



Incident Summary

Knights of Columbus Hall Fire
1500 Groesbeck Street

February 15, 2013
Incident #1301134



Bryan Fire Department
300 William Joel Bryan Parkway
Bryan, TX 77803

May 21, 2014

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DEDICATION

The Bryan Fire Department presents this report in dedication to Lt. Gregory Pickard, Lt. Eric Wallace, their families, and all the members of the Bryan Fire Department. As a result of the Knights of Columbus Hall fire, Greg and Eric gave their lives in service to the citizens of Bryan and their fellow firefighters. Greg and Eric will both be remembered for their faith and their dedication to families, friends and the Bryan Fire Department. Over the years, each of them went above and beyond their normal duties to introduce new procedures, equipment and training to better the fire department. Greg and Eric made positive impacts upon many firefighters both professionally and personally. Without a doubt, they both will be remembered for their sense of humor.

The Bryan Fire Department would also like to honor Firefighter Ricky Mantey, Jr., and Firefighter Mitch Moran for their efforts during the Knights of Columbus Hall fire, which left both severely injured. Firefighter Mantey and Firefighter Moran have undergone many surgeries, extensive treatment and continued physical therapy as they work toward their goal of returning to full duty.

Throughout the months following the tragic fire, many Bryan Fire Department members have spent hundreds of hours analyzing and investigating the fire, evaluating operational procedures and developing new ideas to improve firefighting operations to ultimately increase the safety for all personnel. Lt. Pickard and Lt. Wallace will never be forgotten. It is the most honorable intention that all current and future members of the Bryan Fire Department will benefit from the recommendations contained in this report to help ensure such a tragedy never occurs again.



In memory of Eric Wallace

✧ 12 Years of Dedicated Service ✧

June 24, 1976 - February 16, 2013



In Memory of Greg Pickard

✧ 32 Years of Dedicated Service ✧

February 4, 1959 - February 16, 2013

ACKNOWLEDGMENTS

The Bryan Fire Department extends its most sincere thanks and appreciation to everyone who came to our assistance during the most tragic time in the history of the Bryan Fire Department. We are grateful for the assistance of the College Station Fire Department, the Bryan Police Department and PHI for their direct assistance at the scene of the fire and for many hours afterwards. As the injured firefighters began arriving at St. Joseph Regional Health Care Center in Bryan, they were embraced by a highly dedicated group of healthcare professionals who worked diligently to provide emergency medical treatment. For the hospital emergency room staff, this was an incredibly difficult situation because they knew these firefighters personally since they had delivered patients daily to that same emergency treatment facility.

Immediately after the firefighters arrived at St. Joseph, City of Bryan leaders, including the City Manager, Deputy City Managers, the City Secretary, the Police Chief, the Mayor and City Councilmembers arrived, offering any and every type of support. Many family members of Bryan firefighters began offering support to the families directly affected by the fire and other fire department members and their families impacted by the tragic news. College Station Fire Chief R.B. Alley arrived at the emergency room to offer support as well and remained there for several hours.

Also during this time, the Brazos County Volunteer Fire Departments, along with St. Joseph EMS provided coverage for all Bryan fire stations so BFD firefighters on duty could be relieved to cope with the loss. We are very grateful for their assistance and our professional working relationship that allowed them to be able to assist us. The Bryan Fire Department is blessed to have so many neighboring public safety organizations that came to our assistance.

Special thanks are extended to the men and women of the Galveston Fire Department. As soon as Lt. Pickard, Firefighter Mantey and Firefighter Moran arrived at the UTMB Burn Center, our brothers and sisters of the Galveston Fire Department were there to assist our personnel and their families. Upon the passing of Lt. Pickard, a GFD Honor Guard was posted at the entrance to the patient room, providing honor and dignity to Lt. Pickard. From the time of arrival until Firefighter Mantey and Firefighter Moran came home, the Galveston Fire Department provided anything that was requested or needed by anyone from the BFD family. We will always be indebted to the Galveston Fire Department for their many expressions of caring and compassion.

During the time our members spent at UTMB, many other organizations and individuals provided support to the BFD families. The Lighthouse Charity organization provided meals each day throughout the time our families were there. Special thanks also to City of Bryan management staff members who volunteered to stay in Galveston to assist our families as well.

We are very grateful to the Houston Fire Department and the International Association of Firefighters (IAFF) for their assistance in coordinating the firefighter memorial and individual funeral services. Many organizations and individuals assisted in these preparations and without their help, these ceremonies would have been much more difficult. During the memorial and funerals, we acknowledge the assistance from the Houston Fire Department, Austin Fire

Department, San Marcos Fire Department, New Braunfels Fire Department and St. Joseph EMS for providing personnel to cover our fire stations and respond to calls while our BFD members attended the memorial and funerals. Many fire departments, including pipe and drum members, from all over North America came to pay tribute to our fallen. We are forever grateful to our brothers and sisters in the fire service, as well as personnel from many law enforcement agencies who assisted us with memorial services.

In the weeks and months following the fire, the strength and compassion of the Bryan-College Station community became very obvious. Many local businesses and individuals came forward with ways to raise money for the affected families and organized events to honor the sacrifices made by Greg, Eric, Ricky and Mitch. It would be impossible to name everyone who came to our assistance, but we are so blessed to live in a community whose residents care so deeply about its first responders.

Our sincerest appreciation and heartfelt gratitude to everyone who provided assistance and support during this time, especially those listed on the final page of this report.

EXECUTIVE OVERVIEW

The purpose of this report is to assess the events that transpired on February 15, 2013, at the Knights of Columbus Hall located at 1500 Groesbeck Street in Bryan, Texas, and to make recommendations in order to help prevent such tragedies from happening in the future. The Bryan Fire Department has investigated the February 15 events and recommended appropriate improvements. The Department will positively respond to recommendations from state and national agencies.

Lieutenant Eric Wallace and Lieutenant Greg Pickard died from injuries sustained in the line of duty while responding to the multiple alarm fire at 1500 Groesbeck Street. Lt. Eric Wallace and his partner entered the building and subsequently radioed they were low on air. The firefighter assigned to Lt. Wallace made it out of the building, but Lt. Wallace became disoriented and was not able to exit the structure. The Rapid Intervention Team (RIT) composed of Lt. Greg Pickard, Firefighter Ricky Mantey and Firefighter Mitch Moran entered the building and found Lt. Wallace. During the rescue of Lt. Wallace, a flashover occurred that enveloped all four firefighters. While on fire, Lt. Pickard, Firefighter Mantey and Firefighter Moran continued to drag Lt. Wallace toward the building entrance, up to the point their bodies collapsed from burn injuries. Other fire companies were subsequently ordered in and retrieved all four men. Lt. Wallace was rushed to St. Joseph Regional Health Care Center in Bryan where he later died from conflagration injuries. Lt. Pickard, Firefighter Mantey and Firefighter Moran were flown to the University of Texas Medical Branch (UTMB) Blocker Burn Unit in Galveston, Texas. Lt. Pickard later succumbed to his injuries and died of thermal injuries and smoke inhalation. Firefighters Mantey and Moran remained at UTMB undergoing extensive surgeries and treatments for the burns sustained in the fire. The Department had not experienced a firefighter line of duty death since August 23, 1978.

It is important to note that Fire Department personnel performed at exceptional levels during this very difficult incident. Several Fire Department personnel displayed extreme bravery and heroism during the incident.

This report was developed and written as a proactive approach to address long-term improvements to fire response procedures. The Bryan Fire Department will research and identify improvements that can be implemented as part of existing fire response procedures, as well as remain available to media throughout the months following the February 15th incident and long after the release of other reports. The National Institute of Occupational Safety and Health (NIOSH), the Texas State Fire Marshal's Office and the Bryan Fire Department completed simultaneous investigations of the incident. Recommendations from other investigating agencies will be thoroughly reviewed and implemented when feasible.

Shortly after the incident, a committee was formed consisting of Bryan Fire Department personnel from different ranks and levels of experience. This Operations Committee was led by Assistant Chief of Operations Terry Barnett and consisted of the following members:

- Assistant Chief of Support Services Ricky Van
- Battalion Chief Jimmy Davis
- Battalion Chief Jordan Gallagher
- Battalion Chief Joe Ondrasek
- Lieutenant Larry Jordy
- Lieutenant Todd Mack
- Lieutenant Jason Merriwether
- Lieutenant Jeremy Riley
- Lieutenant Chris Searles
- Lieutenant Jimmy Zane
- Apparatus Operator Jonas Brooks
- Apparatus Operator Jimmy Rosier
- Firefighter David Lockhart
- Firefighter Heath Nash
- Firefighter Patrick Voelkel

The Operations Committee met numerous times in the months following the fire and spent many hours, both collectively and individually, completing a thorough evaluation of all firefighting policies and procedures. The Operations Committee made recommendations in the following areas:

- Personnel
- Equipment
- Standard operating procedures
- Communications
- Technology
- Training
- Strategic level considerations.

This investigation identifies the events that took place on February 15, 2013, at the Knights of Columbus Hall and maps the future for the Bryan Fire Department. Although it will take a few years to completely achieve all the recommendations in this report, it clearly lays the groundwork for safer operations within the Department, while providing the elevated level of service the citizens of Bryan have grown to expect and deserve.

Additional information about the Knights of Columbus Hall fire is available on the State Fire Marshal website (<http://www.tdi.texas.gov/fire/index.html>) and the National Institute for Occupational Safety and Health (NIOSH) website (www.cdc.gov/niosh).

FIRE CHIEF'S STATEMENT

The Bryan Fire Department was forever changed on the night of February 15, 2013, when a fire occurred in the Knights of Columbus Hall on Groesbeck Street. As the tragic events began to unfold that evening, we witnessed incredible heroism as our personnel risked their lives attempting to save one of our own. In the end, we lost two of our beloved brothers, Lt. Greg Pickard and Lt. Eric Wallace. Since then we have also witnessed incredible strength and determination from Firefighters Ricky Mantey and Mitch Moran, as they endured numerous surgeries and treatments while recovering from critical burns.

It is important to recognize how the Bryan Fire Department family has come together in support of everyone affected by this event and the collaboration of spirit to continue moving forward in the days and months afterward. While we strive to continuously improve our abilities, we will never forget this event. The legacies of Greg and Eric will live on for years to come within our organization. The efforts made by these men to make the Bryan Fire Department what it is will carry on each day as we continue to respond to all types of emergencies and serve the citizens of Bryan.

Randy McGregor
Fire Chief
Bryan Fire Department

INTRODUCTION

The City of Bryan is located in Brazos County approximately 90 miles northwest of Houston and shares a southern boundary with the City of College Station. The City of Bryan has a population of approximately 80,400 people and covers 43.4 square miles.

The Bryan Fire Department (BFD) is a career department with 117 certified firefighters and 5 civilian employees. BFD operates out of five fire stations and daily staffs five engine companies, one truck company, one Battalion Chief, an EMS Supervisor and four ambulances, with a minimum staffing level of 29 personnel. There are three rotating shifts that work a 24-on/48-off schedule. The Fire Marshal's Office is staffed with the Fire Marshal, four Deputy Fire Marshals, and one administrative assistant.

The Bryan Fire Department is a comprehensive emergency response organization that is responsible for delivering emergency medical services, fire suppression, fire prevention, hazardous materials response, technical rescue services, code enforcement, fire investigations, emergency management and homeland security measures for the City of Bryan. BFD contracts with Brazos County to provide emergency ambulance service to all county residents in the northern half of Brazos County. The BFD technical rescue team responds when requested to the seven counties in the Brazos Valley Council of Governments region. Several BFD personnel serve on Texas Task Force 1 (TTF-1), a federal urban search and rescue group.

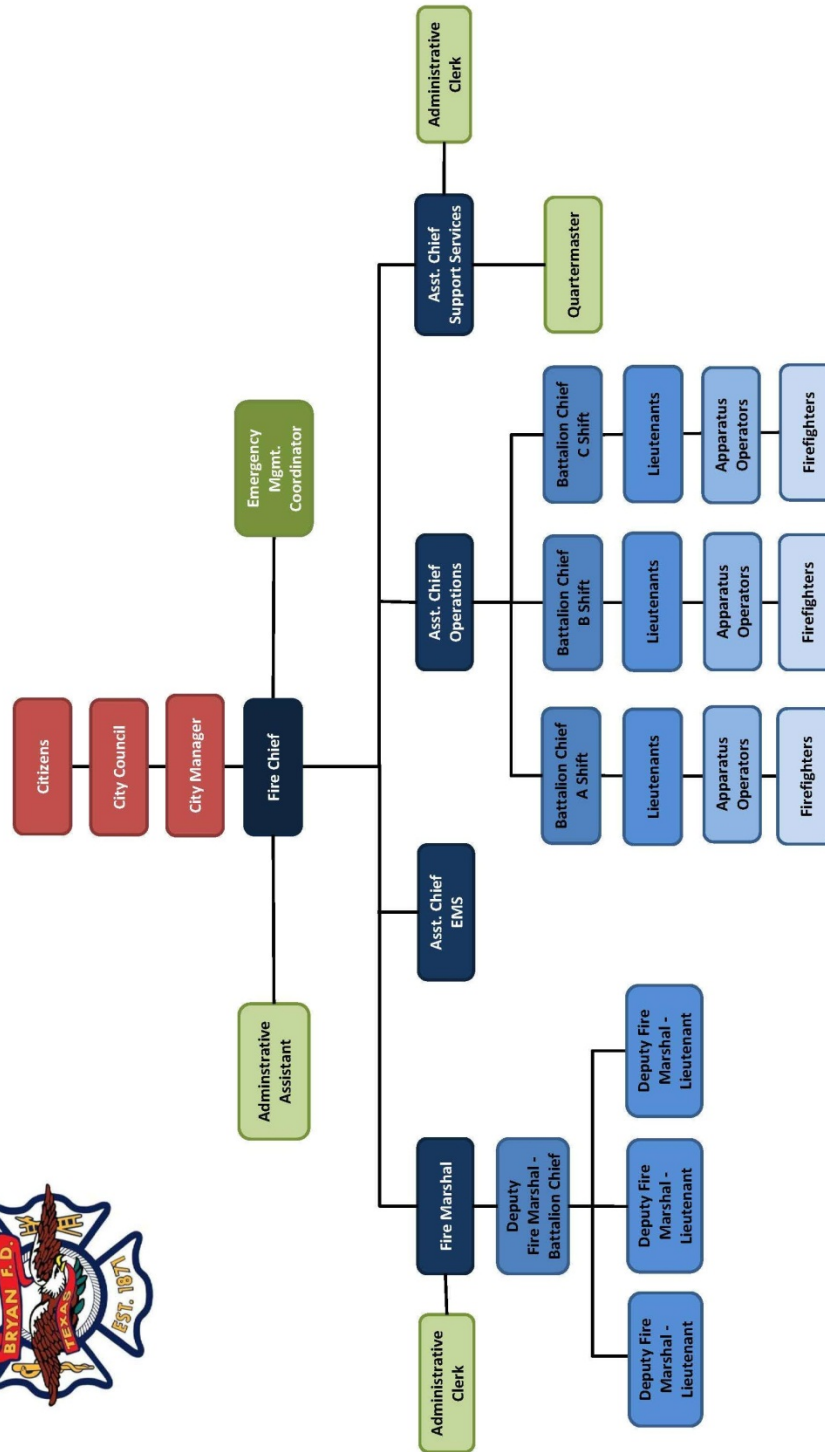
The Bryan Fire Department is committed to working regionally with other public safety organizations. BFD actively participates in the Brazos County Firefighters Association (BCFA), the Brazos Valley Child Abduction Response Team (BVCART), the Brazos Valley Arson Task Force (BVATF), the Brazos Valley Incident Management Team (BVIMT), and the Brazos Valley Search and Rescue (BVSAR) group.

In 2012, the Bryan Fire Department (BFD) responded to 9,420 incidents. Of those calls, 105 were structure fires with 56 of those fires involving one and two family structures. The breakdown of all incidents is listed below:

Incidents by Type-2012	
Type of Call	Total
Fire	244
Overpressure, Explosion, Overheat	7
Rescue & EMS Incidents	7,430
Hazardous Conditions - No Fire	268
Service Call	548
Good Intent Call	655
False Alarm & False Call	253
Severe Weather & Natural Disaster	6
Special Incident Type	9
Grand Total	9,420



City of Bryan Fire Department Organizational Chart



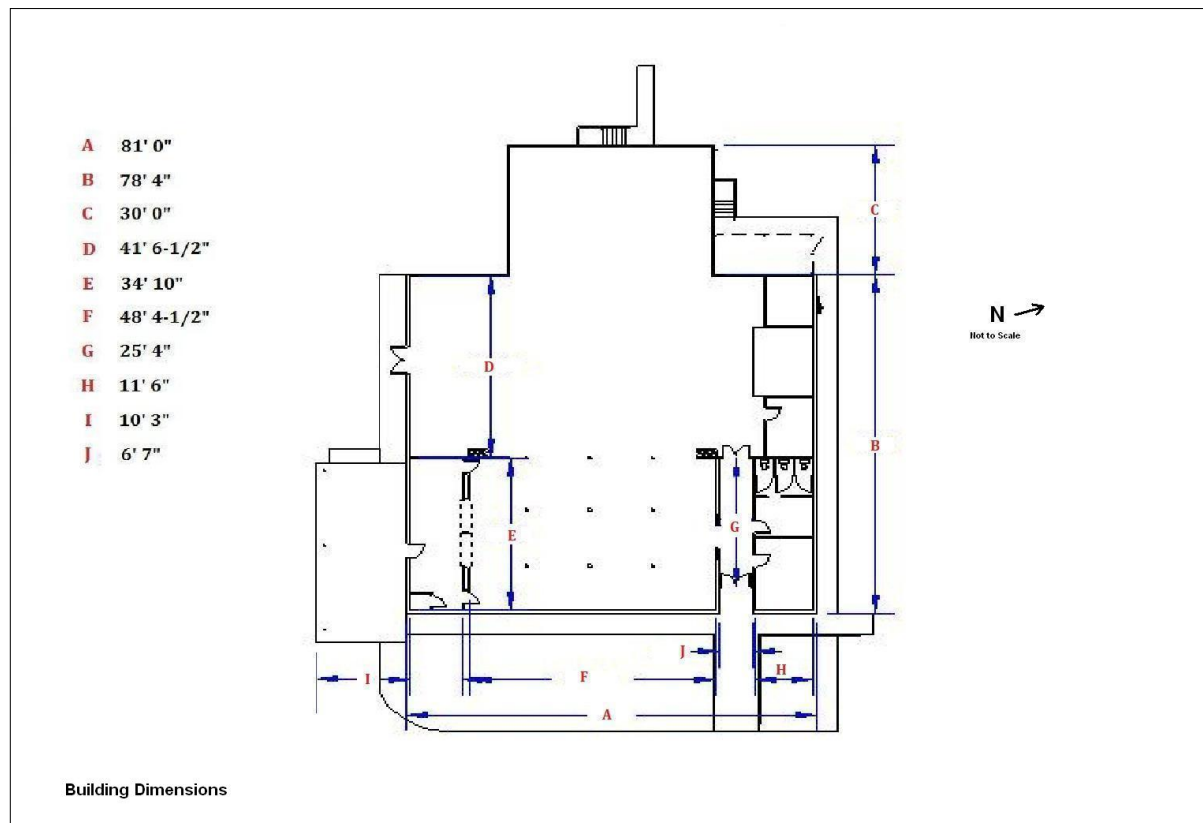
1500 GROESBECK STREET– KNIGHTS OF COLUMBUS HALL



The building was constructed in the 1940's and underwent several renovations, including the addition of the bingo room and kitchen on the A side (east side) of the original structure. It was a single story structure about 7,500 square feet in size. The facility was used for Knights of Columbus meetings, bingo games and private parties. A quinceañera was planned for Saturday, February 16, and organizers for that event were in the building until about 2230 the evening of February 15. The structure was wood framed, with the lower half of the front exterior wall brick veneer and the upper portion wood siding covered by cement board. The rear portion was also wood with similar siding as the front, but had no brick. There were several exterior windows that had been covered over by wood paneling after one of the renovations. The interior walls were wood with wood paneling. A drop ceiling had been installed under the original fiberboard ceiling. This created two ceiling spaces above the acoustical tiles. The front bingo area roof was flat, supported by interior metal posts along the metal "I" beam, which divided the dance floor from the bingo area with additional 6x6 wooden posts supporting wooden girders that, in turn, supported the roof joists to the entry walls. The roof extended over a walkway that ran along the front for weather protection. The original building or dance hall area had a gable roof with shingles. The pitch ran parallel to Groesbeck Street (north and south) with a second converging pitch that ran from the middle to the back (side C or west side). At the gable ends, there were large vents for the attic space. There were 40-foot wood trusses that spanned the dance floor from east to west to support the roof.

There were five exterior doors around the building that were all closed and locked at the time of the fire. The main entrance was on the east side of the building and was six feet wide with double glass doors. It was inset from the exterior wall between the bingo room and office about four feet. This door was breached by breaking the glass, but the frame remained closed throughout the fire. There was a second door on the south side that opened into the building at the kitchen area. A third door, another six foot double door with panic hardware, exited the

dance floor on the south side. The fourth door was located on the west side of the structure and exited the dance floor bathroom area. A fifth door was located on the back side of the building on the north wall and exited from an office space accessed from the dance floor area. The floor of the original structure (dance hall) was wood on pier and beam; vinyl tile was installed on concrete in the bingo room addition. Inside there were many tables and chairs that were used for the functions that were held in the building. There was an awning about 10 feet in height on the B side just outside that ran parallel to the kitchen.



Entering the building through the front double doors, there was a hallway about 8 feet wide and 25 feet long. On the left hand side (south) of the hallway was an eight foot wide entryway to the bingo room with no door, about eight feet inside the front doors. To the right, about four feet inside, was an office door and just past this was a bathroom door. At the end of this hallway there were two swinging doors that led to the dance floor. The bingo room was approximately 34 feet by 48 feet in size and the dance floor was approximately 70 feet by 41 feet in size. These two large rooms could be divided from each other by two accordion style sections that would span about 45 feet and join in the center. These accordion sections were housed in small wooden closets designed into the wall structure at each end, and it was determined these accordion sections were enclosed in these closets during the fire. Just to the south of the bingo room was the kitchen that had a door at each end leading to the bingo area and three rollup doors above the counters that were used for serving in the bingo room. There was also a cutout window to the cash register that had no rollup door. The kitchen was approximately 34 feet by 10 feet in size and contained a grill, stove with oven, beverage cooler, multi-keg cooler, sinks, and counters with storage underneath. There was a type-one hood over the stove and grill with the duct

leading through the roof. There were also two automatic heat vents located on each end that exhausted through the roof. Entering into the dance floor from the entry hallway was a door to the right (north) that led to the air conditioning closet. Beyond this was the stage on the right and a door that led to a storage room from the stage behind the air conditioning closet. There was another storage room on the other side of the stage. The dance floor was an open area with tables set up mainly on the south and east portions. A large hallway was in the middle of the west wall of the dance floor with another large storeroom to the south of the hall. The hall led to a storage room and office on the north side and the large storeroom and bathrooms on the south side. Entering straight down this hall was an accessible bathroom about 20 feet from the dance floor; then the hallway made a 90 degree turn. It made another 90 degree turn and then led to the rear exit door and a concrete exterior stairway.

INVESTIGATION

The Bryan Fire Department, with assistance from the Bryan Police Department, State Fire Marshal's Office and the Bureau of Alcohol, Tobacco, and Firearms (ATF), has determined the fire at 1500 Groesbeck Street, the Knights of Columbus Hall, was accidental.

Through forensic analysis, interviews and a comprehensive examination of the scene, it was determined the fire started in the area of the kitchen. The fire was caused by the failure of an energized electrical cord. The cord was part of a fan that was located in the bingo hall/dining area. The cord was then strung into the kitchen. The failure of the cord ignited nearby combustibles, causing the fire.

The investigation, along with laboratory analysis, indicated that no criminal act was committed regarding the fire.

THE KNIGHTS OF COLUMBUS HALL FIRE

Report to 911

On Friday, February 15, 2013, at 2319, a fire was reported at the Knights of Columbus (KC) Hall located at 1500 Groesbeck Street in Bryan, Texas. The initial report occurred at 2319 from a woman who was driving by and stopped at the store across the street from the KC Hall. She reported seeing a fire through the roof of the Knights of Columbus Hall. She relayed that she did not see any cars in the parking lot and did not think there was anyone inside. She stated at one point the entire roof was on fire, but videos filmed at approximately the same time do not show this. There were five other 911 calls about the fire and each report was similar, but the first caller was the only one that reported the entire roof was on fire.

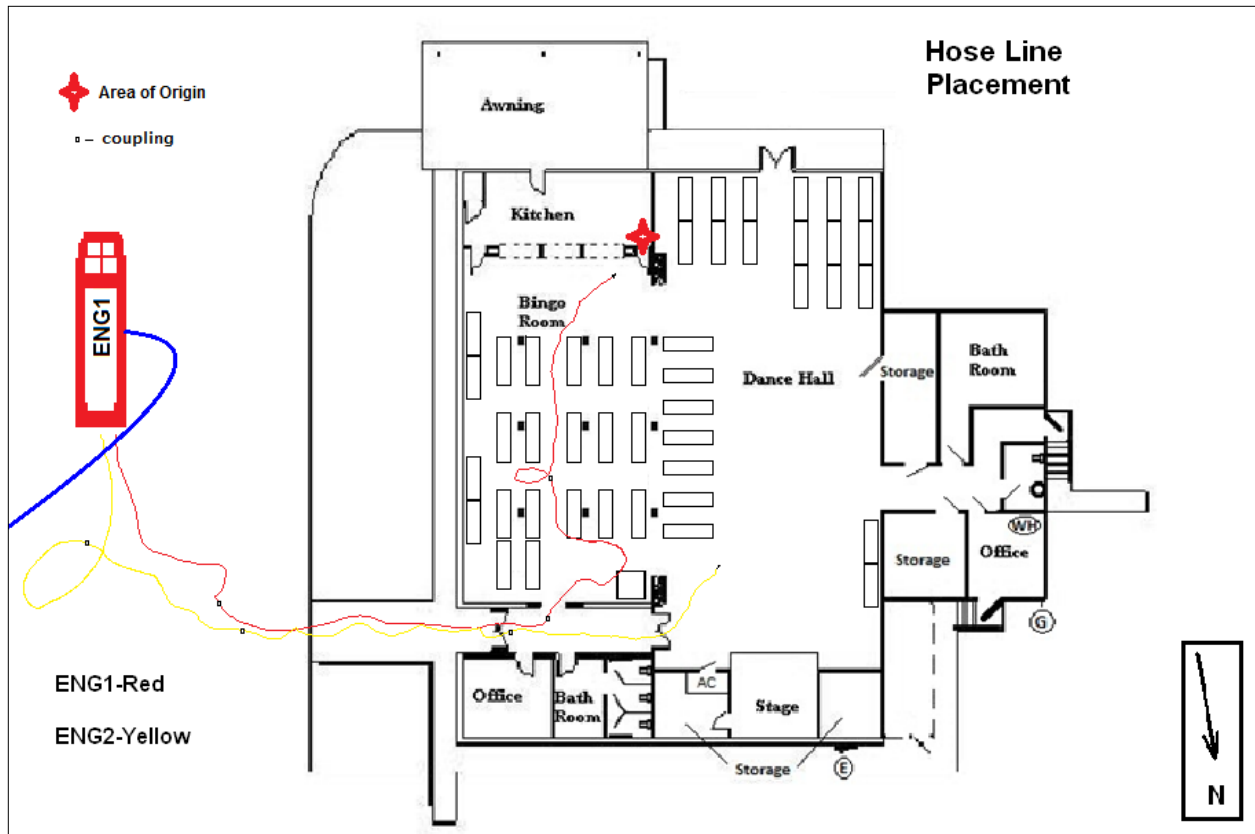
The building known as the Knights of Columbus Hall was used for meetings, bingo games and private parties. The caller told Dispatch the fire was coming out of the roof. Dispatch toned out the first alarm for box #131 at 2319. Battalion 1, Engine 1, Engine 2, Engine 5, Truck 1, EMS 1 and Medic 2 were dispatched to the location. A video was taken by one of the 911 callers standing across Groesbeck Street, perpendicular to the A/B corner. The video showed a small fire coming out of the roof near the A/B corner of the structure. It also showed a stream of fire coming out of side B under the awning. At approximately 2340, Lt. Eric Wallace (L1) became lost inside the structure. Engine 5 was assigned as the Rapid Intervention Team (RIT) and entered the structure at approximately 2345. A flashover event occurred inside the structure during the rescue of Lt. Wallace. Two firefighters were critically injured and two firefighters were fatally injured as a result. All personnel were out of the structure by 0010 and it then became a defensive operation.





Actions of Each Unit on the Scene Before Rescue Operations

Engine 1 was the first unit to arrive (at 2323) and reported fire was showing from the structure, they would be operating in an offensive mode, and passing command to the next arriving officer. Lt. Wallace performed a complete walk-around of the building and took a 200-foot, 1.75 inch red hose through the front door. Lt. Wallace broke the glass out of the front double doors to gain entry. Lt. Wallace and Firefighter Juergin (FF1) advanced the red line into the hallway (approximately 2326) and then turned left into the bingo area. From interviews with FF1 and others, the line was moved near the middle of the room and they attacked the fire, which was above the ceiling tiles. Lt. Wallace asked for more hose, which Truck 1 pulled (approximately 50 more feet), and FF1 reported they again attacked the fire above the ceiling tiles. From radio traffic, Engine 1 felt they were making progress with the fire. FF1 said he checked Lt. Wallace's air level, which was getting low, and they decided to exit the structure to get more air (approximately 2339). FF1 moved down the hose and found a loop in the hose. He said his flashlight illuminated the loop just at the right time, and he moved beyond it without any trouble. Once he was outside the bingo room he met Truck 1 making entry and they told him to exit the structure. At this time, Lt. Wallace reported being lost.



Truck 1 was next on the scene, but was not in the ladder truck because it was at the shop for repair. As they performed a walk-around, they started opening doors for ventilation and emergency egress. They opened a door on side D first and then side C. Next, they went to side B and passed up a double metal door and went to the kitchen door, which was closer to the seat of the fire. Truck 1 said this door must have had a bar locking it down on the inside because of the difficulty to open it. There was heavy fire coming out of this door when they finally got it open. They said that all doors they forced were locked. From this information and the security guard's testimony, it is believed there was no criminal entry made into the structure. Truck 1 then went to the front and entered with Acting Lieutenant Brooks (TO1), Apparatus Operator Strickland (AO), and FF Moses, just in front of Engine 2 (2330). They started their search in the bingo room in a left-hand search pattern. Shortly after, FF Moses had difficulty with his mask and all three exited the structure. TO1 and AO Strickland re-entered and met face to face with Lt. Wallace inside the bingo room and Lt. Wallace asked them to pull him more hose. Truck 1 pulled about 50 feet more hose for Lt. Wallace. Truck 1 also pulled more hose for Lt. Riley (L2) before exiting the structure for more air (approximately 2337). Truck 1 went on air while opening doors on their walk-around before entering, was working to pull hose for the interior crews, and knew they would need additional air to do any more work inside the structure. This is the reason Truck 1 needed air before the other companies. After refilling their air cylinders, Truck 1 made entry again about two and a half minutes after exiting. When they entered the hallway they met FF1 exiting the structure without Lt. Wallace. They told FF1 to go outside and then moved down the hose line in search of Lt. Wallace. TO1 stated as they moved down the hose they could hear the low air alarm of Lt. Wallace. The low air alarm seemed to keep the same auditory distance from them. They did not reach Lt. Wallace before all crews were ordered

to evacuate the structure by Command. They exited (approximately 2344) just as Engine 5 (Rapid Intervention Team or RIT) was entering and relayed current information about Lt. Wallace's location to them.

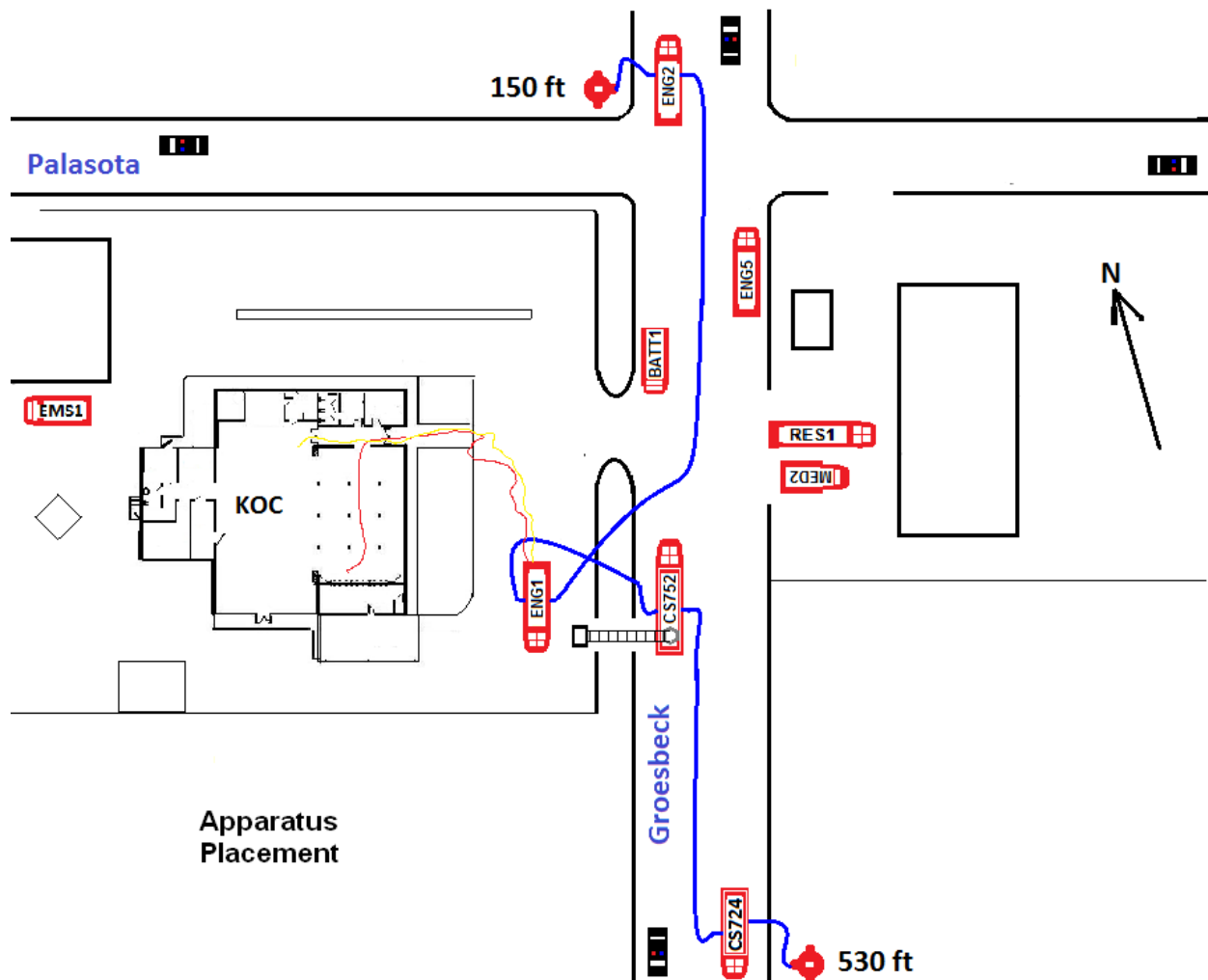
Battalion 1 (Battalion Chief Joe Ondrasek) arrived at 2324 and took command. He remained outside near the command post during the entire incident. He requested the College Station Fire Department ladder truck to respond along with an additional Engine for manpower (2326). An administrative page was also requested from Dispatch for a response from the Administrative Chiefs for help with handling the incident. These requests were very insightful of the incident commander and assisted with the timely response of support for this operation. The communication and tactics used were normal with no significant events until the lost firefighter call.

Lt. Mark Jones (EMS1) arrived next (approximately 2324) and set up on side C as Safety Officer. EMS 1 performed a walk-around and turned off the main breaker on one electrical panel and the fuses to the air conditioning units on side D. Lt. Jones was asked by Command to maintain visual contact on the backside of the structure. He reported heavy flames through the C side roof just before Engine 5 made entry to search for Lt. Wallace (approximately 2345). He moved to the front door to assist with triage during the rescue operation.

Medic 2 arrived at 2327 just ahead of Engine 2 and was ordered to set up as the stand-by team. They assisted with rescue operations and transported Lt. Pickard to the hospital.

Engine 2 arrived at 2327 and set up water supply by reverse lay. L2 was given the order to pull a second line and support Engine 1. L2 performed a walk-around and entered the structure with FF Chase Hughes (FF2). Engine 2 brought a yellow 200-foot, 1.75 inch hose line inside to support Engine 1. L2 met with Lt. Wallace in the bingo area and spoke face to face about his intentions. L2 decided to move to the dance floor at the end of the entry hall instead of remaining with Lt. Wallace due to the lack of space and no obvious fire. L2 stated he thought there was a wall dividing these two areas. He said he used the thermal imaging camera to see there was a lot of fire above the ceiling. Engine 2 knocked down several of the ceiling tiles attacking the fire and asked Command if he could tell if they were having an effect on the exterior. Command responded that it looked like the fire had diminished but there was still a large amount of smoke. Engine 2 was exiting the structure near the fans for more air during the lost FF call and did not hear it. They did hear Command order the evacuation and quickly responded that they were out. L2 later said he did not understand why FF1 was out without Lt. Wallace, waiting in the parking lot by himself. Engine 2 went to Engine 1 to get new bottles, and then went to Command with Truck 1 and FF1 for a face-to-face meeting.

Engine 5 arrived on scene (approximately 2328) and was assigned by Command as the Rapid Intervention Team (RIT). They performed a walk-around of the structure and set up a second fan at the front door. They remained outside the structure until making entry to find Lt. Wallace. At approximately 2345, Engine 5 entered the structure and was in the structure for approximately seven minutes before being rescued by crews from Engine 2 and Truck 1.

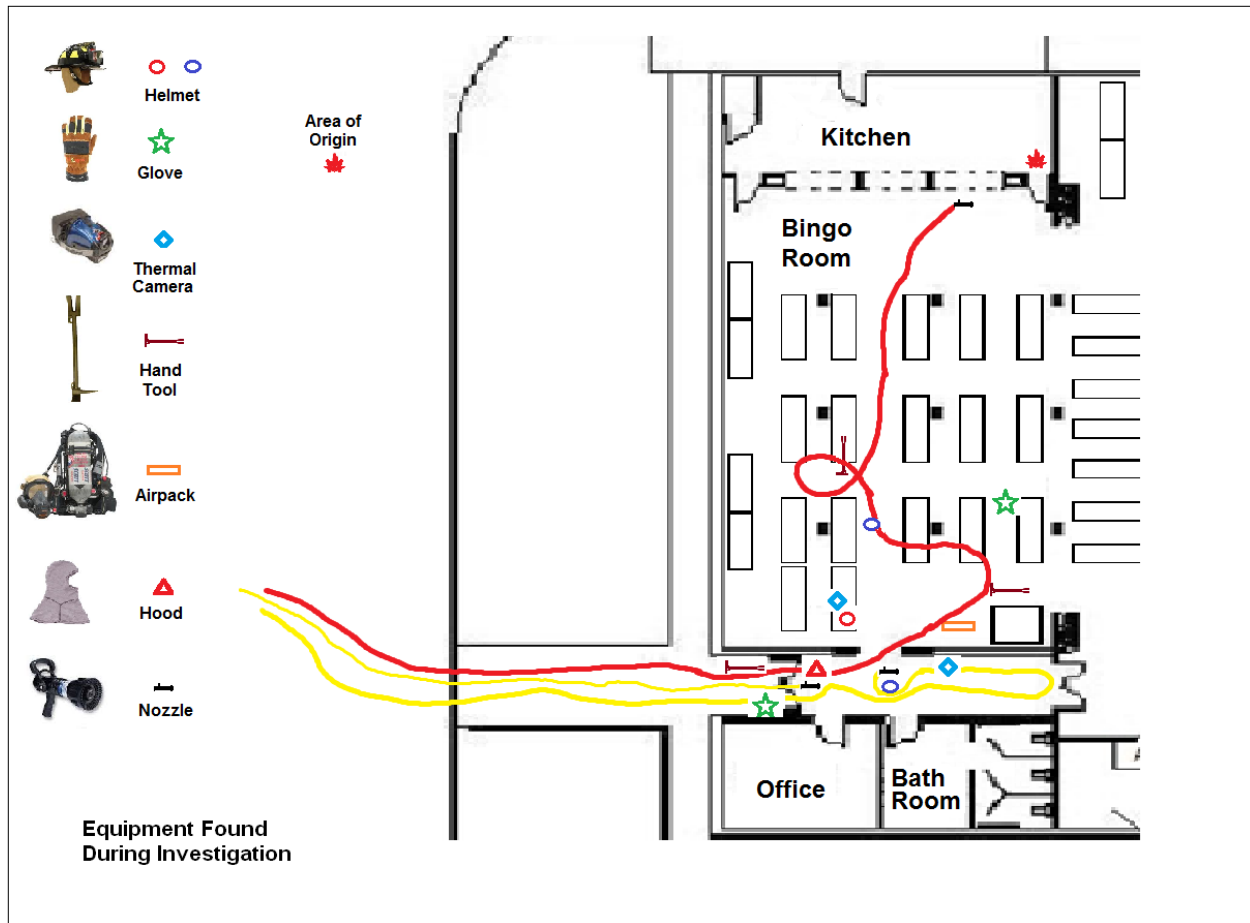


Rescue Event

Approximately 19 minutes into the incident, Truck 1 was entering the structure as Engine 1 was trying to exit due to low air supply. Lt. Wallace got separated from FF1 and was unable to find the way out. He made the “lost firefighter” call 20 seconds after Truck 1 made entry. FF1 heard Lt. Wallace’s lost FF communication on the radio as he was exiting and met Truck 1 near the entry hall. FF1 was told to exit the structure by Lt. Brooks and remain outside. FF1 exited and assisted with the evacuations as they occurred on the outside. The radio traffic (approximately 2340) given by Lt. Wallace, was “I’m on the red line, the red hose line, pretty low on air, alarm going off, and I’m separated from my firefighter, and I need some air”. He was not frantic and spoke clearly. Lt. Wallace was asked by Command to repeat his communication, which he did. At this point, Truck 1 followed the red hose line and said that they could hear the low air alarm of an air pack, but it seemed as if it was moving away from them at the same pace they were advancing, always maintaining the same auditory distance from them. At this point, Command was ordering everyone inside to exit the building. Engine 2 was also low on air and had already begun exiting and told Command they were out of the building. Truck 1 also began to leave the building due to the command to exit. The condition of the fire was growing but had not extended into the bingo room at this point. Lt. Wallace made another plea for help, “Command

this is L1, alarm is on, alarm is on, please give me some air, I'm still on the red hose line". Command replied "Follow the red hose line out, follow the red hose line out". Lt. Wallace responded "Negative Command, I can't do it, have stuff all on the hose line and I'm disoriented on it, please send help". This was the last radio traffic from Lt. Wallace. Lt. Wallace was lost in the structure and disoriented possibly because of the heavy smoke conditions, a loop in the hose, debris on the hose line, and tables and chairs located throughout the bingo area. He was on the red line and was calm in his communication.

Lt. Wallace requested earlier to have a B side door opened, which he saw as he was walking around the structure. This door may have been the kitchen door or the double door in the dance hall area. With the fire in the kitchen, he may have been able to see this door, but if the red line was stretched out, it would almost reach the double doors west of the kitchen. He also said he attempted to open this door before making entry. The double metal doors would have been difficult to breach for one man, but the wooden kitchen door would have been a possibility for him. FF1 said that he could not see anything except for fire through the smoke. His location when Engine 5 found him is unknown. It is assumed that he was between the nozzle and the loop, which was between 20 and 50 feet inside the bingo room from the hallway. This information was also corroborated by FF Ricky Mantey (RIT) during his interview. When Lt. Wallace requested help to exit, Truck 1 had just entered after they received a replacement air bottle. They had only been outside for 2 minutes and 20 seconds. Engine 5, as the RIT, was also outside near the front door. Engine 2 was running low on air and according to their statements, they were exiting during the lost firefighter call, and didn't know it had occurred until they were outside. When Truck 1 exited, they spoke with Engine 5 face-to-face about the location of Lt. Wallace. Engine 5 was composed of Lt. Greg Pickard, FF Ricky Mantey and FF Mitch Moran. FF Mantey said that he had the hose in his left arm entering the bingo room. Due to radio transmissions impacted by the intense heat, it is estimated that they found Lt. Wallace quickly (in less than two minutes). The men breathing heavily for about 80 seconds was audible. FF Mantey said he took Lt. Wallace's left shoulder, Lt. Pickard took his right shoulder, and FF Moran took his feet. At an estimated time of 4 minutes and 35 seconds with Engine 5 inside the structure, a flashover occurred. L2 said they were spraying water inside the dance hall area from the hallway due to fire conditions, and he came back to the bingo entry area, which was about a 10-foot separation. He saw Engine 5's crew on fire as they were still working to get Lt. Wallace out of the structure. L2 pulled his FF back to the bingo entryway and was spraying water on Engine 5 and Lt. Wallace to keep the fire off of them. He then found someone crawling toward him and pushed him toward the doorway where Truck 1 assisted moving him outside. The first victim was removed 5 minutes and 25 seconds after the entry of Engine 5. It is unclear if the first victim removed was FF Mantey or FF Moran, but it is clear that Lt. Pickard was the last one removed from Engine 5's crew. Engine 2 and Truck 1 helped move all of Engine 5's crew outside, which took an estimated additional 1 minute and 35 seconds. College Station Fire Department 752 started master stream operations near this time after Command issued the order due to heavy fire conditions. Engine 2 was very low on air at this point and had to exit to get more air shortly after the removal of Lt. Pickard, but remained in position until relieved by Truck 1. Lt. Wallace remained inside the structure while crews were caring for Engine 5's crew outside.



Care of Engine 5's Crew

As Engine 5's crew was removed from the structure, they were treated at the front door. There was a rush at the door when the crews on the outside realized what had occurred. There was a large group of people at the front door during the removal of the firefighters. At one point, Truck 1 requested help to move people from the doorway. EMS1 began to take control of patient care at this time and communicated with Command. PHI (air medical transport) was requested to respond for the burn patients and a landing area was determined. The helicopter attempted to land but decided it was not safe, so all patients were transported first to St. Joseph Regional Health Care Center in Bryan and then transferred to helicopters.

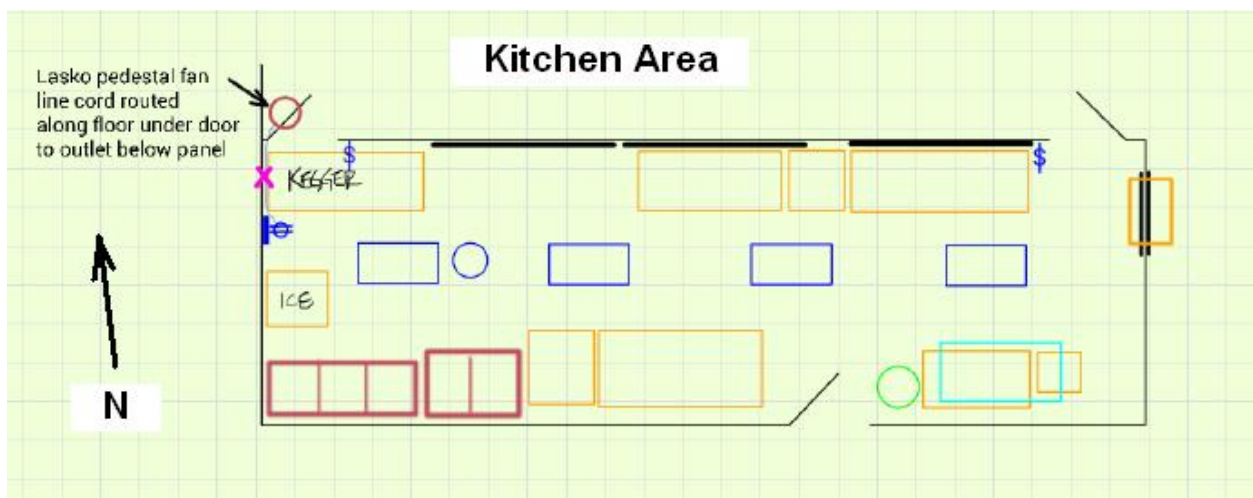
Lt. Wallace Extrication

Engine 5's crew exited the structure after the flashover at 2352. Lt. Wallace remained where Engine 5 moved him just inside the bingo room. It is estimated that he was located about 6-10 feet southwest of the entry hallway. The fire had burned through the roof and the crews that were working in the structure were exhausted from the rescue of Engine 5. Engine 2 remained inside with the blocking line trained on Lt. Wallace after Engine 5 was out. They made two calls that they were low on air with the last call at 2357. Truck 1 entered at 2358 to take control of the blocking line from Engine 2. Truck 1 reported on the location of Lt. Wallace twice while inside with the last report at 0002. Engine 4 arrived on scene at 2355 and made entry with Lt. Fowler,

Operator Huggins, and FF McClemore and took over the blocking line for Truck 1. L4 told Command there were heavy fire conditions and that they heard a pass alarm sounding. Truck 1 was getting low on air, exited for air, and made entry again at 0005 with Lt. Brooks and Operator Strickland. Engine 2 made entry just a few seconds before Truck 1 with Lt. Riley and FF Hughes. Lt. Wallace's radio was keyed as these crews reached him and the men can be heard working at 0005:50. Engine 2, Truck 1 and Engine 4 all assisted with the rescue of Lt. Wallace under extreme conditions. Lt. Wallace was removed from the structure at 0008 with all personnel out at 0010. Command sounded the emergency alert tone and announced a defensive operation at 0012. Lt. Wallace was transported to St. Joseph Regional Health Care Center from the scene at 0015.

Fire Progression

The initial visible fire appears to have come from the vents in the kitchen and the stream of fire that was projecting onto the awning. With the fire origin located at the fan cord behind the beer cooler, it moved approximately 30 feet from the origin.





This lateral and vertical spread would have been limited above the dance floor by the wall between the kitchen and the dance floor area. For a short time, it was also prevented from moving into the bingo area by the closed door that led from the kitchen to the bingo room. The fire would have been able to move to the bingo area by spreading to the open counter window just a few feet away. A rollup door was in the open position above the counter.

This was the fire that Engine 1 saw during their initial fire attack as it was spreading across the ceiling. There were three overhead counter doors in the kitchen, each about eight feet wide. These counter doors would have obscured the view of Engine 1 into the kitchen during the initial fire attack because they were mounted to roll up between 6-12 inches from the kitchen ceiling. Just outside the kitchen door in the area of origin, ceiling tiles were found that were clean and not discolored from smoke. These tiles fell out early due to stress from the fire on the ceiling grid, exposing the building construction elements to the fire. Once the fire grew in the kitchen, the wall separating the kitchen from the dance floor was also consumed. The fire then moved into the attic area on the B side of the structure. Engine 2 reported knocking down ceiling tiles, exposing fire in the dance floor ceiling area. There were many tables and chairs located just on the other side of this wall that would have helped the fire move laterally across the dance floor.

Above the drop ceiling, it appears there was an older higher ceiling made of some type of fiberboard. The amount of the old fiberboard that remained is difficult to verify and, at this point, is speculative. This second ceiling created a space that confused firefighters into thinking that they were doing a good job putting out the visible fire, but the conditions did not improve. The fire extended over them without their knowledge. It seems apparent that the lack of effectiveness would have been determined by Command had Lt. Wallace been able to make it out of the structure. Once firefighting efforts were stopped by Engine 1 and Engine 2, the fire grew quickly. Engine 2 had just exited the structure when it appears the B side roof and C side roof were starting to collapse. Engine 1 would have been out of the structure to obtain air at this time. Chief Ondrasek would have changed this to a defensive operation at this stage.

Unfortunately, this did not occur and Lt. Wallace was lost inside the structure. He was low on air and could not follow the hose line out. The tables, chairs, decorations and other contents were reaching their ignition temperature and the B and C sides were fully involved. The hallway was still protected due to the initial fire attack and distance from the origin. Engine 2 entered shortly thereafter and set up a blocking line in the dancehall. There was no line set up for the bingo area where the rescue was taking place. With the collapsing roof, confinement was able to occur to a level significant enough to cause a flashover in a fully-vented free-burning fire. This occurred five minutes after Engine 5 made entry. Once Engine 5 was rescued, the hose line in the hallway was used to protect Lt. Wallace until he was removed while College Station 752 was operating the master stream from the ladder truck in a defensive manner. Lt. Wallace was removed at 0008 and College Station 752 remained in operation until the fire was brought under control near 0300.

TIMELINE OF EVENTS

<u>Time</u>	<u>Event</u>
1119	First alarm dispatched
1120	E1 first unit responding
1123	E1 on scene - offensive mode
1124	T1 on scene
1124	EMS 1 on scene
1124	Battalion 1 on scene, gives a size up, takes Command, and declares offensive mode
1125	Command requests College Station ladder truck 752 to be dispatched
1126	Command requests an additional engine and administrative chiefs to respond
1127	E1 enters with a 200' red hose line
1127	Medic 2 on scene
1127	E2 on scene setting up water supply
1127	EMS1 setting up as safety officer at back of building
1128	E5 on scene setting up as RIT
1129	Command requests UCAN report from E1 and L1 responds
1130	T1 enters with crew of 3 FF's and begins primary search
1131	E2 enters with 2 FF's to assist E1 with a 200' yellow hose line
1131	E1 requests someone to pull more hose; T1 pulls hose
1132	College Station 752 and 724 responding after request by Command
1133	T1 exiting with 3 FF's due to problem with a mask and reenters with 2 FF's
1133	10 minute notification given by Dispatch
1133	E2 requests help to get more hose; T1 pulls hose
1134	Water supply established by E2 to supply E1
1135	EMS1 to C/D side to watch fire conditions there
1137	T1 exits for air after opening doors. T1 entered about the same time as E1
1139	T1 enters with crew of 3 FF's and hears mayday 36 seconds later and searches
1139	E5 sets up second fan
1140	Mayday call by L1
1140	FF1 tells Command he is separated from L1; he meets T1 who orders him to exit
1141	Command requests evacuation tone and tells everyone to evacuate the building
1141	E2 exits shortly before FF1
1142	Command requests 2 nd alarm
1142	RIT talks with FF1 when he exits
1142	752 on scene
1142	724 on scene
1143	EMS1 tells Command that fire is through the roof on side C
1143	L1 requests help
1143	Command tells L1 to follow the red hose line out
1144	L1 says he can't follow the hose out because he is disoriented on it

1144 T1 advises hearing the PASS alarm but cannot reach it
 1144 T1 ordered to exit the building by Command
 1144 T1 spoke with E5 (RIT) when they exited just before E5 makes entry
 1145 RIT entry
 1145 752 gets in position to raise ladder
 1146 Command meets face-to-face with T1 and E2
 1146 Rolling fire seen in entryway
 1146 E5 possibly reaches L1 due to keyed radio by E5 operator for 82 seconds
 1147 E2 enters with 2 FF's and extinguishes visible fire in entryway
 1148 Two additional medics requested by Command
 1149 T1 enters with 2 FF's
 1150 Flashover occurs
 1150 Command orders 752 to flow water
 1150 1st victim at the door rescued by E2 and T1
 1151 PHI (helicopter) launch ordered
 1151 Medic 5 on scene
 1151 E2 requests help at the front door removing victims
 1152 EMS1 states 3rd victim at door; launch 2nd PHI; E5 all out after 7 minutes inside
 1153 T1 requests help removing people from the doorway
 1155 E4 on scene ordered to report to Command
 1155 E2 states they are exiting due to low air but remain in place
 1157 E2 repeats they are running out of air
 1157 766 on scene
 1158 752 informs Command that firefighters were about to make entry
 1158 T1 making entry with 2 FF's
 1159 Appears from video that E2 is exiting
 1159 T1 says they have a firefighter 10' from the hallway and need help
 1201 E4 enters with 3 FF's, no radio transmission about entry time (estimated by video)
 1202 T1 repeats that there is a firefighter 20' inside to the left
 1202 E4 states heavy fire conditions just inside the building and they hear a PASS alarm
 1202 T1 out for air
 1203 Medic 1 on scene
 1204 3rd Alarm requested by Command
 1204 PHI (helicopter) advised landing area by Command
 1205 E2 making entry with 2 FF's
 1205 T1 making entry with 2 FF's
 1205 L1 radio keyed with sound of rescuers working
 1205 Medic 2 enroute to hospital
 1206 Medic 5 enroute to hospital
 1207 PHI (helicopter) Air-Med 12 on scene searching for landing zone
 1207 766 enroute to helicopter landing zone and then hospital
 1208 L1 is at the door 42 minutes after entry, 3:26 after E 2, E4, and T1 entered
 1209 T1 crew out

1210 E2 and E4 out of building
1210 All personnel out of structure
1212 Command declares fire a defensive operation
1212 E3 on scene
1213 CS726 on scene
1215 Medic 3 on scene and enroute to hospital
1237 Radio channel changed to BFD Tac4

LESSONS LEARNED

During the Knights of Columbus Hall fire, many situations that were encountered demonstrated or reinforced considerations that must be realized at every structure fire. After review of the Knights of Columbus Hall fire, the following considerations must be realized and/or reinforced.

- Commercial and residential fires are very different and each require separate tactical considerations
- Adequate staffing of fire companies is an important factor in firefighter safety
- The role of a Chief's Aide is critical, especially during mayday operations
- "Risk vs Benefit" must be evaluated on all structure fires
- Crews must stay together and remain in voice contact
- Firefighters must announce "mayday" at first point of concern
- All Company Officers must carry Thermal Imaging Cameras (TIC)
- Firefighters must be keenly aware of air supply
- Mayday action plan must be enhanced to include Rescue Division Officer
- A separate radio talkgroup for mayday operations should be utilized
- Ventilation tactics must be considered
- All crews operating interiorly must have the protection of a hose line
- Timely fire inspections must be conducted
- Command must consider effectiveness of operations at 10 minute notification
- Consideration of using non-traditional firefighting tactics
- Different colors of hoses can be beneficial during mayday operations
- Pre-plans on commercial structures should be obtained

RECOMMENDATIONS/ACTIONS TAKEN

After the Knights of Columbus Hall fire on February 15, 2013, that claimed the lives of two company officers and severely injured two firefighters, a committee (Operations Committee) of Bryan Fire Department personnel from all ranks was formed. The responsibility of the committee was to thoroughly review all firefighting and operational standard operating procedures (SOPs) to determine any changes needed to increase the level of safety of our personnel while operating at structure fires. The Operations Committee met numerous times over the months since the fire and has spent many hours in this endeavor. The changes made from the recommendations of the committee include:

Staffing Increase and Resolution

On June 25, 2013, the Bryan City Council unanimously passed a staffing resolution that proposes adding personnel over a ten-year period to raise minimum staffing on all fire apparatus to four firefighters. On the day of the Knights of Columbus Hall fire, each fire company was staffed with three firefighters. While BFD has had success at delivering efficient firefighting services, staffing is many times stretched to accomplish required fire ground tasks. Several national staffing studies show that fire companies with four fighters can accomplish 22 required fire ground tasks 25% faster than a 3-person crew.

In addition, this staffing increase will include a full-time assigned Chief's Aide. It is a very demanding task to monitor and direct a working incident, especially on larger incidents involving commercial structures. When a firefighter mayday situation develops, the abilities of the incident commander can be quickly overwhelmed. During the Knights of Columbus Hall fire, when the rescue situation developed, it was extremely difficult for the incident commander to manage the rescue attempt and the on-going firefighting operations. Having an aide assigned to the Battalion Chief will provide much better management during firefighting operations, and most importantly, during mayday situations. The duties of the Chief's Aide would include operating the Battalion Chief vehicle, which would allow the Battalion Chief to focus on evolving details of the emergency event while en route, assist in incident management, track personnel accountability, perform radio communications, especially during mayday operations, operate the command board, act as a scribe to document all activities and operate the mobile data terminal.

Six additional firefighters were hired in November, 2013, to begin increasing daily staffing levels. In December, 2013, the truck company minimum staffing was raised to four firefighters.

As the City of Bryan has grown over recent years, the ability to inspect commercial structures in a reasonable time period has become difficult. By adding an additional inspector, the ability to inspect commercial structures would be improved. Having commercial structures inspected on a more frequent basis will increase chances of finding potential issues that could lead to a fire at these locations.

An additional Fire Inspector position has been added to the Fire Marshal's Office. After initial training, this additional inspector will assist in increasing the number of commercial fire inspections each year.

Increase of Staffing on Initial Response to a Structure Fire

Another engine company has been added (total of four engines, along with one truck company, Battalion Chief, EMS supervisor and ambulance) to the initial alarm to provide for specific needs. The Company Officer and firefighter(s) on the fourth arriving engine company will deploy a hand line and will be in a stand-by role in the event of a firefighter mayday. This "blocking line" will deploy alongside the Rapid Intervention Team (RIT) solely to provide protection from heat or flashover while the RIT is locating and extracting the downed firefighter. The apparatus operator of the fourth engine will immediately report to the Incident Commander (IC) and serve in the role of a Chief's Aide and scribe. The Chief's Aide will track and document all pertinent information relating to fire ground operations.

Implementation of "Mayday" Mode of Operation

Standard operating procedures for mayday situations were enhanced to ensure critical tasks are accomplished. In the event of a reported firefighter mayday, each company operating at the scene will know their role in rescuing the trapped firefighter. During a mayday mode, the EMS Supervisor who typically serves as incident Safety Officer will report to Command as the Rescue Division Officer when mayday mode is declared by Command. The IC will monitor safety until someone else is assigned to the Safety Officer's position. The trapped/lost firefighter(s) and the company members with them will remain on the assigned radio talkgroup as will the RIT and the blocking line crew. The Rescue Division Officer will monitor the radio traffic, direct the rescue effort and report progress face-to-face with Command. All other companies engaged in firefighting operations will move to a pre-determined tactical channel (Tact 6) to communicate firefighting operations. When a mayday mode is confirmed and declared by Command, RIT and the blocking line will deploy to begin rescue operations. In addition, Command will request an additional alarm for more resources and will have administrative officers immediately paged to respond to the scene.

Coordinated Hose Line Rotations Providing Relief for Attack Crew and Reducing Firefighter Fatigue

With the addition of a blocking line, crews who have been actively involved in firefighting will come out when necessary and report to rehab. Once the crew has replenished their air supply and are rested, they will report to the blocking line and assume those duties. The crew that was previously assigned to the blocking line will now engage in the remaining firefighting tasks. The rotation of crews will continue until no longer needed. The blocking line will remain in place as long as the RIT is standing by.

Thermal Imaging Camera Use

During the Knights of Columbus fire, it was noted that not all Company Officers had a thermal imaging camera (TIC) with them during firefighting efforts. Thermal imaging cameras are carried on all fire companies for use by the Company Officer. Prior to the Knights of Columbus Hall fire, the use of TICs was encouraged and expected but was not addressed as mandatory in standard operating procedures. Standard operating procedures now mandate that all Company Officers have a TIC with them at all times while performing fire ground activities.

All Pre-connected Hose Lines Will be 200 Feet in Length and Different Colors

Previously, all engine companies carried two 150-foot hose lines midsection of the truck (one red in color, one yellow in color) and two 200-foot hose lines on the rear of the truck (one red in color, one yellow in color). While these hose configurations did not cause any issues at the Knights of Columbus Hall fire, the need to make all hose lines the same length became apparent with the change of staffing a blocking line. This will ensure that regardless of which hose is deployed initially by the attack crews, the other hose lines will have adequate length to reach those areas.

The purpose of the different color hose lines is to distinguish between each other in the event a firefighter had to follow a hose line out of a building so they would not confuse another hose line with the one they were following. This proved helpful during the fire at the Knights of Columbus Hall as Lt. Eric Wallace was able to identify which hose he was on when needing assistance (red hose). The Rapid Intervention Team was able to follow the red hose directly to him as a result. With the addition of the blocking line, the need to separately identify all four different hose lines would be very helpful in a similar situation involving the deployment of multiple hose lines.

Communications

Fire ground communication practices were reviewed and, based on factors at the Knights of Columbus Hall fire, several changes have been made. During the rescue operation of Lt. Wallace, it was very difficult at times to communicate due to the number of personnel on scene and the intensity of radio traffic during the rescue. During a typical structure fire, radio communication on one talkgroup is manageable among fire companies operating at the scene. However, it became apparent that when the rescue effort began, radio communications, at times, became overwhelmed. The fire scene became divided between the ongoing firefighting effort and the rescue of Lt. Wallace. The Incident Commander had to manage both efforts while monitoring all radio communications.

Communication changes include separating radio talkgroups when a mayday situation is declared, establishing a designated Rescue Division Officer to monitor rescue operations, and reprogramming portable radios to have voice-announced talkgroups. When a structure fire call is received, a tactical talkgroup is assigned to the incident by the Fire Department dispatcher at the time of alarm. All fire companies assigned operate on the designated talkgroup throughout the incident. Under the new procedure when a mayday is declared by Command, the Rapid

Intervention Team, the blocking line crew and the Rescue Division Officer remain on the originally assigned tactical talkgroup (now known as the rescue talkgroup) while all other crews move to a pre-determined tactical talkgroup (Tact 6) and continue firefighting operations. The Incident Commander monitors Tact 6 and the Rescue Division Officer directs and monitors the rescue talkgroup at the Command Post next to the Incident Commander. The Rescue Division officer and the Incident Commander will monitor accountability and communicate progress and needs in a face-to-face method.

Due to firefighting crews having to change radio talkgroups during a declared mayday, all portable radios have been reprogrammed so each time a radio is turned on, or a change is made in the selection of a talkgroup, the radio operator will hear a voice announcing the selected talkgroup to help ensure the proper talkgroup has been selected. In addition, the radios were previously programmed with talkgroups in descending order (Talkgroup 1, Talkgroup 2, etc.). The last talkgroup on the radio dial is now also programmed to Tact 6 so if any confusion remains as to which talkgroup is which, the radio operator can roll the talkgroup selection clockwise until it stops and they will be on Tact 6 as well.

Upgrades to Personal Protective Equipment (PPE)

After the Knights of Columbus Hall fire, a review was completed of the current specifications of protective clothing. The Bryan Fire Department has been specifying and purchasing high quality firefighting coats and pants for many years. The specifications included Globe brand G-Xtreme gear with Millenia XT outer shell, 3 layer crosstech moisture barrier, and Quantum 3D 2i thermal liner. Although the gear worn during the fire sustained heavy damage, it is believed to have performed well. In an effort to make the gear even better, another layer of Quantum 3D SL2i was added to the complete thermal cape of the coat.

The PPE committee researched firefighting hoods that are currently available to determine if a higher level of protection is available. After much research, the committee recommended the Majestic C6FYR-Hawk, which is a four layer hood with a steam resisting layer of Melange. The department has ordered enough hoods to provide one to everyone in the department along with extras for replacement.

Air Supply

All 30 minute Self-Contained Breathing Apparatus (SCBA) cylinders have been replaced with 45 minute cylinders for additional air supply.

New Hose Load and High-rise Packs

A new hose load was introduced and implemented called a combination roundabout load. The new hose load provides easier deployment and requires less manpower for deployment into structures. All high-rise hose packs were replaced with two-inch hose with combination fog/breakaway nozzles. These hose packs will be used in high-rise firefighting situations but can also be used in commercial settings where a higher flow is required.

Identification of Probationary Firefighters

In order to better recognize probationary firefighters at fire scenes, the tetrahedrons on a probationary firefighter's helmet and the leather helmet front are now green.

Additional Training

Since the Knights of Columbus Hall fire, much training has occurred for all personnel concerning the following topics related to this incident:

- Annual SCBA/PPE requirement
- Knights of Columbus Hall Fire Critique
- RIT drill practical exercise
- Basic Structural Tactical Initiative (BSTI) with 4th engine added; classroom and practical exercises
- BSTI with mayday practical exercise
- New roundabout hose load and breakaway nozzles
- Training was conducted with all dispatchers concerning new procedures and SOPs
- Fire behavior refresher training for all firefighting personnel
- Refresher training on incident safety officer responsibilities and reading smoke for all firefighting personnel

Several Companies also had training in:

- Strategy and Tactics
- Thermal Imaging Cameras
- Building Construction

Command Staff training/discussion on:

- Transitional fire attack
- Risk Management during structure fires
- Truck Company operations
- Parameters for offensive operations in commercial structures

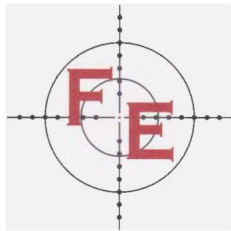
Technology

The BFD PPE Committee evaluated the Scott pack trackers and the SEMS II products in October. The Committee members had mixed opinions and decided more research is needed, and that interviews with departments currently using the products would be valuable.

Current Considerations

The Operations Committee has been tasked with evaluating the recent research performed by the National Institute of Standards and Technology (NIST). After adequate time for all Committee members to review data, decisions will be made regarding any potential strategies and tactics changes. Additionally, the committee has determined the need to draft a commercial occupancy standard operating procedure, similar to the basic structural tactical initiative currently in place.

APPENDIX A



FIRENZE ENGINEERING, LLC

PRIVILEGED AND CONFIDENTIAL

ENGINEERING REPORT

February 25, 2014

PREPARED FOR: Fire Marshal Marc McFeron
City of Bryan Fire Department
300 William Joel Bryan Parkway
Bryan, Texas 77803

MATTER: Fire Loss at the Knights of Columbus Hall

DATE OF INCIDENT: February 15, 2013

INCIDENT LOCATION: 1500 Groesbeck Drive
Bryan, Texas 77803

POLICY NUMBER: Not Applicable

CLAIM NUMBER: Not Applicable

FIRENZE NUMBER: FE13B-006

I hereby certify that this engineering document was prepared by me and that I am a duly Licensed Professional Engineer, employed by Firenze Engineering, LLC, Texas Firm Registration Number 5310, in the State of Texas. This seal covers pages 1 through 5 of this document.


K. Derek Longeway P.E.

Date:

Texas License No. 83323
(Expires December 31, 2014)



THIS DOCUMENT IS PRIVILEGED AND CONFIDENTIAL TO FIRENZE ENGINEERING, LLC AND THE CLIENT.
5729 Lebanon Road | Ste. 144, PMB 252 | Frisco, Texas 75034
Direct Line: 972-743-4202 | Fax: 972-292-1439

Matter: Fire Loss at the Knights of Columbus Hall
Firenze #: FE13B-006

ASSIGNMENT

The assignment was received on February 16, 2013, from Assistant State Fire Marshal Kelly Kistner with the Texas State Fire Marshal's Office with the approval of Fire Chief Randy McGregor with the City of Bryan Fire Department. The instructions were to examine the electrical and mechanical systems to determine if a malfunction or failure occurred, which caused or contributed to the cause of a fire.

EXHIBITS

1. 16 Photographs with Photo Explanation Sheet

INVESTIGATION

On February 17, 2013, I commenced an examination of the electrical and mechanical systems at the loss location. My examination was concluded on February 18, 2013. Present throughout my examination were investigators for the Texas State Fire Marshal's Office and the Bureau of Alcohol, Tobacco, Firearms and Explosives.

OBSERVATIONS & ANALYSIS

The structure was a single-story commercial building, which faced primarily east. The natural gas utility service extended into the crawlspace near the northwest corner of the structure. The electrical utility service extended from a pole-mounted transformer bank on the south side of Palasota Drive.

Investigators with the State Fire Marshal's Office and the Bureau of Alcohol, Tobacco, Firearms and Explosives determined that the fire originated in area that included the southwest corner of the Dining / Bingo Hall and the northwest corner of the Kitchen. Several appliances recovered from the area were examined and eliminated as potential causes of the fire.

The natural gas utility service extended within the crawlspace throughout the west portion of the structure. The gas piping extended up into the attic within the wall that separated the west and east sides of the structure. Once in the attic, the gas piping extended south toward the kitchen. The gas piping extended down the south wall of the kitchen near the water heater and door. From this location, the cooking appliances and water heater connected to the gas system. Based on the witness videos, fire damage and area of origin, the natural gas system within the structure did not malfunction or fail in a manner that caused or contributed to the cause of the fire.

The electrical utility service drop connected to the service mast above the electrical utility metering equipment along the north exterior wall of the structure. Panels on each side of the meter enclosure served electrical distribution equipment and several branch circuits within

Matter: Fire Loss at the Knights of Columbus Hall
Firenze #: FE13B-006

the structure. The electrical utility supplied was a three-phase, 120/208-volt service to the structure.

Shortly before 12 a.m. a service linesman with Bryan Texas Utilities arrived at the loss location to disconnect power from the structure. When he was in the process of pulling the primary line switches, he observed electrical arcing occur at the structure near the metering equipment.

Evidence of an electrical fault at the service mast conduit and top of the metering enclosure was consistent with the electrical failures also documented at 12:06 a.m. in the witness video. The failure was not near the area of origin and occurred after the structure became fully involved in the fire. There was no evidence that the building electrical system malfunctioned or failed in a manner that caused or contributed to the cause of the fire.

Several sub-panels were located throughout the structure, including one on the west wall of the kitchen. An outlet immediately below the panel was used to energize the pedestal fan recovered from the southwest corner of the Dining / Bingo Hall. The cord for the fan extended from the fan, under the closed door, between the kegger and the west wall of the kitchen, and to the location of the outlet. The cord pulled out of the outlet during the course of the fire and subsequent structural collapse.

A partially melted, 20-inch, plastic Lasko fan cover was recovered near the location of the fan motor. Approximately six linear feet of two-wire line cord remains was still attached to the fan motor. An additional four feet of two-wire cord was recovered from the fire debris. Additional line cord segments were also recovered from this area, which amounted to at least 15 additional inches of line cord. The six foot section of line cord, which was still attached to the fan motor, had the remains of charred thermoset plastic adhered to the severed end. Once the material was removed, evidence of a non-standard connector was revealed. There was no evidence that a compression type connector was present. The condition of the line cord revealed that a modification had been made to either repair the cord and/or lengthen it. The connection exhibited increased thermal damage consistent with a high-resistance connection.

Additionally, the uncovered conductor ends exhibited evidence that an electrical fault occurred. The line cord segments recovered also exhibited evidence of electrical faults, consistent with prolonged arcing while the circuit remained energized. The condition of the damaged pedestal line cord revealed that the modified cord connector became a high resistance component. Over time, improper or poor line cord connections will oxidize and increase operating resistance causing them to overheat and ultimately result in an electrical fault. It is possible for nearby combustibles to ignite from the heated connection; however, the electrical failure, which resulted in multiple arcing events, was certainly a competent ignition source capable of igniting nearby combustible materials.

Matter: Fire Loss at the Knights of Columbus Hall
Firenze #: FE13B-006

CONCLUSIONS

Based on the information available at this time, it is my professional opinion that a poor line cord splice caused a high resistance connection, which overheated and resulted in the electrical failure of the line cord. This electrical failure produced arcing and sparks sufficient to ignite nearby combustible materials and cause the fire. This conclusion may be reconsidered and revised if new evidence or information becomes available that merits such consideration.

COMMENTS

The requested scope of inquiry has been completed with the submittal of this report. All photographs taken during the course of the investigation will be kept in the file and are available upon request.

Respectfully submitted,



K. Derek Longeway, P.E.
Electrical & Mechanical Engineer

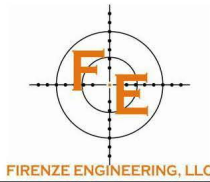
Matter: Fire Loss at the Knights of Columbus Hall
Firenze #: FE13B-006

PHOTOGRAPH EXPLANATION SHEET

1. Remains of the pedestal fan cover
2. Name brand on the front of the pedestal fan cover remains
3. Remains of the pedestal fan motor
4. Remains of the pedestal fan motor with six foot portion of line cord
5. Severed end of six foot portion of line cord with melted thermoset plastic
6. Remains of four foot portion of line cord with plug blades
7. Closer view of plug blades
8. Remains of additional line cord conductor segments
9. Molten copper recovered with line cord conductor segments
10. Molten copper recovered with line cord conductor segments
11. Conductor segment with severed ends that exhibit evidence of an electrical fault
12. Severed end of line cord with melted thermoset plastic
13. Thermoset plastic crushed to reveal electrical connector components within
14. Electrical connector components cleaned
15. Closer view of electrical connector component
16. Molten copper conductor and electrical connector component

Matter: Fire Loss at the Knights of Columbus Hall
Firenze #: FE13B-006

EXHIBIT 1



FIRENZE ENGINEERING, LLC



Photo 1

fe13b-006_0217-1813_hall_0560.JPG



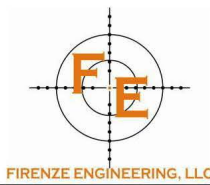
Photo 2

fe13b-006_0217-1813_hall_0564.JPG

Matter: Fire Loss at the Knights of Columbus Hall

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FIRENZE ENGINEERING, LLC



Photo 3

fe13b-006_0217-1813_hall_0567.JPG



Photo 4

fe13b-006_0217-1813_hall_0561.JPG

Matter: Fire Loss at the Knights of Columbus Hall

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FIRENZE ENGINEERING, LLC



Photo 5

fe13b-006_0217-1813_hall_0562.JPG



Photo 6

fe13b-006_0217-1813_hall_0563.JPG

Matter: Fire Loss at the Knights of Columbus Hall

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FIRENZE ENGINEERING, LLC



Photo 7

fe13b-006_0217-1813_hall_0564.JPG



Photo 8

fe13b-006_0217-1813_hall_0565.JPG

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FIRENZE ENGINEERING, LLC



Photo 9

fe13b-006_0217-1813_hall_0567.JPG

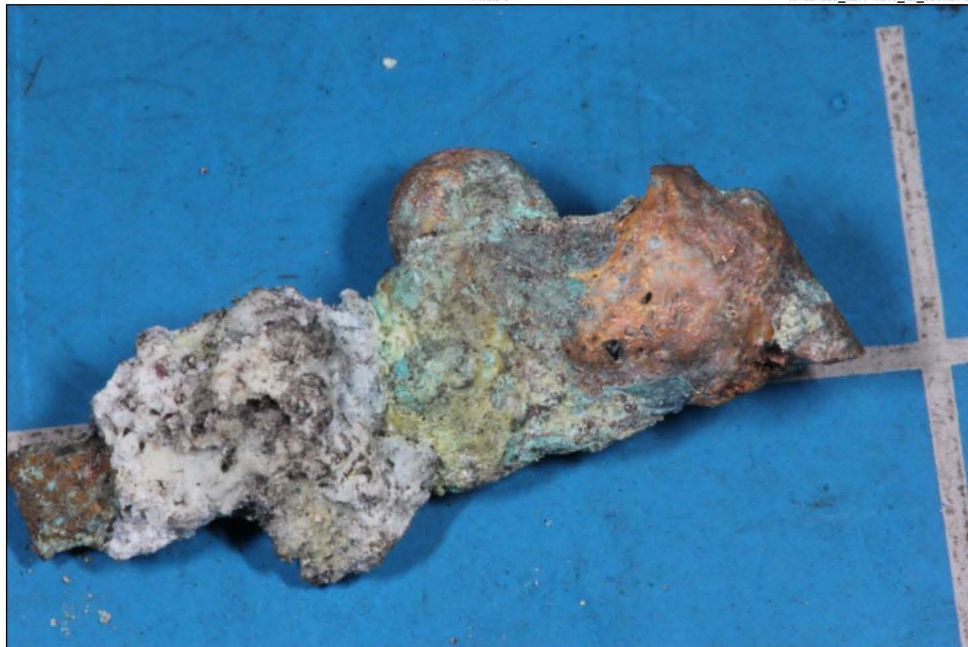


Photo 10

fe13b-006_0217-1813_hall_0568.JPG

Matter: Fire Loss at the Knights of Columbus Hall

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FIRENZE ENGINEERING, LLC



Photo 11

fe13b-006_0217-1813_hall_0570.JPG



Photo 12

fe13b-006_0217-1813_hall_0604.JPG

Matter: Fire Loss at the Knights of Columbus Hall

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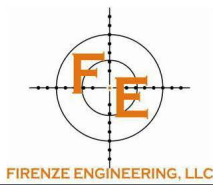


Photo 13

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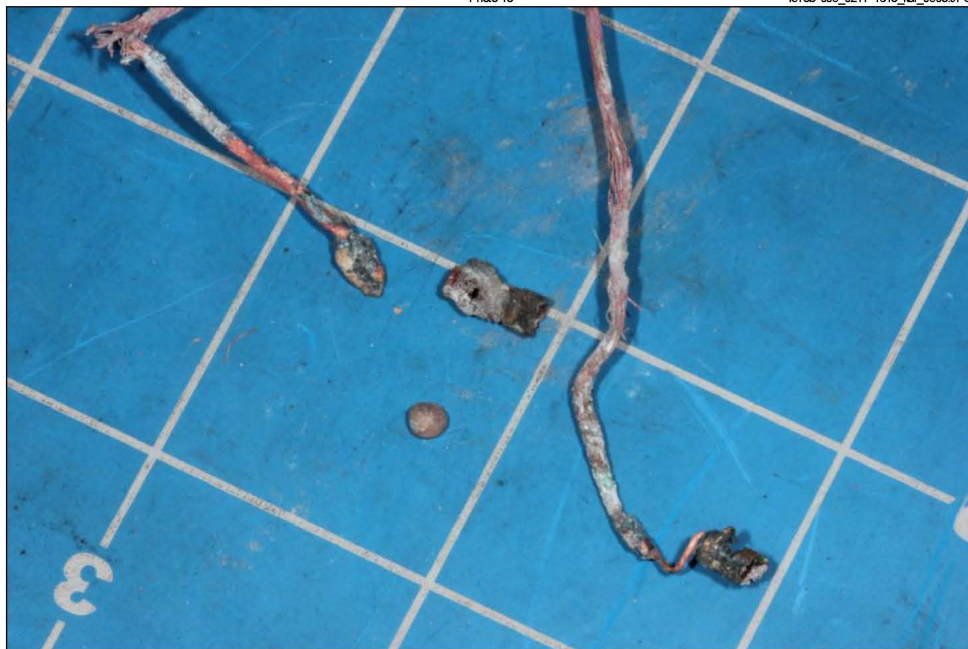


Photo 14

fe13b-006_0217-1813_hall_0609.JPG

Matter: Fire Loss at the Knights of Columbus Hall

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FIRENZE ENGINEERING, LLC



Photo 15

fe13b-006_0217-1813_hall_0611.JPG



Photo 16

fe13b-006_0217-1813_hall_0615.JPG

Matter: Fire Loss at the Knights of Columbus Hall

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Firenze File #: FE13B-006

Thank You

We will always
remember

Lt. Greg Pickard
Lt. Eric Wallace



Your continued
love & support

Ricky Mantey
Mitch Moran

Words cannot express our **gratitude** to
each and every person who **donated** time,
money or resources; **prayed**, **delivered** meals,
donated hotel rooms, **drove** hundreds of miles,
offered a comforting hand, and **stood by**
as we said goodbye to two of our brothers.

To **everyone** who helped in ways
big and small, with hearts of **thankfulness**
and **humility**, we offer our **sincerest** thank you.



CITY OF BRYAN

100 Club • 911/Brazos County Dispatch • Aggeland Outfitters • Amarillo Fire Department • American Momentum Bank
AUSTIN FIRE DEPARTMENT • BCS Convention and Visitors Bureau • Blue Baker • Brazos Center • Brazos County Commissioners
Brazos County Constables, Precincts 1-4 • Brazos County Sheriff's Office • Brazos County Volunteer Fire Departments
Brazos Transit District • Brenham Fire Department • Brother's Keepers Motorcycle Club • Bryan Police Department
Bryan Police Officers Association • Buppy's • C&J BBQ • Caffe Capri • **Caldwell Fire Department** • Candy 95 • Carter's Burgers
Casa Rodriguez • **Celina Fire Department** • Central Baptist Church • Chick-Fil-A Bryan • Chicken Express • Christopher's World Grill
City of College Station • **COLLEGE STATION FIRE DEPARTMENT** • College Station Fire Department - Wives & Families
College Station Fire Department Pipes & Drums • Congressman Bill Flores • Conroe Fire Department • Cy-Fair Volunteer Fire Department
Cypress Creek Fire Rescue Dallas Fire Rescue • Denison Fire Department • Domino's Pizza College Station • Double Dave's • Elite Electric
Emergency Services Pipes & Drums Association • Epicures • Firehouse Subs • First Baptist Church Bryan • First Baptist Church Marlin
First United Methodist Church Bryan • Fritella Café • Fuego • **GALVESTON FIRE DEPARTMENT** • Grub Burger Bar • **Haltom City Fire Department**
Harris County Toll Road Authority • **HOUSTON FIRE DEPARTMENT** • International Association of Fire Fighters • J. Cody's
Jack Hilliard • IHOP • Jim Joham (Air One) • John Gause Plumbing • KBTX • Knights of Columbus • Kristen Distributing • La Familia
League City Fire Department • Lemon Wedge • Lighthouse Charity Team • Little Caesars Pizza • Longhorn Tavern Steak House • Madden's
Mary Branch Elementary School • **McAllen Fire Department** • McAllister's • **McKinney Fire Department** • Michael Mire-HFD • **Mobley Ranch**
Motions Industries • Must Be Heaven • **Navasota Fire Department** • **NEW BRAUNFELS FIRE DEPARTMENT** • Olive Garden • Papa Perez
Pasadena Fire Department • Patranella's Bakery & Cafe • Patriot Guard Riders • **PHI Air Medical Services - Air Med 12, Air Med 1 and Stat1**
Radio Allegria • Richard Duffy-IAFF • Rooster's • Ruffino's Meats • Salvation Army • **SAN MARCOS FIRE DEPARTMENT** • Scarmardo's Produce
Sherman Fire Department • Shipley's Shipwreck Grill • St. Joseph Catholic Church • **St. Joseph Emergency Medical Services**
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State Senator Charles Schwertner • Subway Downtown Bryan • **Sugar Land Fire Department** • Swico Auctions • Taco Bell • TAMU Traditions Council
TAMU Transportation Services • TAMU University Services • Target • TEEX Communications • **Temple Fire Department**
Texarkana Fire Department • Texas Association of Fire Chiefs • Texas Association of Fire Fighters • Texas City Fire Department
Texas Commercial Waste • Texas Department of Public Safety • Texas Roadhouse • The Bank & Trust • The Crawfish Hole • The Eagle
Village Cafe • **The Woodlands Fire Department** • TxDOT District Offices • **UTMB Blocker Burn Unit** • **Waco Fire Department**
Wells Fargo • Whataburger • Wings 'N More • WTAW

• THE COUNTLESS VOLUNTEERS THAT HELPED IN SO MANY WAYS •



We will always
remember

Lt. Greg Pickard
Lt. Eric Wallace

Our continued
love and support

Ricky Mantey
Mitch Moran

