA16, E26 LOOKING FOR SOURCE
    
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Personal information and protected health information contained in the records has been redacted based on the privacy considerations expressed in the Federal Health Insurance Portability and Accountability Act (45 CFR §164), the Confidentiality of Medical Information Act (California Civil Code §56.20), the Public Records Act (California Government Code §6254(c)), and the San Francisco Sunshine Ordinance (SF Administrative Code §67.20 & §67.1(g)). Some of the information has been widely publicized in the media and has therefore become public domain. This information was therefore not redacted.

10:53:07 DP30 ONSCENE B09
 10:54:15 F195 ONSCENE RS1
 10:54:36 DP30 MISC B09, FIRE ATTACK
 10:55:05 F400 ONSCENE RC3
 10:55:10 F196 ONSCENE T15
 10:56:11 DP30 MISC T11, 3 BLOCKS OUT
 10:56:15 DP34 ONSCENE D3
 10:56:23 DP34 DSPINFO D3 BERKELEY COMMAND
 10:56:24 F109 ONSCENE E32
 11:01:44 DP34 BACKUP E20:E
 11:01:44 DP34 PERS-ID E20 ██████ Blatman, Gregory L ██████ BELTRAN, MARTIN
 ██████ Benson, Philip H ██████ Takeuchi, Gregg M
 11:02:34 DP34 BRSP E11 BEL:SE
 11:02:42 DP34 MISC E20, RESPONDING AS A SECONDARY RIC
 11:02:51 DP34 DSPINFO E20 2ND RIC
 11:04:22 DP34 MISC D3, 3S, WATER ON THE FIRE DETACHED BLDG, MTF
 11:06:00 DP30 MISC KNOCKED ON 2ND LEVEL
 11:06:07 DP19 SUPP AD:VOID-VOID ██████ ██████
 ██████ ██████ \ORIGIN:E911\TX:911 H/U , PER CB
 RELATED TO FIRE
 11:07:09 DP30 MISC FIRE ON TOP FL CHARLIE SIDE OF BUILDING
 11:07:10 DP07 SUPP AD:RESD ██████ ██████
 ORIGIN:E911\TX:ANOTHER CALL...ADV'D UNITS OS, SAW HUGE
 AMOUNT OF FIRE
 11:07:49 DP34 MISC E20, PER TELEPHONE CALL TO PS20, NO ANSWER FOR E20
 11:08:15 DP30 RRESPOND E20
 11:09:09 DP22 BACKUP 95:M 57:M
 11:09:09 DP22 PERS-ID 95 ██████ Ybarra, Irene A ██████ ESTRADA, Michelle N.
 11:09:09 DP22 PERS-ID 97 ██████ GUITERREZ, Osbaldo ██████ GREENE, Jennifer
 M.
 11:09:18 DP34 BRSP B06 CD2:CD
 11:09:18 DP34 PERS-ID CD2 ██████ Gardner, Patrick T
 11:09:19 DP33 BRSP B06 B02:B
 11:09:19 DP33 PERS-ID B02 ██████ Postel, Robert F ██████ Pampanin, Vincent A
 11:09:39 F437 RESPOND 95
 11:09:47 DP22 MISC RIC OP IP
 11:09:50 F452 RESPOND 57
 11:10:05 DP33 MISC B02, RESPONDING FOR THE RIC OPERATIONS
 11:10:33 DP30 MISC RIC OPERATION ..2 MEDIC UNITS
 11:10:57 DP34 MISC 95, RESPONDING FROM SILVER/SAN BRUNO
 11:10:58 DP24 MISC 95, FROM SILVER/SAN BRUNO
 11:11:24 DP21 BRSP E24 RC2:RC
 11:11:24 DP21 PERS-ID RC2 ██████ AVANAUGH, JOHN
 11:11:35 DP24 MISC D3, 2ND ALARM ...
 11:11:50 DP34 ALARM D3 alr:1-->2
 11:12:20 DP34 ALARM D3
 11:12:50 DP34 BACKUP E39:E E06:E E07:E E09:E T12:T ARI:SE MA1:SE J1:SE
 11:12:50 DP34 PERS-ID E39 <█████> Griffin, Daniel B ██████ Grinton, Kimberly A
 ██████ Connell, Megan G ██████ Connell, Jim
 11:12:50 DP34 PERS-ID E06 ██████ Ibarra-Rivera, Luis A ██████ Simon, Ramon
 ██████ HARSHMAN, KJELL E ██████ Salas, Chris J
 11:12:50 DP34 PERS-ID E07 <CA4340> Cavellini, Neal ██████ Caungula, Yusufu
 ██████ Reichard, Jason J ██████ Parish, James H.
 11:12:50 DP34 PERS-ID E09 <█████> Chu, Edward Y ██████ LOW, JON M.
 <T03309> Tom, Brandon ██████ Chow, Jack K
 11:12:50 DP34 PERS-ID T12 ██████ D'Arcy, Patrick D. ██████ Hua, Scott V
 ██████ Lee, Deryk C ██████ WONG, TIMOTHY
 ██████ THOMAS, Eli
 11:12:50 DP34 PERS-ID ARI ██████ Bowden, Attica D
 11:13:07 DP26 BRSP E26 79:M
 11:13:07 DP26 PERS-ID 79 ██████ HOWLETT, Laura ██████ Ainsworth, Ken David
 11:13:07 F498 RESPOND E06
 11:13:10 F500 RESPOND E07
 11:13:14 DP24 MISC D3, WE HAVE 2 FIREFIGHTERS THAT ARE DOWN .. ADVANCED
 LIFE SUPPORT AT THIS POINT AND NEED THE MEDICS ASAP..
 11:13:24 DP26 MISC 79, UNIT RESPONDING C/3
 11:13:45 F140 RESPOND E39
 11:14:04 DP24 ONSCENE CD2
 11:14:05 DP34 BRSP B02 E15:E

11:14:05 DP34 PERS-ID E15 [REDACTED] Chung, John F [REDACTED] DEVILLE, MARC
 [REDACTED] Payne, Nicholas A [REDACTED] CUAN, EMIL
 11:14:15 F483 RESPOND B09
 11:14:18 F154 RESPOND T12
 11:14:22 DP33 ON-RADIO E11
 11:14:46 DP34 MISC D3, 2 FIREFIGHTERS DOWN NEEDS AN EXPEDITED RESPONSE
 11:15:26 DP24 MISC D3, HAVE DIVISION 2 RESPOND
 11:15:39 DP24 MISC D3, AND KEEP THIS ON A16 & 13
 11:15:46 DP24 MISC D3, MEDICAL ON A4 .. SPECIAL CALL D2
 11:16:02 F140 ONSCENE E39
 11:16:17 DP21 BRSP E24 B08:B
 11:16:17 DP21 PERS-ID B08 [REDACTED] Kalos, Lorrie A
 11:16:18 DP24 BACKUP D3 D2:D
 11:16:18 DP24 PERS-ID D2 [REDACTED] enney, Arthur W [REDACTED] SIMS, ADRIENNE R.
 11:16:20 DP34 RESPOND AR1
 11:16:35 F453 RESPOND D2
 11:16:39 F455 ONSCENE B02
 11:17:05 F103 ONSCENE E15
 11:17:07 DP34 RESPOND J1
 11:17:07 F452 ONSCENE 57
 11:17:13 F437 ONSCENE 95
 11:17:19 05 DSPACK
 11:17:19 DP24 ONSCENE RC2
 11:17:20 F439 ONSCENE B08
 11:17:32 DP30 MISC PAGR SECOND, 2 FIREFIGHTERS DOWN, RIC OPERATION IN
 EFFECT AT 133 BERKELEY WAY..RIC/TCA16. A6
 COMMAND..A4MEDICAL..
 11:17:58 DP33 RESPOND MA1
 11:18:02 DP24 MISC 95, WERE ARE HERE SAFE AVENUE OF ENTRY
 11:18:36 DP24 MISC 95, STAY OUT OF THE WAY .. WE HAVE 2 MEDICS OS RIGHT NOW
 .. WALK IN & WILL ADVISE
 11:18:38 DP34 MISC BE1, DRIVING M74 ... 2 CRITICAL FIREFIGHTERS [REDACTED]
 [REDACTED] GOING TO SFG
 [REDACTED] ..74 ER TO SFG..CODE 3..2 MEMBERS
 11:18:52 DP30 MISC
 11:20:06 DP30 MISC DR TERRAZA
 11:20:33 F440 ONSCENE 79
 11:20:45 DP30 MISC [REDACTED]
 11:21:20 DP26 ONSCENE TCA16
 11:21:22 DP26 ONSCENE T11
 11:21:33 DP26 ONSCENE E20
 11:22:22 DP34 MISC BE1, DRIVING M74 WITH 1 MEMBER....2 ARE CRITICAL
 [REDACTED]
 11:23:01 DP34 BACKUPOS BE1 70:M
 11:23:01 DP34 PERS-ID 70 [REDACTED] RIDDICK, Veronica B. [REDACTED] NGUYEN, Tan
 11:23:28 DP34 MISC 70, STANDING BY AT SFG.....THEY HAVE BEEN NTFY'D THAT 2
 CRITICAL MEMBERS ARE COMING IN MEDIC IS STANDING
 BY
 11:23:29 F154 ONSCENE T12
 11:23:52 F483 ONSCENE E09
 11:23:59 F453 ONSCENE D2
 11:24:31 DP25 MISC PER KELLY IN CHIEFS OFFICE...FATHER GREEN RESPONDING TO
 SFG
 11:24:52 DP30 MISC PIO ER
 11:25:13 DP34 MISC BE1, [REDACTED]
 11:25:31 DP30 BRSP PI01:SE
 11:26:11 DP34 HOSPITAL 74
 11:26:41 DP34 ONSCENE BE1
 11:26:59 06 DSPACK
 11:27:43 DP34 DSPINFO 74 SFG/DELAYED
 11:28:12 DP24 BACKUPOS T12 E11:E
 11:28:12 DP24 PERS-ID E11 [REDACTED] MURRAY, David L. [REDACTED] Dicker, Joshua
 [REDACTED] KREEPE, Tracy L. [REDACTED] Casey, Daniel V
 11:29:46 DP34 BRSP 74 CAR900:SE
 11:30:35 DP33 ONSCENE MA1
 11:31:47 DP33 DSPINFO MA1 STAGED BERKELEY/BERNAL HEIGHTS
 11:32:01 DP24 DSPINFO 57 SFG, PER AVL ..
 11:32:22 DP24 DSPINFO 70 SFG, PER AVL
 11:34:09 DP33 HOSPITAL 57
 11:34:15 DP33 DSPINFO 57 DELAYED

11:36:19 DP24 MISC D3, NEED WATER UP HERE ... TRYING TO RAISE MAI
 11:41:09 DP30 MISC PAGR CMDSTAFF, STRESS UNIT...ONE RESPOND TO SFG OTHER TO
 133 BERKELEY WAY. CALL RADIO TO CONFIRM RECEIPT
 11:41:39 DP30 MISC KEN JONE ER TO SFG AND GREG COLLACO ER TO 133 BERKELEY
 MAY
 11:46:07 DP26 ON-RADIO 70
 11:46:13 DP30 ON-RADIO 74
 11:46:21 DP30 ON-RADIO 57
 11:55:11 DP34 BRSP B02 B10:B
 11:55:11 DP34 PERS-ID B10 [REDACTED] Vannucchi, James M
 12:01:59 DP24 MISC D3, 2ND ALARM CO'S IN ON THEIR OWN .. 95 TAKING ONE MORE
 FF TO THE HOSP
 12:05:00 DP34 ON-RADIO E06
 12:06:23 DP34 ON-RADIO E07
 12:07:21 DP34 TRANSPRT 95 SFG
 12:07:45 DP34 DISPOSTN 95 TMP, W/1 C3
 12:08:23 F140 ON-RADIO E39
 12:08:43 F103 ON-RADIO E15
 12:08:43 DP34 MISC 95, RC TANGHERLINI NOTIFYING SFG C3
 12:08:48 DP30 MISC PAGR SECOND, MEDIC 95 IS TRANSPORTING CODE 3 TO SFG FROM
 133 BERKELEY WAY
 12:09:40 F154 ON-RADIO T12
 12:11:58 F483 ON-RADIO E09
 12:20:53 DP34 CHGLOC B10 SFG,SF
 12:21:50 DP34 HOSPITAL 95, 5MINS AGO
 12:23:24 DP30 MISC PAGR INJURY, MEDIC 95 TRANSPORTED CODE 3 TO SFG.
 CURRENTLY AT HOS WITH ANOTHER FF INJURY
 12:29:10 DP25 BACKUP B08 MCI:SE
 12:35:07 DP24 MISC MCI, ER TO BERKLELY C2
 12:35:16 DP24 MISC MCI, ER TO BERKLELY C2
 12:35:27 F439 ON-RADIO B08
 12:36:47 DP24 RESPOND MCI
 12:37:02 38 DSPACK
 12:37:37 39 DSPACK
 12:42:48 DP26 DSPINFO 95 EXTENDED/SFG
 12:46:58 DP34 ONSCENE B10
 12:47:06 DP34 DSPINFO B10 DELAYED SFG
 12:47 ? DP34 ONSCENE ARI
 12:49:37 DP24 MISC D3, NEED RED CROSS FOR 4 PEOPLE DISPLACED .. FOOD ..
 ALREADY CALLED ON THAT .. REVERTING BACK TO A3
 12:51:35 DP24 MISC D3, RED CROSS NTFD
 13:00:08 DP33 ONSCENE MCI
 13:04:16 DP34 ON-RADIO B10
 13:11:08 SU01 MISC RED CROSS ETA 30-45 MINS--WITH FOOD FOR APPR 45--ADVISED
 4 DISPLACED AND APPR 40 FF'S.
 BERKELY COMMAND ADVS RC 40 FF'S STILL O/S
 13:12:34 DP34 MISC
 13:25:18 F437 ON-RADIO 95
 14:01:08 DP30 BRSP RC3 54:M
 14:01:08 DP30 PERS-ID 54 [REDACTED] ORR, Michael Brannon [REDACTED] SOTO, Eric
 14:01:21 DP30 ON-RADIO 79
 14:25:14 F404 ONSCENE 54
 14:45:15 DP34 ON-RADIO B02
 15:05:48 DP34 BACKUP 59:M
 15:05:48 DP34 PERS-ID 59 [REDACTED] KIMMEL, David J.
 15:07:13 DP34 RESPOND 59
 15:15:38 F427 ONSCENE 59
 15:17:54 F404 TRANSPRT 54 SFG
 15:19:36 DP34 TRANSPRT 54 SFG
 15:19:50 DP34 DISPOSTN 54 TH2, TX ANOTHER FIRE FIGTHER TO GENERAL
 15:22:46 DP21 PREEMPT RC2
 15:33:09 F404 HOSPITAL 54
 16:01:55 DP22 ON-RADIO 54
 16:02:57 DP26 ON-RADIO 59
 16:14:24 F195 STATION RS1
 16:16:15 F400 ON-RADIO RC3
 16:38:27 DP33 ON-RADIO MA1
 17:57:24 DP34 BRSP B06 B10:B
 17:57:24 DP34 PERS-ID B10 [REDACTED] Vannucchi, James M
 17:57:35 DP34 ON-RADIO T11

18:03:53 PF11 STATION E11
 18:10:13 DP30 STATION E24
 18:20:29 DP34 ONSCENE B10
 18:20:40 DP33 ON-RADIO E20
 18:20:41 DP34 MISC B10, ON SCENE FOR FIRE WATCH
 18:23:03 DP34 ON-RADIO MC1
 18:24:44 DP34 CLR-PRMT B06
 18:25:04 DP34 DSPINFO B10 FIRE WATCH
 18:35:59 F457 ON-RADIO B09
 19:13:57 F453 ON-RADIO D2
 19:20:28 F196 STATION T15
 19:28:59 DP30 BACKUP B06 E41:E B07:B
 19:28:59 DP30 PERS-ID E41 [REDACTED] Buren, Heather M [REDACTED] KASHIMA, KP NAKIA
 [REDACTED] Lui, Joe K. [REDACTED] MORONEY, Noel
 19:28:59 DP30 PERS-ID B07 [REDACTED] Lai, Samson
 19:30:04 DP30 RESPOND B07
 19:32:49 F475 RESPOND E41
 19:38:58 F451 ON-RADIO B06
 19:51:47 F442 ONSCENE B07
 19:59:46 F475 ONSCENE E41
 20:05:45 F450 ON-RADIO D3
 20:12:04 DP34 ON-RADIO B10
 20:19:11 DP30 DSPINFO E41 FIRE WATCH
 20:19:20 DP30 DSPINFO B07 FIRE WATCH
 20:24:59 DP30 STATION E32
 20:31:40 DP30 ON-RADIO E26
 20:33:22 DP30 BACKUPOS CD2 E26:E
 20:33:22 DP30 PERS-ID E26 [REDACTED] Perez, Vincent A [REDACTED] Thompson, Michael M
 [REDACTED] Rey, Thomas A [REDACTED] Valerio, Anthony M
 [REDACTED] Ramos, Rueben N.
 20:45:11 FF55 STATION BE1
 21:16:16 DP30 ON-RADIO J1
 21:16:46 DP30 ON-RADIO E26
 22:07:46 DP30 ON-RADIO CD2
 22:07:46 DP30 ON-RADIO CAR900
 22:07:46 DP30 ON-RADIO PIO1
 23:30:58 DP30 BACKUP B07 E40:E B03:B
 23:30:58 DP30 PERS-ID E40 [REDACTED] Wolowic, Theresa E [REDACTED] Sorrenti, Danielle
 [REDACTED] AVILES, RICK [REDACTED] Higgins, Harry
 23:30:58 DP30 PERS-ID B03 [REDACTED] CRANE, CHARLIE
 23:31:22 40 DSPACK
 23:34:59 DP30 RESPOND E40
 23:35:51 DP30 RESPOND B03
 23:35:52 DP34 ONSCENE B03
 23:36:16 DP30 MISC B03, AT SPG PER D2
 23:52:03 F497 ONSCENE E40

 06/03/11
 00:13:49 DP29 ON-RADIO E41
 00:20:33 08 DSPACK
 00:38:05 F442 ON-RADIO B07
 01:40:34 FF54 STATION AR1
 03:30:52 DP26 BACKUP E40 E14:E B01:B
 03:30:52 DP26 PERS-ID E14 [REDACTED] MALONEY, Michael [REDACTED] BERGMARK, Heidi A.
 [REDACTED] Jepsen, Carl M [REDACTED] Eberhart, Scott W
 [REDACTED] GONZALEZ, E [REDACTED] Karawanny, George
 03:33:03 F171 RESPOND E14
 03:38:07 F458 RESPOND B01
 03:53:53 F171 ONSCENE E14
 04:07:16 F497 ON-RADIO E40
 04:38:33 F419 ON-RADIO B03
 05:15:22 DP21 ONSCENE B01
 07:36:31 DP30 BACKUP E03:E B10:B
 07:36:31 DP30 PERS-ID E03 [REDACTED] Cordero, Kenneth C [REDACTED] Waterman, Kailin
 [REDACTED] M. [REDACTED] NOLAN, RICHARD M [REDACTED] Waters, David
 [REDACTED] Vannucchi, James M
 07:36:50 09 DSPACK
 07:37:55 DP34 MISC B01, REQ B10 TO RESPOND TO [REDACTED] AT SPGH
 07:38:31 DP34 MISC B01, FIRE BRIDGE WILL CONTACT B10 AND ADVISE HIM OF B01


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REQUEST
07:38:34 DP30 RESPOND B10
07:38:43 DP30 RESPOND E03
07:59:26 F454 ONSCENE B10
08:02:26 F473 ONSCENE E03
08:53:59 FF14 STATION E14
09:07:02 F458 ON-RADIO B01
09:34:45 DP25 DSPINFO B10 FIREWATCH
09:34:52 DP25 DSPINFO E03 FIREWATCH
11:41:45 DP30 BACKUP TCA16 E38:E
11:41:45 DP30 PERS-ID E38 ██████████ Darmstadt, Scott D <██████████> SANDIGO, Paul
██████████ TOBY, Ryan M. <██████████> Derammelaere, Ian J.
11:42:09 F159 RESPOND E38
12:05:48 F159 HOSPITAL E38
12:16:57 DP34 ON-RADIO B10
12:42:00 DP33 ON-RADIO E03
14:29:03 DP30 DSPINFO E38 FIREWATCH
15:39:29 DP30 BACKUP E38 E37:E
15:39:29 DP30 PERS-ID E37 ██████████ Jiang,Cecilia L <██████████> YI, DAVID SANG-JIN
██████████ DAIJO, Paul T. <██████████> Wong,Barry D
15:39:48 F488 RESPOND E37
15:51:58 F488 ONSCENE E37
16:36:42 DP33 ON-RADIO E38
19:01:04 DP34 BACKUPOS E37 D3:D
19:01:04 DP34 PERS-ID D3 ██████████ FRANKLIN, DAVID <██████████> Durkee Jr,Donald R
19:19:05 DP21 MISC D3, CONTACT CORONER AND UPDATE IF EN ROUTE
19:27:26 SU01 BRSP E37 E34:E
19:27:26 SU01 PERS-ID E34 ██████████ Ritter,David C <██████████> Nieto, Samuel P.
██████████ RADER,WILLIAM L <██████████> Gralicer, Robyn E
19:27:41 SU01 MISC E34, FROM 2000-0000 HOURS
19:28:01 SU01 DSPINFO E34 FIREWATCH 2000-0000
19:39:07 DP21 MISC D3, ME CONTACT D3
19:44:41 DP34 BACKUP T11:T
19:44:41 DP34 PERS-ID T11 ██████████ Choy, Arnold <██████████> Romero,Mario A
██████████ MAMMARCHI, Erik <██████████> Fewell,James R
██████████ Yip,Lawrence J
19:48:05 DP34 RESPOND T11
19:56:04 F225 ONSCENE T11
20:09:08 F450 ON-RADIO D3
20:15:10 DP30 ONSCENE E34
20:29:04 F488 ON-RADIO E37
20:47:40 F225 ON-RADIO T11
21:37:33 DP34 BACKUPOS TCA16 TCA15:TC
21:37:51 DP34 MISC TCA16, PER B06 PUT TCA16 IS SERVICE
21:38:00 DP34 ON-RADIO TCA16
23:17:22 DP21 BACKUP E34 E08:E
23:17:22 DP21 PERS-ID E08 ██████████ Glenn Ortiz-Schuldt <██████████> LOW, KENDRICK
██████████ O'BRIEN, DAMON P <██████████> Dito, Derio M.
23:18:32 DP21 DSPINFO E08 FIREWATCH 0000-0400
23:18:56 DP29 RESPOND E08
23:51:03 F238 ONSCENE E08

06/04/11
00:10:29 DP33 ON-RADIO E34
03:30:11 DP21 BACKUP E08 E02:E
03:30:11 DP21 PERS-ID E02 ██████████ Carrillo,Ernest M <██████████> Peterson, Michael
D. ██████████ Maguire,Bernard P <██████████> Animura,Eric T
03:33:11 DP21 DSPINFO E02 FIREWATCH 0400-0800
03:33:38 DP21 RESPOND E02
04:28:32 DP29 ON-RADIO E08
06:53:31 DP34 MISC E02, PER D3: E11 WILL BE RELIEF FOR E02
07:41:40 DP30 BACKUP E02 E11:E
07:41:40 DP30 PERS-ID E11 ██████████ MURRAY, David L. <██████████> Pompeo,Dana L
██████████ Dicker, Joshua <██████████> Jug,Paul J
07:43:15 DP30 DSPINFO E11 FIREWATCH 0800-1200
07:47:07 F501 RESPOND E11
07:52:55 F501 ONSCENE E11
07:59:39 DP34 ON-RADIO E02
08:36:08 DP30 BACKUP E11 E20:E

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08:36:08 DP30 PERS-ID E20 [REDACTED] Newton, Dwayne E [REDACTED] Nonomura, George
 [REDACTED] VALENTINO, Claudia [REDACTED] SIMON, MICHAEL J
 [REDACTED] BELTRAN, MARTIN [REDACTED] BELA J. CARREIRA

08:41:20 DP34 RESPOND E20
 08:48:42 F491 ONSCENE E20
 09:10:53 DP30 ON-RADIO E11
 11:52:35 DP30 BACKUP E20 E10:E
 11:52:35 DP30 PERS-ID E10 [REDACTED] Kircher, Glenn E [REDACTED] Kouremetis Jr, George
 M [REDACTED] Christy, John [REDACTED] YOCK, CHRISTOPHER G.

11:53:22 DP34 RESPOND E10
 12:17:56 DP34 ONSCENE E10
 13:02:05 F491 ON-RADIO E20
 15:52:31 DP30 BACKUP E10 E12:E
 15:52:31 DP30 PERS-ID E12 [REDACTED] Barbero, Joseph M [REDACTED] Lopes, Manual J.
 [REDACTED] Visser, Sean E < [REDACTED] RUIZ, ART A

15:53:01 F484 RESPOND E12
 15:54:05 DP30 DSPINFO E12 FIREWATCH 1600-2000
 15:54:32 DP30 DSPINFO E10 FIREWATCH 1200-1600
 16:07:50 F484 ONSCENE E12
 16:49:54 F502 ON-RADIO E10
 19:31:41 DP21 BACKUP E12 E21:E
 19:31:41 DP21 PERS-ID E21 [REDACTED] HUTCHINSON, Matt F. [REDACTED] WILLIAMS,
 Christine S. [REDACTED] MCGOLDRICK, GAVIN < [REDACTED] Salstran-
 d, Delainya I

19:35:00 DP21 RESPOND E21
 19:45:24 DP21 DSPINFO E21 FIREWATCH 2000-0000
 19:58:04 F496 ONSCENE E21
 20:12:47 F484 ON-RADIO E12
 23:30:21 DP21 BACKUP E21 E43:E
 23:30:21 DP21 PERS-ID E43 [REDACTED] LOPEZ, ROBERT [REDACTED] FERRARA, MICHAEL S
 [REDACTED] Lee, Mitchell T. [REDACTED] Murphy, Brian E.

23:31:11 DP34 DSPINFO E43 FIREWATCH 0000-0400
 23:31:16 DP21 DSPINFO E43 FIREWATCH 0000-0400
 23:31:32 DP34 RESPOND E43

06/05/11
 00:06:58 DP34 ONSCENE E43
 00:26:48 F496 ON-RADIO E21
 03:44:46 DP21 BACKUP E43 E44:E
 03:44:46 DP21 PERS-ID E44 [REDACTED] TRIPLITT, CANTREZ [REDACTED] PERIERA, Joshua M.
 [REDACTED] Kotake, Chuteh M < [REDACTED] Bonetti, Sean P

03:45:36 F127 RESPOND E44
 03:46:02 DP21 DSPINFO E44 FIREWATCH 0400-0800
 04:11:49 F463 ON-RADIO E43
 05:29:25 DP30 ONSCENE E44
 07:52:47 DP21 BRSP E44 E07:E
 07:52:47 DP21 PERS-ID E07 [REDACTED] Cavellini, Neal [REDACTED] Saade, Magaly
 [REDACTED] Cerna, George A [REDACTED] VALENTINO, Claudia

07:55:36 DP34 DSPINFO E07 FIREWATCH 0800-1200
 08:36:35 DP30 ONSCENE E07
 08:51:28 F127 STATION E44
 11:46:55 DP30 BACKUP E07 E06:E
 11:46:55 DP30 PERS-ID E06 [REDACTED] Griffin, Daniel B < [REDACTED] Taylor, Jack K.
 [REDACTED] Casey, Daniel V < [REDACTED] Simon, Ramon

11:47:33 F498 RESPOND E06
 11:54:06 DP30 DSPINFO E06 FIREWATCH 1200-1600
 12:14:11 F498 ONSCENE E06
 12:30:37 DP34 ON-RADIO E07
 15:34:57 DP30 BACKUP E06 E31:E
 15:34:57 DP30 PERS-ID E31 [REDACTED] Tingin, Leonel J [REDACTED] YOU, JOHNSON
 [REDACTED] Chocker, Kevin S < [REDACTED] Parker, Michael R

15:35:09 F101 RESPOND E31
 15:35:41 DP30 DSPINFO E31 FIREWATCH 1600-2000
 15:56:30 F101 ONSCENE E31
 16:10:33 DP33 ON-RADIO E06
 19:40:25 DP30 BRSP E31 E13:E
 19:40:25 DP30 PERS-ID E13 [REDACTED] Romero, Samuel < [REDACTED] Collier, Christian V
 [REDACTED] Branchcomb, Anthony D [REDACTED] PHILLIPS, KEITH

19:40:51 DP30 DSPINFO E13 FIREWATCH 2000-0000

20:28:55 DP30 ONSCENE E13
 20:43:17 F101 ON-RADIO E31
 23:32:04 DP30 BRSP E13 E23:E
 23:32:04 DP30 PERS-ID E23 [REDACTED] Untalan, Richard D [REDACTED] Petty, George J
 [REDACTED] MARKS, BRENT [REDACTED] Murphy, Michael

 06/06/11
 00:03:20 F492 ONSCENE E23
 00:11:48 F489 ON-RADIO E13
 03:37:50 DP21 BRSP E23 E15:E
 03:37:50 DP21 PERS-ID E15 [REDACTED] Wu, Anson S [REDACTED] Garcia, Damian
 [REDACTED] Payne, Nicholas A [REDACTED] TUAN, EMIL
 03:58:08 F103 ONSCENE E15
 04:11:15 F492 ON-RADIO E23
 05:32:21 DP30 DSPINFO E15 FIREWATCH 0400-0800
 07:44:43 DP30 BACKUP E15 E29:E
 07:44:43 DP30 PERS-ID E29 [REDACTED] PIPER, HEATHER [REDACTED] FLORES, John M.
 [REDACTED] RADER, WILLIAM L [REDACTED] Tom, Kevin
 07:45:05 F460 RESPOND E29
 07:45:30 29 DSPACK
 07:45:54 DP30 DSPINFO E29 0800 -1200
 07:46:13 DP30 DSPINFO E29 FIREWATCH 0800-1200
 08:10:02 F460 ONSCENE E29
 09:11:01 DP30 STATION E15
 09:38:50 F460 ON-RADIO E29
 09:40:41 DP21 ON-RADIO TCA15
 09:40:41 DP21 CLOSE
 12:26:01 DP26 REOPEN
 12:27:26 DP30 DISP-RSP E05:E
 12:27:26 DP30 PERS-ID E05 [REDACTED] DeWitt, Dawn [REDACTED] Browne, Gregory J.
 [REDACTED] Shimazaki, Paul K [REDACTED] DOONAN, Scott T
 12:28:41 DP30 DSPINFO E05 FIREWATCH 1200-1600
 12:28:59 DP30 BACKUPOS E05 TCA15:TC
 12:31:41 DP26 PREEMPT E05
 12:32:10 DP30 BACKUP TCA15 E05:E
 12:32:10 DP30 PERS-ID E05 [REDACTED] DeWitt, Dawn [REDACTED] Browne, Gregory J.
 [REDACTED] Shimazaki, Paul K [REDACTED] DOONAN, Scott T
 12:33:24 05 DSPACK
 12:34:24 F499 RESPOND E05
 12:43:27 DP25 STATION TCA15
 12:58:14 F499 ONSCENE E05
 13:02:32 DP22 CLR-PRMT E05
 14:06:30 DP21 BRSP E05 TCA15:TC
 15:24:26 DP25 BACKUP E05 E14:E
 15:24:26 DP25 PERS-ID E14 [REDACTED] Kennedy, Ryan [REDACTED] Kramer, Kevin P
 [REDACTED] Minogue-Reidy, Mary K [REDACTED] MILLER, GARRETH
 15:25:52 DP25 DSPINFO E14 FIREWATCH 1600-2000
 15:30:32 14 DSPACK
 15:31:20 DP25 RESPOND E14
 15:55:55 DP34 ONSCENE E14
 16:02:36 DP30 ONSCENE TCA15
 16:40:15 F499 STATION E05
 19:40:28 DP21 BRSP E14 E28:E
 19:40:28 DP21 PERS-ID E28 [REDACTED] Hupke, Kenneth W [REDACTED] WONG, VINCENT
 [REDACTED] Wong, Robert A [REDACTED] CHIR, William
 19:48:37 DP29 DSPINFO E28 FIREWATCH 2000-0000
 20:08:14 F197 ONSCENE E28
 20:32:23 F171 ON-RADIO E14
 21:56:32 DP29 DSPINFO TCA15 FIREWATCH 2000-0000
 23:59:33 DP30 BRSP E28 E39:E
 23:59:33 DP30 PERS-ID E39 [REDACTED] Jones, Gregory D [REDACTED] PAUL E LEE
 [REDACTED] GALVIN, Nancy [REDACTED] Song, Michael

 06/07/11
 00:02:52 DP30 ONSCENE E39
 00:20:54 DP26 DSPINFO E39 FIREWATCH 0000-0400
 00:21:05 DP26 DSPINFO TCA15 FIREWATCH 0000-0400
 00:44:59 F197 ON-RADIO E28
 03:40:04 DP21 BRSP E39 E16:E

03:40:04 DP21 PERS-ID E16 [REDACTED] White, Terence G [REDACTED] GRANDE, SASHA A.
 [REDACTED] Franks, Benjamin [REDACTED] MCCLOSKEY, DANIEL
 03:53:13 F490 ONSCENE E16
 03:53:36 DP21 DSPINFO E16 FIREWATCH 0400-0800
 03:54:28 DP21 DSPINFO TCA15 FIREWATCH 0400-0800
 04:04:53 F140 ON-RADIO E39
 07:41:44 DP30 BACKUP E16 E32:E
 07:41:44 DP30 PERS-ID E32 [REDACTED] Nicholson, Jeanine R [REDACTED] Balden, Sabine O
 [REDACTED] LEAHY, ELIZABETH [REDACTED] Rosales, Dawn S.
 07:48:21 F504 RESPOND E32
 08:22:58 DP30 DSPINFO E32 FIREWATCH 0800-1200
 08:37:59 DP30 ONSCENE E32
 08:47:16 F490 STATION E16
 09:34:02 DP29 DSPINFO TCA15 FIREWATCH TAC TCA15
 12:03:36 DP30 BACKUP E32 E41:E
 12:03:36 DP30 PERS-ID E41 [REDACTED] MCDONAGH, Paul G [REDACTED] Chan, Eli
 [REDACTED] Alba, Matthew L. [REDACTED] D'AMICO, DAVID
 12:03:49 DP30 ONSCENE E41
 12:04:05 DP30 DSPINFO E41 FIREWATCH 1200-1600
 13:19:34 F504 ON-RADIO E32
 15:31:31 DP21 BACKUP E41 E17:E
 15:31:31 DP21 PERS-ID E17 [REDACTED] Mc Partlan, Stephen A [REDACTED] POTTER, Robert
 [REDACTED] Mangiola, Paul [REDACTED] HENDRYK LASAK
 15:31:43 17 DSPACK
 15:33:57 F493 RESPOND E17
 15:52:09 DP21 NEWLOC LOCATION:133 BERKELEY WY, SF (D=3H UNIQUE LN & CRAGS
 CT)-->FIREWATCH 1600-2000,
 17:12:37 FF41 STATION E41
 17:20:24 DP30 ONSCENE E17
 17:21:15 DP30 NEWLOC LOCATION:FIREWATCH 1600-2000-->133 BERKELEY WY, SF (D=3H
 UNIQUE LN & CRAGS CT)
 17:21:35 DP30 DSPINFO E17 FIREWATCH 1600-2000
 19:40:40 DP21 BRSP E17 E08:E
 19:40:40 DP21 PERS-ID E08 [REDACTED] Francisco, Raul [REDACTED] LOW, KENDRICK
 [REDACTED] O'BRIEN, DAMON P [REDACTED] Kosta, John R
 19:41:35 DP21 DSPINFO E08 FIREWATCH 2000-2400
 20:17:22 F493 ON-RADIO E17
 20:20:53 DP30 ONSCENE E08
 23:16:53 DP21 BRSP E08 E38:E
 23:16:53 DP21 PERS-ID E38 [REDACTED] Sullivan, Dennis W [REDACTED] Serammelaere, Ian
 J. [REDACTED] HARRINGTON, John J [REDACTED] DOMINIC SHANLEY
 23:17:35 DP21 DSPINFO E38 FIREWATCH 0000-0400
 06/08/11
 00:00:26 F238 ON-RADIO E08
 00:10:45 F159 ONSCENE E38
 00:49:40 DP29 MISC E38, UI
 03:39:48 DP21 BRSP E38 E18:E
 03:39:48 DP21 PERS-ID E18 [REDACTED] Romero, Angela N [REDACTED] MAMI SUZUKI
 [REDACTED] Iwasaki, Jeff [REDACTED] CHAN, KENG YAN
 03:40:10 DP21 DSPINFO E18 FIREWATCH 0400-0800
 04:19:01 F159 STATION E38
 05:39 ? DP30 ONSCENE E18
 06:00:53 SU01 ON-RADIO TCA15
 06:01:21 SU01 BACKUPOS E18 TCA15:TC
 07:42:19 DP30 STATION TCA15
 07:42:37 DP30 BACKUP E01:E
 07:42:37 DP30 PERS-ID E01 [REDACTED] Scheppler, Robert D [REDACTED] Stevens, Richard K
 [REDACTED] BAXTER, JOHN [REDACTED] McCarthy, Brian
 07:46:37 F485 RESPOND E01
 08:00:14 01 DSPACK
 08:10:03 DP30 DSPINFO E01 FIREWATCH 0800-1200
 08:11:14 F485 ONSCENE E01
 08:51:23 DP34 BACKUPOS E01 E24:E
 08:51:23 DP34 PERS-ID E24 [REDACTED] Wong, Sueon F [REDACTED] Gumabay, Privado M
 [REDACTED] Holl, Nicholas [REDACTED] Bryan, Patrick
 08:55:27 DP34 ON-RADIO E24
 09:01:01 DP29 BRSP E01 E24:E
 09:01:01 DP29 PERS-ID E24 [REDACTED] Wong, Sueon F [REDACTED] Gumabay, Privado M

[REDACTED] Holl, Nicholas [REDACTED] Bryan, Patrick
 09:01:11 DP29 ONSCENE E24
 09:18:36 FF18 STATION E18
 09:46:27 F503 ON-RADIO E24
 11:30:50 DP25 BRSP E01 E03:E
 11:30:50 DP25 PERS-ID E03 [REDACTED] Cordero, Kenneth C [REDACTED] ORDUNA, DAMIAN K.
 [REDACTED] NIELSEN, KEVIN T [REDACTED] Salas, Chris J
 12:14 ? DP25 ONSCENE E03
 12:25:09 DP30 DSPINFO E03 FIREWATCH 1200-1600
 13:17:54 FF01 ON-RADIO E01
 15:41:38 DP30 BACKUP E03 E20:E
 15:41:38 DP30 PERS-ID E20 [REDACTED] Blatman, Gregory L [REDACTED] BELTRAN, MARTIN
 [REDACTED] SIMON, MICHAEL J [REDACTED] BELA J. CARREIRA
 15:42:11 DP30 RESPOND E20
 15:43:26 DP30 DSPINFO E20 FIREWATCH 1600-2000
 16:20 ? DP30 ONSCENE E20
 16:20:36 DP30 MISC E20, PER AVL
 16:25:00 F473 ON-RADIO E03
 19:28:41 DP21 BACKUP E20 E11:E
 19:28:41 DP21 PERS-ID E11 [REDACTED] Zalba, Jose A [REDACTED] Pompeo, Dana L
 [REDACTED] Ramos, Rueben N. [REDACTED] Daley, Charles
 19:29:48 DP21 DSPINFO E11 FIREWATCH 2000-0000
 19:44:37 DP21 STATION E11
 19:47:27 DP21 BRSP E20 E11:E
 19:47:27 DP21 PERS-ID E11 [REDACTED] Zalba, Jose A [REDACTED] Pompeo, Dana L
 [REDACTED] Ramos, Rueben N. [REDACTED] Daley, Charles
 19:47:39 DP21 ACKUNIT E11
 19:47:44 DP21 DSPINFO E11 FIREWATCH 2000-0000
 20:11:36 F501 ONSCENE E11
 20:15:27 F491 ON-RADIO E20
 23:53:50 DP30 BACKUP E11 E21:E
 23:53:50 DP30 PERS-ID E21 [REDACTED] Kaitana, Shayne D. [REDACTED] McRIMENEY,
 Kathleen C [REDACTED] CLETHEN, Lori J. [REDACTED] Finnegan,
 Steve
 23:57:50 F496 RESPOND E21

 06/09/11
 00:13:12 F496 ONSCENE E21
 00:22:28 F501 ON-RADIO E11
 03:54:13 DP21 BACKUP E21 E06:E
 03:54:13 DP21 PERS-ID E06 [REDACTED] Griffin, Daniel B. [REDACTED] Engler, Stephen
 [REDACTED] MARTINO, DANIEL [REDACTED] Russell, David E
 [REDACTED] Taylor, Jack K.
 03:55:45 DP21 DSPINFO E06 FIREWATCH 0400-0800
 03:56:00 DP21 DSPINFO E21 FIREWATCH 0000-0400
 03:57:34 F498 RESPOND E06
 04:07:34 F498 ONSCENE E06
 04:20:47 F496 ON-RADIO E21
 07:38:30 DP30 BACKUP E06 E03:E
 07:38:30 DP30 PERS-ID E03 [REDACTED] Cordero, Kenneth C [REDACTED] ORDUNA, DAMIAN K.
 [REDACTED] NIELSEN, KEVIN T [REDACTED] Salas, Chris J
 07:45:23 F473 RESPOND E03
 07:47:50 DP30 DSPINFO E03 FIREWATCH 0800-1200
 08:20:58 F473 ONSCENE E03
 08:24:17 DP34 ON-RADIO E06
 08:57:10 DP30 BACKUPOS E03 B02:B
 08:57:10 DP30 PERS-ID B02 [REDACTED] Postel, Robert F
 08:59:58 DP30 MISC B02, B02 TO SITE TO CLOSE DOWN FIRE WATCH
 09:23:04 DP30 MISC B02, FIRE WATCH SUSPENDED PER DIVISION 3 AS OF 0830 HRS
 ON 06/09/11
 12:23:01 F455 ON-RADIO B02
 12:37:13 DP33 DISPOSTN R03 FIR
 12:37:32 DP33 ON-RADIO R03
 12:37:32 DP33 CLOSE

 Call Recap:
 INITIATE: 10:44:21 06/02/11 CALL NUMBER: #0113
 ENTRY: 10:44:45 CURRENT STATUS: CLOSED
 DISPATCH: 10:45:01 ALARM LEVEL: 2
 Page 10

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Med Jan 25 12:00:10 2012

ON SCENE: 10:47:58 CASE NUMBER: 11050532
CLOSE: 12:37:32 06/09/11 DISPOSITION: FIR
LOCATION: 133 BERKELEY WY, SF (D-3H ONIQUE LN & CRAIGS CT)
DAREA: B06
STATION: 26 TYPE: FIB --> WF WORKING FIRE
AREA: 8155 PRIORITY: 3

OPERATOR ASSIGNMENTS: DP04
DP22
F451
F446
DP34
F196
F195
F457
F501
F494
F225
F503
DP30
DP25
F109
DP26
AS OF 10:52:27: DP22
F400
DP19
DP07
DP33
F437
F452
DP24
DP21
AS OF 11:13:07: DP26
F498
F500
F140
F483
F154
F453
F455
F103
F439
F440
AS OF 12:05:00: DP34
AS OF 13:00:08: DP33
SU01
F404
AS OF 15:05:48: DP34
F427
AS OF 15:22:46: DP21
AS OF 16:01:55: DP22
AS OF 16:02:57: DP26
AS OF 16:38:27: DP33
AS OF 17:57:24: DP34
FF11
AS OF 18:10:13: DP30
DP33

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ATTACHMENT D - SFFD Incident Command Worksheet

Address 133 Berkeley Way Command Channel 3 Time 1044 Staging Location Across Street

Tac Channel 16 Box 8155

1 st Alarm	Assignment/ Location	2 nd Alarm	Assignment/ Location
Command Post	IFO	BC-2	RIC Delta
BC-6	Out Front	BC-8	SAFETY
BC-9	Fire Attack	Engine-39	
Engine-26	1st Ready - gauge	Engine-6	
Engine-11	1st Ready - gauge	Engine-7	
Engine-24	1st Ready - gauge	Engine-15	
RIC-20	2nd RIC Eng	Truck-12	1-5
Truck-15 OK		Medic- Eng 9	
Truck-11		RC	
Rescue-2		ROE	
Medic-74 Ready		Eng-38	Ken Smith
RC-3		Brought Command	
			R/G.
		Sgt. Dave	
		SFFD	

Bravo: 3-story Typing Building with Floor Below
 Delta: P10 Peter Gunn
 Charlie: E32 Transport Truck, E32 Transport Truck, E32 Transport Truck, E32 Transport Truck, E32 Transport Truck
 2nd floor: Evon, E26 Attack line in front of Bldg, side belly to 2nd floor
 Street Level: Fire started floor below, Vacuum, Drapes caught fire, E. Voice Party, E76 Tony Valente, H-3 Tony Valente, FF Wayne, FF Bruce

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ATTACHMENT E - SCBA REPORT FROM NIOSH

This report is a summary of the findings from the NIOSH investigative report for the SCBA for both victims. Victim 1's SCBA was inspected but not functionally tested due to the low pressure regulator hose damage (the hose was cut during the removal of Victim 1). Victim 2's SCBA met all the requirements and was fully tested.



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

NIOSH Reference: TN-17888

Centers for Disease Control
and Prevention (CDC)
National Institute for Occupational
Safety and Health (NIOSH)
National Personal Protective
Technology Laboratory (NPPTL)
P.O. Box 18070
Pittsburgh, PA 15236-0070
Phone: 412-386-4000
Fax: 412-386-4051
October 5, 2011

Assistant Deputy Chief Frank Cardinale
Director of Training
2310 Folsom Street
San Francisco, California 94110

Dear Chief Cardinale:

The National Institute for Occupational Safety and Health (NIOSH) has concluded its investigation conducted under NIOSH Task Number TN-17888. This investigation consisted of the inspection of two Scott Health and Safety AirPak 4.5, 45-minute, 4500 psig, Self Contained Breathing Apparatus (SCBA) from the San Francisco, California, Fire Department. The SCBA units in question were contained inside corrugated cardboard boxes and were delivered to the NIOSH facility in Bruceton, Pennsylvania, on June 22, 2011. The packages were taken to the National Personal Protective Technology Laboratory (NPPTL), Technology Evaluation Branch (TEB) Respirator Equipment Storage Area (building 20) and stored under lock until the time of the examination and evaluation.

SCBA Inspection:

A general inspection of the SCBA units was conducted on August 24 and 25, 2011. The units were identified as the Scott Health and Safety AirPak 4.5 models.

The complete visual inspection of the SCBA units was conducted on August 24 and 25, 2011. The units were examined, component by component in the condition received, to determine conformance to the NIOSH-approved configuration. The visual inspection process was photographed.

The complete SCBA inspections are summarized in Appendix I of the enclosed Status Investigation Report. The condition of each major component was photographed with a digital camera. Images of the SCBA units are contained in Appendix III of the report.

The SCBA units in question, Unit #1 and Unit #2, suffered minimal heat damage, but exhibited other signs of wear and tear; and the units were covered lightly with general dirt and soot. The cylinder valves as received, Unit #1 was in the closed position and Unit #2 was in the closed position. The cylinder gauges read approximately 0 psig on Unit #1 but could not be read on Unit #2 but 0 psig remained in the cylinder.

The cylinder valve hand-wheels could be turned easily. The regulator and facepiece mating and sealing areas on the units were clean. The harness webbing on the units was in good condition with no fraying or tears, but both head harnesses were dirty. The PASS devices on the units functioned. The NFPA approval labels on the units were present and readable. Visibility through the lens of the Unit #1 facepiece was Poor, as the lens was completely covered in soot and black. Visibility through the lens of Unit #2 was Poor, as the lens was completely covered in soot and black.

Personal Alert Safety System (PASS) Device

The Personal Alert Safety System (PASS) device on Unit #1 and Unit #2 was operable and functional. The PASS devices were activated both manually and Unit #2 automatically and appeared to function normally. However, the units were not tested against the specific performance requirements of NFPA 1982, *Standard on Personal Alert Safety Systems (PASS)*, 1998 Edition. Because NIOSH does not certify PASS devices, no further evaluation was performed.

SCBA Compressed Air Cylinder Contents

During the inspection, it was noted that the compressed air cylinders were not pressurized. No air samples were collected for analysis as there was no air remaining in the cylinders.

SCBA Testing

The purpose of the testing was to determine the conformance of the SCBA to the approval performance requirements of Title 42, *Code of Federal Regulations*, Part 84 (42 CFR 84). Further testing was conducted to provide an indication of the conformance of the SCBA to the National Fire Protection Association (NFPA) Air Flow Performance requirements of NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus for the Fire Service*, 1997 Edition.

NIOSH SCBA Certification Tests (in accordance with the performance requirements of 42 CFR 84):

1. Positive Pressure Test [§ 84.70(a)(2)(ii)]
2. Rated Service Time Test (duration) [§ 84.95]
3. Static Pressure Test [§ 84.91(d)]
4. Gas Flow Test [§ 84.93]
5. Exhalation Resistance Test [§ 84.91(c)]
6. Remaining Service Life Indicator Test (low-air alarm) [§ 84.83(f)]

National Fire Protection Association (NFPA) Tests (in accordance with NFPA 1981, 1997 Edition):

7. Air Flow Performance Test [Chapter 5, 5-1.1]

Testing was only conducted on Unit #2 on September 18 and 26, 2011, using a substitute compressed air cylinder supplied by Scott Health and Safety. The SCBA unit did pass all testing.

Appendix II of the Status Investigation Report contains complete NIOSH and NFPA test reports for the SCBA. Tables One and Two summarize the NIOSH and NFPA test results.

Summary and Conclusions

Two SCBA units were submitted to NIOSH/NPPTL by the NIOSH Division of Safety Research (DSR) for the San Francisco, California, Fire Department for evaluation on June 22, 2011. The SCBA's were inspected on August 24 and 25, 2011. The units were identified as a Scott Health and Safety AirPak 4.5, 45-minute, 4500 psig SCBA (NIOSH approval number TC-13F-0212). The units were in fair condition but covered in soot. The cylinders appeared to be in specification as they are required to be recertified every 5 years and both cylinders were not past that required date.

The integrated PASS units were activated and appeared to function normally.

No air sample could be taken and analyzed from the compressed air cylinders as the cylinders were found to be empty upon delivery.

SCBA Unit #1 was not tested due to the damage level of the SCBA.

SCBA Unit #2 was tested on September 18 and 26, 2011, utilizing a replacement cylinder that was supplied by Scott Health and Safety. The unit did meet all the requirements as tested.

After the inspection and testing of the SCBA units, the respirators were placed back into storage pending the return to the San Francisco, California, Fire Department.

If these SCBA units are to be placed back into service, then the units should be cleaned, the cylinders replaced, and any damaged components replaced and tested by a qualified SCBA technician.

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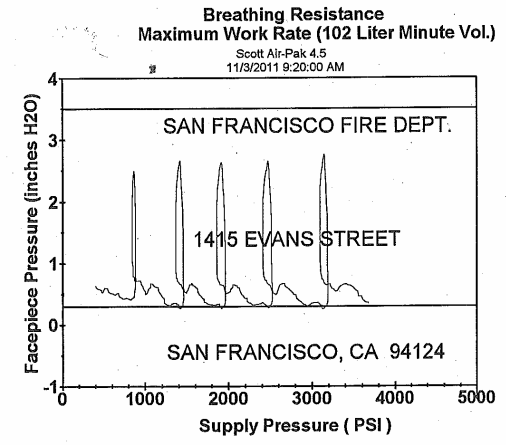
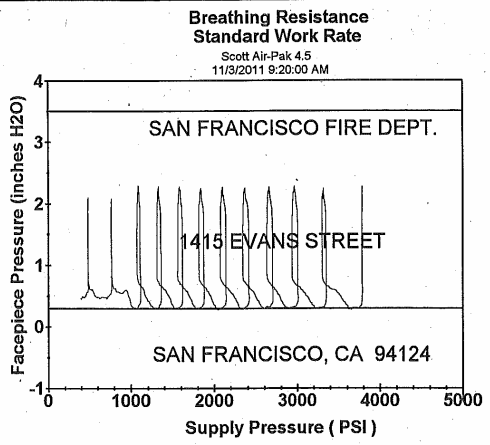
ATTACHMENT F - SCBA TEST REPORT FROM SFFD

SCOTT	SCOTT PosiChek3 Visual / Functional Test Results	Version 2.89 11/3/2011 9:20:00 AM
--------------	--	--------------------------------------

Apparatus Tested	
Location :	E-26
Model :	Air-Pak 4.5
ID :	011500645
Reducer S/N :	011500645
Regulator S/N :	0129022
Tested by :	[REDACTED]
Service Center :	BARF

Functional Tests			
Facepiece Leak Test :	Pass	0.1	in. H2O
Exhalation Pressure :	Pass	2	in. H2O
Remote Gauge Test :	Cncl		
Alarm Accuracy :	Pass	1031	PSI
Air Saver Switch :	Pass	-5	in. H2O
Static Facepiece Pressure :	Pass	1	in. H2O
Primary Reducer Lockup :	Pass	105	PSI
Primary Creep :	Pass	0	PSI
Low Cylinder Transfer Pr :	Pass	1148	PSI
Secondary Reducer Lockup :	Pass	165	PSI
Secondary Reducer Creep :	Pass	0	PSI
Purge Flow Test :	Pass	168	L/min
High Pressure Leakage :	Pass	19	PSI
Secondary Pr. at High Cyl.	Pass		

Visual Inspection	
Facepiece / Head Harness :	N/A
Harness & Backframe :	N/A
Cylinder :	N/A
Accessories :	N/A
Reducer & Regulator :	N/A



Facepiece Pressure : Pass Minimum 0.3 Maximum 2.3 in. H2O	Facepiece Pressure : Pass Minimum 0.3 Maximum 2.8 in. H2O
--	--

Comments

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ATTACHMENT G - MASK FIT REPORTS

07/01/2010

LAST NAME [REDACTED]
FIRST NAME [REDACTED]

FIT TEST REPORT

ID NUMBER [REDACTED]
LAST NAME [REDACTED]
FIRST NAME [REDACTED]
COMPANY E26
LOCATION DOT
NOTE

AV ISSUED 4/1/08
CUSTOM2
CUSTOM3
CUSTOM4

TEST DATE 07/01/2010
TEST TIME 11:04
DUE DATE 07/01/2011

PORTACOUNT S/N 42678
N95-COMPANION N

RESPIRATOR SCOTT AV 3000 MED [500]
MANUFACTURER SCOTT
MODEL AV
MASK STYLE 3000 MED
MASK SIZE MED

PROTOCOL OSHA 29CFR1910.134
PASS LEVEL 500
APPROVAL
EFFICIENCY <99% N

<u>EXERCISE</u>	<u>DURATION (sec)</u>	<u>FIT FACTOR</u>	<u>PASS</u>
NORMAL BREATHING	60	1060	Y
DEEP BREATHING	60	3540	Y
HEAD SIDE TO SIDE	60	696	Y
HEAD UP AND DOWN	60	843	Y
TALKING	60	5580	Y
GRIMACE	15	Excl.	
BENDING OVER	60	6280	Y
NORMAL BREATHING	60	1900	Y

OVERALL FIT FACTOR 1480 Y

FITTEST OPERATOR

DATE 7/1/2010

NAME

DATE 7/1/2010

09/24/2010

LAST NAME [REDACTED]
FIRST NAME [REDACTED]

FIT TEST REPORT

ID NUMBER [REDACTED]
LAST NAME [REDACTED]
FIRST NAME [REDACTED]
COMPANY E34
LOCATION DOT
NOTE

AV ISSUED 8/11/08
CUSTOM2
CUSTOM3
CUSTOM4

TEST DATE 09/24/2010
TEST TIME 11:41
DUE DATE 09/24/2011

PORTACOUNT S/N 42678
N95-COMPANION N

RESPIRATOR SCOTT AV 3000 MED [500]
MANUFACTURER SCOTT
MODEL AV
MASK STYLE 3000 MED
MASK SIZE MED

PROTOCOL OSHA 29CFR1910.134
PASS LEVEL 500
APPROVAL
EFFICIENCY <99% N

<u>EXERCISE</u>	<u>DURATION (sec)</u>	<u>FIT FACTOR</u>	<u>PASS</u>
NORMAL BREATHING	60	3620	Y
DEEP BREATHING	60	3500	Y
HEAD SIDE TO SIDE	60	5120	Y
HEAD UP AND DOWN	60	12600	Y
TALKING	60	2680	Y
GRIMACE	15	Excl.	
BENDING OVER	60	2070	Y
NORMAL BREATHING	60	6380	Y

OVERALL FIT FACTOR 3760 Y

FITTEST OPERATOR

DATE 9/24/2010

NAME

DATE 24 Sept 2010

ATTACHMENT H - PERSONAL PROTECTIVE EQUIPMENT REPORT FROM LION APPAREL



San Francisco Fire Department Gear Review – Visual Evaluation

Requested by: San Francisco Fire Department
Date of visual inspection: 07/19/2011
Location of visual inspection: NIOSH Morgantown, WV
Performed by: Karen Lehtonen, Director of Products, LION

<u>Garment Label Information:</u>	<u>Valiero Coat</u>	<u>Valiero Pants</u>
Brand:	Body Guard	Body Guard
Req #:	E200227	E200227
Mfg. Date:	03/06/2002	03/06/2002
Size:	4235360	3430
Tag:	N/A	N/A
Shell:	Fusion	Fusion
Moisture Barrier:	Crosstech	Crosstech
Thermal Liner:	Glide Araflo Quilt	Glide Araflo Quilt

<u>Garment Label Information:</u>	<u>Perez Coat</u>	<u>Perez Pants</u>
Brand:	Janesville	Janesville
Req #:	321212	343772
Mfg. Date:	04/25/2007	12/10/2010
Size:	4835L	44L
Tag:	N/A	N/A
Shell:	PBI Matrix	PBI Matrix
Moisture Barrier:	Crosstech	Crosstech
Thermal Liner:	Glide 2L Araflo	Glide 2L Araflo

<u>Garment Label Information:</u>	<u>Coat Engine 24 Officer</u>
Brand:	Janesville
Req #:	324620
Mfg. Date:	11/01/2007
Size:	4435R
Tag:	N/A
Shell:	PBI Matrix
Moisture Barrier:	Crosstech
Thermal Liner:	Glide 2L Araflo

We received a request from the San Francisco Fire Department to review the gear utilized during a residential fire that resulted in two LODD on 06/02/2011. The review of the PPE took place at NIOSH in Morgantown, WV as they were in possession of the gear conducting further investigations. No incident reports or injury reports were provided by the fire department, only news accounts of the incident were reviewed. The news accounts indicate that the firefighters were exposed to a flashover in the structure fire. Flashover temperatures can reach 1800 F or greater and cause severe injury or death to firefighters in less than one minute even while wearing all personal protective equipment.

Valiero Gear Evaluation

The following gear was reviewed for Valiero; Structural firefighting helmet, coat, pants and boots. Firefighter Valiero died in the line of duty.

The coat outer shell exhibits no major discoloration or damage. There is some slight discoloration in the upper body but nothing distinct. There was a small cut on the lower left hem area of the shell but there is no corresponding cut on the liner. On the thermal liner there is a cut near the upper right chest near the arm but there is no corresponding cut on the outer shell. There is slight thermal damage to the moisture barrier substrate of the face cloth of the

thermal liner where the outline of the visibility trim can be seen on the moisture barrier substrate. There is slight damage to the trim on the lower left back hem of the coat, however this is slight discoloration. A limited view of the liner through the aforementioned cut showed no damage to the moisture barrier film or thermal liner spunlace. From this limited viewing the moisture barrier seam tape also appeared to be intact. All coat shell and liner materials were supple and strong. There was no evidence of migration of the thermal liner. Seams were intact and functional. Closure hardware was intact and functional. Labels were soiled and somewhat faded, but intact and visible.

There is no visible thermal damage to the pants outer shell. There is also no thermal damage or discoloration on the liner face cloth, however there is some heavy soiling. Slight discoloration of the moisture barrier substrate can be seen on the rear of the garment but it is not distinct. There is a cut at the top of the liner; however the suspenders on the pants were cut so this most likely occurred when the suspenders were cut. All pant shell and liner materials were supple and strong. There was no evidence of migration of the thermal liner. Seams were intact and functional. Closure hardware was intact and functional. Labels were soiled and somewhat faded, but intact and visible.

There was no visible damage to the boots. The helmet had severe heat damage and distortion and was heavily coated in soot; the helmet was a non-NFPA compliant model. There was also discoloration to the sides and top of the hood. This discoloration appeared to be an accumulation of products of combustion as there was no thermal damage such as charring to the hood.

Discoloration of the Fusion outer shell fabric begins when the temperature of the fibers reach approximately 500°F. Visibility trim discolors when its temperature reaches approximately 350°F and the moisture barrier substrate will begin to discolor when its temperature reaches approximately 400°F. In order for the materials to reach these temperatures in a short period of time, the ambient air temperature would be required to be much higher. The benchmarks and condition of the gear indicate that the heat exposure in this case was most likely short and intense, which concurs with news accounts of the incident.

Perez Gear Evaluation

The following gear was reviewed for Perez: Structural firefighting helmet, goggles, hood, coat, pants, boots, gloves, station uniform and undergarments. The garments were cut open for removal allowing more viewing access to the inner layers of the turnout gear. Lt. Perez died in the line of duty.

The coat shell has severe thermal discoloration / slight browning to the upper back and shoulder area but no breakthrough of the material. There is also some browning to the visibility trim, indicating the initial stages of charring, but embrittlement has not occurred. The moisture barrier substrate is browned, indicating the initial stages of charring. The outline of the visibility trim can be seen on the substrate. The right moisture barrier in the right shoulder area is beginning to pucker but is not broken open. In this same area the moisture barrier seam tape has loosened and re-adhered including catching the thermal liner batting. The thermal liner face cloth is very soiled but there is no evidence of heat discoloration. Closure hardware was intact and functional. Labels on thermal liner and outershell were soiled and somewhat faded, but intact and visible.

There is no visible heat discoloration on the shell; however there is evidence of soiling. There is no visible damage to the visibility trim. The moisture barrier substrate has some slight browning on the seat side of the pants but there is no visible damage to the film. The thermal liner material was intact and supple, and in good condition. However there is soiling and soot buildup. The closed cell foam padding in the knees of the protective pants were intact and supple and remained undamaged by the thermal conditions. Closure hardware was intact and functional. Labels on were soiled and somewhat faded, but intact and visible. Overall, the materials in the pants remain supple and strong.

There was no visible damage to the boots. The gloves were still supple and pliable. There was no thermal damage to the station uniform or undergarments. The helmet and goggles had severe heat damage and distortion and were heavily caked in soot; the helmet and goggles were non-NFPA compliant models. The hood had discoloration from soiling and soot.

The thermal discoloration to the garments and other PPE components indicate a high level of heat exposure and build up to the PPE itself. Discoloration of the PBI Matrix outer shell fabric begins when the temperature of its fibers reach approximately 500°F. Visibility trim discolors when its temperature reaches approximately 350°F and the moisture barrier substrate will begin to brown and pucker when its temperature reaches approximately 400°F. In order for the materials to reach these temperatures in a short period of time, the ambient air temperature would be

required to be much higher. These benchmarks and condition of the gear indicate that the heat exposure in this case was most likely short and intense, which concurs with news accounts of the incident.

Gear Evaluation Engine 24 Officer

The following gear was reviewed for [REDACTED]: Structural firefighting helmet, hood and coat. There were no reported injuries for firefighter [REDACTED].

There is no visible damage to the coat shell or visibility trim. There is some soiling but no thermal damage. There is also no visible damage to the thermal liner. This coat was equipped with an inspection opening allowing for a visual examination to the inside of the liner.

The helmet showed heat and soiling buildup but minimal distortion; the helmet was a non-NFPA compliant model. There was no damage noted to the gloves or hood.

The condition of the gear and other PPE components indicate a routine level of heat exposure.

Gear Evaluation Engine 11 Firefighter

The following gear was reviewed for [REDACTED]: Structural firefighting helmet, gloves and hood. There were no reported injuries for firefighter [REDACTED].

The helmet showed heat and soiling buildup but minimal distortion. There was no label on the helmet; therefore NFPA certification could not be verified. There was no damage noted to the gloves. The hood had a small hole in the back of the head area that appeared to be a cut.

No estimates can be made on the amount of heat sustained without further review of other PPE elements utilized, including the turnout gear.

Discussion

The turnout gear coat of Perez showed dye sublimation from high levels of heat exposure, indicating extreme levels of heat exposure in those areas. The pants of Perez and the coat and pants of Valiero do not indicate any dye sublimation. In both cases, although the heat may have been at severe emergency levels, the materials used in the gear did not reach extreme temperatures to have destroyed the fabrics. The degradation temperature of the highly heat and flame resistant fibers used in the various outer shells of the garment are approximately 800 °F to 1000 °F for the Fusion (Nomex and Kevlar) outer shell and 1000 °F-1200°F for the PBI Matrix (PBI and Kevlar) outer shell. Based on the condition of the materials, the surface temperature of the garment fabrics did not reach degradation temperature otherwise heavy charring or break open would have occurred.

Flashover conditions can expose firefighters to air temperatures of approximately 1800 °F. In these extreme conditions in less than 45 seconds enough heat can transfer through the protective clothing system to cause severe injury or death to the firefighter wearing full protective clothing, but depending on the conditions the exposure may not be high enough and long enough to cause the garment materials to reach degradation temperature.

Compared to existing samples of new outer shell materials exposed to various thermal conditions for 5 minutes, I estimate that the surface temperature of the gear reached the 550°F -700°F range. The critical thermal protection components such as the outer shell, thermal liner, moisture barrier, reinforcements and major A seams appeared to have been in good condition prior to the incident and were not worn out or damaged. The garments performed as intended.

Do not hesitate to contact me should you have any questions.

Sincerely,



Karen Lehtonen
Director, PSG Products

Victim 2 Gear Reviewed. Additional photos of gear on file.



Victim 1 Gear Reviewed. Additional photos of gear on file



Engine 24 Officer Gear Reviewed. Additional photos of gear on file.



Firefighter Engine 11 Gear Reviewed. Additional photos of gear on file.



Officer

ATTACHMENT I - PORTABLE RADIOS REPORT

Assistant Chief David Franklin
San Francisco Fire Department/Division 3
2300 Folsom Street
San Francisco CA 94110

On today's date, July 14, 2011 at 10:00am, I received three Motorola portable radios for inspection and have been asked to document my findings regarding their operational status and condition. I will differentiate between damage to the radio and its accessories separately. All radios were found set to A16 and had speaker microphones, depleted batteries and antennas attached to them.

The first radio I inspected is an XTS5000 Model 2, ID number 703206, serial number 721CHT1974. I removed the depleted battery and attached a fresh battery, and turned on the radio. I found the top of the radio to be covered in soot but all controls and functions were operational. The rest of the radio was dirty with wear and abrasions that did not affect the radio's performance. The speaker microphone attached to the radio is covered in soot and smells of smoke but is operational. The antenna was intact and also free of damage. I took apart the radio for an interior inspection and found no damage. A radio check was conducted with dispatch and transmissions were clear. The radio was purchased from Motorola and entered service in September, 2007. According to maintenance records it has not been in need of service since its acquisition.

Findings: Radio and its accessories functioned normally with fresh battery attached

The second radio I inspected is an XTS5000 Model 2, ID number 703183, serial number 721CGK1200. I found the radio's top portion to be covered in soot and smell of smoke but did not observe any fire related damage. The radio was dirty, had wear and abrasions, and the power and channel knobs were missing. There was a speaker microphone, depleted battery and deformed antenna attached to the radio. The antenna's rubber coating had melted and the antenna had become misshapen. I attached a fresh battery, turned the radio on and observed the radio

to be constantly transmitting on its own. After 60 seconds the radio emitted a steady bonking noise.

Note: Radios are programmed, via a 'time-out timer', to stop transmitting after the transmit button has been depressed longer than 60 seconds. This is to prevent a 'hot mic' condition from draining the battery. The radio will emit this steady bonking noise indicating you still have this button depressed. This is an audible warning that you are no longer transmitting and to release the transmit button.

I removed the speaker microphone from the radio and the radio stopped transmitting, indicating the transmit problem was in the speaker microphone and not the radio. The speaker microphone's cord has suffered extensive heat damage as it was rigid, misshapen and stretched. I checked the radio's transmit, receive and Emergency capabilities without the microphone attached and all performed normally, even with a deformed antenna. I then attached a new speaker microphone to the radio for testing purposes. A radio check with dispatch exhibited no problems in transmit or receive. I removed the new microphone and reattached the old one to see if the radio would go into Emergency while transmitting. With the faulty speaker microphone attached to the radio, and the radio stuck in transmit, I successfully sent out an Emergency signal on A16 to dispatch who was able to acknowledge and clear it. Dispatch was able to see the radio's ID number and to whom it was aliased. Further testing revealed that the speaker microphone's coiled cord, not the microphone body itself, had suffered heat damage causing the internal wiring to melt together and create a constant transmit problem. I disassembled the radio for an interior inspection and found no damage. This radio was purchased from Motorola and entered service in May, 2006 and according to maintenance records it has not been in need of service since its acquisition.

Findings: Speaker microphone failed due to high heat/fire, causing constant transmit condition. This disabled the radio from transmitting or receiving after 60 seconds.

The third radio I inspected is an XTS3000 Model 3, ID number 703064, serial number 326CCY4098. I found the top portion of the radio to be covered in soot, and smell of smoke. The rest of the radio was dirty with wear and abrasions. The top portion of the antenna was melted but still intact. The speaker microphone's cord was broken and frayed in multiple places, exposing its internal wiring. I removed the depleted battery and replaced it with a fresh battery. I turned the radio on and tried to transmit using the speaker microphone but it did not work, nor did the radio receive. I removed the speaker microphone from the radio and conducted a successful radio check with dispatch. I attached a new speaker microphone and the radio successfully transmitted and received, indicating the old speaker microphone was faulty. I disassembled the speaker microphone and determined that the coiled cord had failed and not the microphone body. I reattached the faulty speaker microphone and successfully sent out an Emergency signal to dispatch on A16, who was able to acknowledge and clear it even though I could not hear them. It was found this radio had not been aliased and that dispatch was only able to see the radio's ID number. I disassembled the radio to perform an internal inspection and found no damage. The radio was purchased from Motorola and entered service in December, 2002. It was last in for service on August 29, 2008 for poor transmit function. The radio was aligned and calibrated and returned to service shortly thereafter.

Findings: Speaker microphone failed due to high heat/fire, causing no transmit or receive functions. Dispatch could not determine to whom the radio was assigned.



Gene Ashton
Radio Communications Technician
Department of Technology
901 Rankin Street
San Francisco CA 94124
(415) 550-2734 desk

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ATTACHMENT J - MOTOROLA RESPONSE TO SFFD



Motorola Solutions, Inc.
6460 Sequence Drive
San Diego, CA. 92121

Telephone: +1 415-777-1306

September 21, 2011

Assistant Chief David Franklin
City and County of San Francisco, Fire Department

Subject: Inquiry Regarding Motorola Communications Equipment

Chief Franklin

Motorola Solutions would like to thank the San Francisco Fire Department for allowing Motorola the opportunity to provide greater detail concerning our communications products. As we discussed at our meeting on August 31st, 2011, the Department asked Motorola to provide it information related to the following topics.

1. Has Motorola ever been contacted by another customer regarding a melted Remote Speaker Microphone (RSM) cord?

Response Number 1. Motorola has reviewed our database going back seven years for any formal customer quality cases submitted for the remote speaker microphones (RSM) used in this occurrence and as well as an additional, similar product. We did not find any cases pertaining to melted or overheated RSM cords for either product. Motorola also remains very active in the Public Safety community, including holding and participating in formal roundtable discussions at industry trade shows as well as customer meetings. On August 25, 2011, Motorola Solutions hosted a Chiefs Roundtable discussion during the Fire Rescue International (FRI) meetings in Atlanta. About 35 Fire Chiefs attended from around the U.S. In the course of general discussions, one chief commented that "rubber and plastic cannot withstand the high heat that they have to endure." There was general agreement from the Fire Chiefs that NFPA standards were in need of development to focus on this area.

2. If so (reference question 1), what guidance or corrective action did Motorola have for that customer?

Response Number 2. Again, Motorola did not find any cases submitted for corrective action related to the RSM used in this occurrence. However, Motorola continues to remain very active in the Public Safety industry in an effort to understand our customers' needs through Voice of Customer (VoC) research as well as participating in and monitoring industry standards that relate to our communications products. To date, the industry has not defined environmental specifications beyond those provided under MIL Standard 810. (See Response Number 3 below.) Motorola will continue, however, to work directly with our customers to better understand each Department's specific needs.

3. Can Motorola provide the testing parameters, specific testing procedures, our subscriber and accessory designs must meet?

Response Number 3. Motorola designs its Mission Critical radios and accessory products to pass a suite of environmental tests performed according to an internal (proprietary) test standard based on the MIL-STD-810 methodologies. Mission Critical remote speaker microphones are designed to operate in an ambient environmental temperature range of +60C (+140F) to -30C (-22F). The challenge is to design and manufacture products that not only are capable of being used in high temperature environments, but also

are able to withstand other environmental impacts. The following outlines additional environmental testing that Motorola products must satisfy:

Storage Temp: -55C to +85C
Thermal Shock: -57C to +80C
Humidity: 90-95% relative humidity at +50 C for 8 hours
Rain: MIL810F Method 506.4
Salt/Fog: MIL810F Method 509.4, Procedure 1
Dust MIL810F: Method 510.4, Procedure 1
Vibration: MIL810F Method 514.5, Procedure 1, Category 24
Mechanical Shock: MIL810F, Method 516.5, Procedure 1
ESD: IEC/EN61000-4-2

4. Can the XTS Subscriber be programmed to have audio (talk and listen) come through BOTH the Remote Speaker Mic (RSM) and radio speaker?

Response Number 4. The audio can only be routed to one speaker -- either the RSM or the radio's speaker. When the RSM is attached to the radio, the receiving audio is routed through the RSM.

To activate the Push to Talk (PTT), both the RSM and Radio PTT can be used. However, this transmitting audio is only sourced from the location of the PTT. In other words, if the PTT on the radio is pushed, then audio will be transmitted only from the radio mic. If the PTT on the remote speaker mic is pushed, then audio will only be transmitted from the remote speaker mic.

5. Can Motorola provide a "best practices" information for fire departments who Motorola subscriber radios with a Remote Speaker Mic attached?

Response Number 5. As far as best practices, Motorola would suggest the IAFC Best Practices presentation, which we provide here, as well as the video "Say It Loud and Clear," which can be found at www.motorola.com/fire under "Featured Items". In addition, Motorola has and will continue to work closely with each of our individual customers to help provide information and guidance on the use of our communications equipment. Through this effort, we have found that many departments are unique as it pertains to their specific SOP on wearing and using communications equipment. Motorola is interested in meeting with SFFD in future customer research settings to better understand the specific needs of SFFD.

6. Can Motorola advise if they, or know anyone in the industry, making progress towards improving the 140 degree temperature limit on the RSM?

Response Number 6. At this time, Motorola is not aware of any RSMs in the two-way radio audio accessory industry, or any two-way radio accessory product development companies, currently pursuing RSMs that operate at temperatures greater than 140F (+60C).

Motorola continually gathers different industry inputs through a Voice of Customer (VoC) process employed to understand and support diverse aspects of customer experiences, from solution roadmaps to specific product requirements to operational experiences. Because of the proprietary nature of some of these product development activities, Motorola is unfortunately unable to share details in a public setting but is willing to have further discussions in a private meeting, with certain protections in place.



Motorola Solutions, Inc.
6460 Sequence Drive
San Diego, CA. 92121

Telephone: +1 415-777-1306

Sincerely,

Motorola Solutions, Inc.

A handwritten signature in blue ink, appearing to read 'MS', written over a light blue horizontal line.

Mark Schmid
MSSSI Vice President
Motorola Solutions Sales and Services, Inc.

Attachment

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ATTACHMENT K - REMOTE SPEAKER MICROPHONE FACT SHEET

SPECIFICATION SHEET



Motorola Remote Speaker Microphones Enhance Communication

Introducing Remote Speaker Microphones that offer Windporting, Noise-Canceling Acoustics and/or IP57 Submersibility features



PMMN4038

- Windporting
- IP57 Submersible

PMMN4045

- Noise-Canceling Acoustics
- IP57
- 3.5mm unthreaded audio jack (requires new earpiece)
- Will replace NIM9191 Remote Speaker Microphone

PMMN4051

- Windporting
- IP66
- 3.5mm unthreaded audio jack (requires new earpiece)
- Will replace NIM9191 Remote Speaker Microphone

PMMN4038

- Omni-directional Acoustics
- IP54
- 3.5mm unthreaded audio jack (requires new earpiece)
- Emergency Button
- Volume Buttons

These RSMs work with the following radios:

- XTS® 1608/2600
- XTS® 5000
- PPS1500
- MTS900**

Motorola's Remote Speaker Microphones (RSMs) are a vital two-way radio accessory solution for users who need to talk and listen without removing the radio from their belt or carry case. These RSMs boast new features that give public safety professionals the confidence of clear, understandable communication even when Mother Nature is uncooperative.

Four RSMs are available with a variety of features giving police, firefighters and other public safety officials the flexibility to choose the solution ideal for their needs**:

- The windporting feature dramatically lessens noise caused by high winds and other severe weather conditions. Audio can pass through the speaker grill even when the microphone port is blocked by water ensuring user's confidence of clear communication.
- When a user speaks directly into the microphone, the noise-canceling acoustics utilize a directional microphone that is designed to eliminate ambient noise – ideal for indoor communication.

- With omni-directional acoustics, the RSM picks up sound equally well from all directions.
- IP57 submersibility ratings provide reliable communications even in wet conditions.
- When injuries or emergencies strike, emergency-button equipped RSMs can be used to signal that the operator needs help – a critical feature for public safety professionals**
- Volume buttons allow the user to adjust the audio volume without having to access the radio.
- An audio jack located at the head of the microphone allows users to receive discreet audio communication, with an additional earpiece accessory. The new location of the audio jack eliminates unnecessary wires.

**Not all features available on all Remote Speaker Microphones

**Motorola reserves the right to change specifications without notice. Please see Motorola website for additional details.

PRODUCT SPECIFICATIONS

	PMMN4038	PMMN4045	PMMN4051	RMN5038
MICROPHONE ACOUSTICS				
Microphone Type:	Omni-directional	Directional	Omni-directional	Omni-directional
Sensitivity:	-44dBV typical	-47dBV typical	-44dBV typical	-44dBV typical
SPEAKER ACOUSTICS				
Diameter:	45mm	45mm	45mm	45mm
Output power:	0.5W at rated audio	0.5W at rated audio	0.5W at rated audio	0.5W at rated audio
Output Level:	90dB SPL typical	90dB SPL typical	90dB SPL typical	86dB minimum
Maximum Output Level:	≤ 120dB SPL at max volume	≤ 120dB SPL at max volume	≤ 120dB SPL at max volume	N/A
Frequency Response:	300Hz – 3200Hz	300Hz – 3200Hz	300Hz – 3200Hz	300Hz – 3500Hz
Distortion (THD):	<15% (RX)	<15% (RX)	<15% (RX)	<15% (RX)
AUDIO JACK				
Audio Jack Type:	None	3.5mm unthreaded jack	3.5mm unthreaded jack	3.5mm unthreaded jack
Compatible Earpieces:	N/A	AARLN4885, WADN4190, PMLN4620, RLN4941	AARLN4885, WADN4190, PMLN4620, RLN4941	AARLN4885, WADN4190, PMLN4620, RLN4941
Maximum Output Level:	N/A	≤ 118dB	≤ 118dB	< 118dB
BODY				
Dimensions (W x L x D):	60mm x 78mm x 28mm (without clip)	60mm x 78mm x 28mm (without clip)	60mm x 78mm x 28mm (without clip)	60mm x 85mm x 42mm (with clip)
Weight:	220 grams	220 grams	220 grams	229 grams
POWER				
Power Source:	Radio battery	Radio battery	Radio battery	Radio battery
CABLE				
Flex Life:	50,000 cycles	50,000 cycles	50,000 cycles	50,000 cycles
Pull Strength:	40lbs, minimum tensile, in-line	40lbs, minimum tensile, in-line	40lbs, minimum tensile, in-line	40lbs, minimum tensile, in-line
CONTROLS				
Emergency:	None	None	None	Orange Button
Volume:	None	None	None	Up/Down buttons on face of RSM
Side Button:	None	None	None	None
ENVIRONMENTAL SPECIFICATIONS				
Operating Temp:	-30 C to +60 C	-30 C to +60 C	-30 C to +60 C	-30 C to +60 C
Storage Temp:	-55 C to +85 C	-55 C to +85 C	-55 C to +85 C	-55 C to +85 C
Humidity:	90-95% relative humidity at +50 C for 8 hours	90-95% relative humidity at +50 C for 8 hours	90-95% relative humidity at +50 C for 8 hours	90-95% relative humidity at +50 C for 8 hours
Rain:	MIL810F Method 506.4	MIL810F Method 506.4	MIL810F Method 506.4	MIL810F Method 506.4
Salt/Fog:	MIL810F Method 509.4, Procedure 1	MIL810F Method 509.4, Procedure 1	MIL810F Method 509.4, Procedure 1	MIL810F Method 509.4, Procedure 1
Dust:	MIL810F Method 510.4, Procedure 1	MIL810F Method 510.4, Procedure 1	MIL810F Method 510.4, Procedure 1	MIL810F Method 510.4, Procedure 1
Vibration:	MIL810F Method 514.5, Procedure 1, Category 24	MIL810F Method 514.5, Procedure 1, Category 24	MIL810F Method 514.5, Procedure 1, Category 24	MIL810F Method 514.5, Procedure 1, Category 1
Mechanical Shock:	MIL810F Method 516.5, Procedure 1	MIL810F Method 516.5, Procedure 1	MIL810F Method 516.5, Procedure 1	MIL810F Method 516.5, Procedure 1
ESD:	IEC/EN61000-4-2	IEC/EN61000-4-2	IEC/EN61000-4-2	IEC/EN61000-4-2
IP Rating*:	IP57	IP54	IP55	IP54

*IP54 – 4 stands for protection against water sprayed from all directions
 IP55 – 5 stands for protection against driving rain
 IP57 – 7 stands for submersibility tested at 1 meter for 30 minutes



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 R3-9-3010

Note: on the column environmental specifications the temperatures are in Celsius (C). The range of -30°C to 60°C is -22°F to 140°F. However as seen in the previous letter from Motorola the thermal shock test for the remote microphones is 80°C (176°F)

ATTACHMENT L - BUREAU OF EQUIPMENT E26 PUMP TEST



SAN FRANCISCO FIRE DEPARTMENT

Date: JUNE 3, 2011
From: BARRY, Paul L. H-2 [REDACTED] Bureau of Equipment Tour 1
To: ADC Frank Cardinale, Division of Training
Subject: Pump Test E-26
Reference: SFFD Pump Test form attached

On this date, FF James Hodgkin and myself performed a pump test to E-26, a 1991 Spartan triple combination pumper #145-559. The apparatus was found to be in generally good running condition and performed all functions consistent with age. The fire pump did not meet specification for capacity pumping to 1500 gpm, but did perform to an acceptable standard for both 70% and 50% pressure tests. This pump test was performed at Twin Peaks reservoir and the pump was operated from draft. The decrease in capacity output of this pump would not affect the operation of two 1-3/4 attack hose leads.

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ATTACHMENT M - LETTER TO NFPA REQUESTING A STANDARD FOR PORTABLE RADIOS

JOANNE HAYES-WHITE
CHIEF OF DEPARTMENT



EDWIN M. LEE
MAYOR

SAN FRANCISCO FIRE DEPARTMENT CITY AND COUNTY OF SAN FRANCISCO

VIA CERTIFIED MAIL

November 3, 2011

Amy Beasley Cronin
Secretary, NFPA Standards Council
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

Dear Ms. Cronin,

The San Francisco Fire Department (SFFD) suffered tragic multiple Line of Duty Deaths as a result of a fire that occurred on June 2, 2011. Lieutenant (Lt.) Vincent Perez died on June 2, 2011 and Firefighter/Paramedic (FF/PM) Anthony Valerio died on June 4, 2011.

During our investigation a very troubling matter surfaced with regard to equipment used by Lt. Perez and FF/PM Valerio, specifically the portable radios with remote speaker/microphones attached. Our testing and investigation determined that both members' portable radio remote speaker/microphones failed due to the heat from the fire.

The investigation was able to determine that the cord that connects the radio and the remote speaker/microphone had melted, rendering the remote speaker/microphone inoperable.

The SFFD Investigative Team researched the remote speaker/microphones and found that the operating temperature, per the manufacturer specification sheet, states that the normal operating temperature range for the remote speaker/microphones is between -30c to +60c. This temperature range does not appear adequate for the conditions Firefighters encounter in the course of their duties.

The Investigative Team spoke with several fire service experts throughout the Country regarding the remote speaker/microphones and the lack of regulations that the manufacturers must meet with regards to the heat threshold that the portable radios can operate in.

The Investigative Team was able to speak with the National Institute of Standards and Technology (NIST) regarding a study they had conducted in 2006 regarding to the operations of portable radios under varying heat levels common to which Firefighters may encounter in the course of their duties. The study (NIST technical report # 1477) indicated that the remote speaker/microphones would not withstand the extreme heat conditions that Firefighters may encounter. In the research, NIST indicated that the cords would melt and fail.

The Investigative Team was unable to locate or reference a current NFPA standard that portable radio manufacturers must meet that takes into account the conditions that Firefighters encounter. NFPA sets very

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high standards for personal protective equipment (PPE) in order to keep our Firefighters safe. Unfortunately, the same standards are not currently regulated for communication equipment for the Fire Service.

I respectfully urge NFPA to research and develop a standard for Firefighters for portable radios and the remote speaker/microphones, similar to those standards developed for the heat condition requirements for PPEs. A Firefighter should feel confident that the equipment provided for their protection is of the highest quality and will endure the most extreme conditions to keep them safe. The portable radio is a key piece of equipment that each and every Firefighter utilizes and depends on to allow them to communicate when they are operating in an immediately dangerous to life or health (IDLH) environment.

Please do not hesitate to contact Assistant Chief David Franklin regarding our Department's findings related to the line of duty deaths as a result of the June 2, 2011 fire. Assistant Chief Franklin, who is assigned as a member of the Investigative Team, can be reached via email at [REDACTED] or on his cell phone at [REDACTED].

Thank you for your continued support in researching and developing standards to help protect, support and assist members of the Fire Service.

Sincerely,


Joanne Hayes-White
Chief of Department

cc: Assistant Chief Dave Franklin, Division 3