John Coviello

At the time of the explosion, I was at the South Station as a pibot for Wilmington. On arriving at the scene, I immediately informed Capt. Grourke that I had brought Wilmington to the scene. I also noticed that there was fire in the woods and under the tanks.

I was then approched by firefighter Briggs to assist him in carrying a deluge gun in order to cool down the tank. We also were assisted by two other firefighters.

John F. P. Coviello Firefighter

John C. Cuneo

Date: Wednesday, February 9, 1972

Time arrived at scene of Lowell Gas Co. plant, Tewksbury, Massachusetts, approximately 10:55 p.m.

At the time of the explosion of the propane gas truck, I was inside the Central fire station. Immediately upon hearing the explosion, I ordered several men, who were also at the Central station, into the pick-up truck, as all Second Alarm Companies were at the scene. We immediately proceeded to the Lowell Gas Co. plant.

Along the way, I met no traffic heading towards the plant as all vehicles were heading in the other direction. There was a police roadblock at the corner of Pleasant and Whipple Rd. I went through that, saw Eng. 2 at the corner of Chapman and Whipple Rd. I dropped off one or two men to aid that truck. I then proceeded up the driveway into the gas company yard. As I went up the driveway, I passed the Tewksbury ambulance going out. I noted a number of firefighters in back of the ambulance, reconizing the Chief.

Upon arrival, I met Firefighter Sheehan. The back of his turn-out coat was burned and hanging loose. He seemed to be in a dazed condition. He told me that all the officers were gone and that the Deputy and several other men were lying over the embankment to my left and required medical attention. Firefighter Magro was in the truck with me and immediately went to aid these men. I also noted injured firefighters at several locations.

Tewksburys' Engines 4 and 5 were on fire. There were fires at several small buildings in the gas complex. Several tank trucks were also burning. There were also fires in the woods on both sides of the gas company plant. There was a fire burning under the 60,000 gallon propane tank.

I immediately ordered a Third Alarm and told the desk I had a full

scale disaster on my hands. I then proceeded to try to re-group the available forces on hand.

The only water that was still available was coming from a monitor nozzle that was being fed from lines coming in from Chapman Rd. This gun had been knocked out of place and the water was not getting to the fire under the propane tank. With the available man-power, I attempted to move this gun to a position where it would cool the propane storage tank.

At about this time, I saw the foam truck from Hanscom Field coming up the driveway. I stopped it and spoke to Captain Sitar. I asked him to please use his truck to put out the fire in the two pieces of fire apparatus and the several tank trucks that were parked along side the apparatus. I then noted that little success was being made at moving the gun due to the fact that the lines could not be shut down.

I went over and tried to help move the gun. At about this time I met Chief Hilton from Andover and informed him of what action I had taken and what I was trying to do. He agreed that the gun had to be moved. At about this time Chief Reed of Chelmsford came up to me and asked what his Company could do. I told him that we had to get some control of the monitor gun. He then ordered his engine to come into the yard and intercept the lines feeding the gun. With this done, we were able to move the gun into a position where it could cool the propane tank.

I then went into the area where the tank truck had exploded. Two hand lines had been moved into the area. One was hitting the underside of the propane tank where flame made contact with it. The other was putting out other fires in the area. At this time I met an offical of the gas company, who said that he had to get to the top of the propane storage tank to shut off the valves feeding the fire under the tank. I then sent for a ladder. Before the ladder arrived, myself and several other people succeeded in boosting the gas company employee up high enough for him to grab the fixed

ladder on the tank and get to the top to shut off the gas lines on the tank.

As soon as this was done, the major part of the fire subsided.

I then went over to Chief Hilton and we proceeded to go over to the tank truck that was still hooked up to the unloading pipe and we disconnected the line from that truck and shut off all valves that we could find on the truck and on the piping to the tank.

For some time after that, I supervised the wetting down of several small fires in the area. After the bulk of the fires were out, I conferred with Chief Hilton and it was decided to start releasing all the ambulances and fire apparatus on the scene that were not actually working on the fire. I then walked back to Chapman Rd. and released all companies that I saw.

After this, I went back up into the yard at which time I saw a wrecker from Penny's Garage. I made arrangements for him to tow Engine 5 back to the Central station at his convenience.

I then went back to Chief Hilton and at this time it was determined that we could use the hydrant in the yard for wetting down operations. The Billerica Fire Dept. put a line on the hydrant. We then proceeded to shut down all other lines.

As this was done, I went back onto the street to a home in the area and used the telephone to call the Central station. I then inquired as to the condition of the injured men and to the conditions at the Central station. At this time I also told them what trucks were returning and what was to be done. I then went back to the fire scene and related to Capt. Grourke and Chief Hilton the information I had as to the condition of the injured firefighters.

At about 3:30 a.m., I returned to the Central station and checked on operations there. From that time on I did not return to the fire scene until the following afternoon, at which time most of the damage had already been cleared away by the gas company.

John C. Cuneo, Captain

Robert A. Fowler

On the night of February 9th at 10:39 we got a call for a truck and ambulance to the Lowell Gas Co. plant on Chapman Rd. Upon the arrival we saw from a great distance away a great amount of fire.

Upon arrival on the scene, the ambulance was in the process of helping a badly burned man. After they turned around and left the driveway, we moved up closer to the scene putting the truck, Engine 5, on the building side of the fire. At a simultaneous time a deck gun was taken off Engine 5 and placed between the open gate as close to the fire as possible, at the same time Engine 4 connected to the hydrant on Chapman Rd. and laid two lines to connect to Engine 5 which was feeding the deck gun which was manned by A. Hancock and myself at first. We played our stream of water on the 60,000 gallon tanks and the propane tank truck nearest the fire.

At one time Capt. Millett came over and told us to leave the gun and protect ourselves by using the building as a shield. At this time, a relief valve blew on the tank truck and shot a flame into the air and I could see Billerica men coming through the woods with lines. I waled over towards them and in doing so I could see that they were going to play water on the truck furthest from the fire. At that time the cab was on fire and the tires had burned off.

I went back to the gun and at that time A. Hancock and I were joined by W. J. McAllister Jr. Approximately three minutes later, which would have had us putting water on the tanks for 15-20 minutes, an explosion erupted in our faces the strength of which I have never seen. I was thrown back approximately 35 feet underneath another tank truck. I next realized looking up and seeing nothing but fire around me and still falling out of the sky. I could see the building on fire, Engine 5 on fire and fire to the rear of me in the woods. Not knowing how far the fire went, I looked down between the fire trucks and went out that way. After getting clear of the fire

someone took my coat off which was on fire and I put out the fire in my hair.

At that time I helped A. Mahoney and Chief Chandler and the three of us and

Capt. Millett were put in the Tewksbury ambulance and sent to St. John's

Hospital.

Robert A. Fowler Firefighter

Russell W. Gourley, Jr. Regarding the fire of February 9, 1972, responded to alarm of fire received from mobil home unit. Arrived at Central Station with my father. Responded to fire on Engine #6. Driving through the main gate leading to the fire, we could see the flames coming from behind a cement block building. I jumped off the tail gate and ran to the hillside when the Deputy Chief and Chief were later burnt. The Deputy or Captain Fred Millett ordered Engine #6 to make a reverse lay back to Chapman Road. I returned to the hillside just as the 1st major explosion took place (assumed to be the safety valves of the truck tank). The Deputy Chief ordered everyone to lie down on the hillside to protect them against any further blasts. At this time someone requested a double male coupling. I ran in a crouched position past the tanks. I got a double male and tossed it to Captain Millett who was headed back to the hillside. I then proceeded down the alley where Engines #4 and #5 were parked. Bob Fowler and Al Hancock were manning a deluge gun at the gate opening. The roar of the fire was so intense we had to shout in each others ears. I watched the effect the gun was having on the flame and asked them if they thought they shouldn't abandon their position. They shrugged their shoulders and and went back to stand beside the gun. I felt rather helpless and foolish standing there watching that gun spraying on that effusion of gas. Sensing the futility and danger, I turned and began to walk away.

I had just gotten beyond Engine #4 when the truck blew and hell consumed everything.

I screamed "there are firemen in there" and ran past a body being attended to by Tony Aubdens. Engine #5 was ablaze. Bobby Fowler and Allen Hancock came staggering out looking like zombies, eyes glazed in shock.

I began to mount Engine #4 on the drivers side when the wheels of one of the tankers exploded into flames. I shut the door of Engine #4 and ran to the back.

Seeing it was only the tires, I returned to #+ this time on the passenger side.

Tony tried to get in #4 but the whole front cab was ablaze.

I told him to get the hell out of there and grabbed a dry powder and put it out.

When I had the cab extinguished, a new fear suddenly hit me.
Where the hell was my father? I threw the empty dry powder
away and began running around looking for my father.

I had lost contact with time and it seemed an eternity since he had left with #6. He must (I thought) be on the hillside.

Everyone there was on the way to the hospital or walking around dazed. I started to run up to Chapman Road, when I met my father running down to find me.

The foam truck had put out #5. We got a chain to tow it out of the alley.

Captain Grourke acting under Chief Hilton's orders asked us to bring in a couple 2-1/2" lines to play on the big 60,000 gallon tanks.

I don't know whether it was shock, fear, or instinct but

-3-

I kept telling people we were crazy to be staying in the area, that we were fighting this fire with water and it just wouldn't work.

A guy from the Gas Company came and shut down the feeder line that was blasting the big tank.

The rest is history.

Russell W. Gourley, Jr. Firefighter

Allen J. Hancock

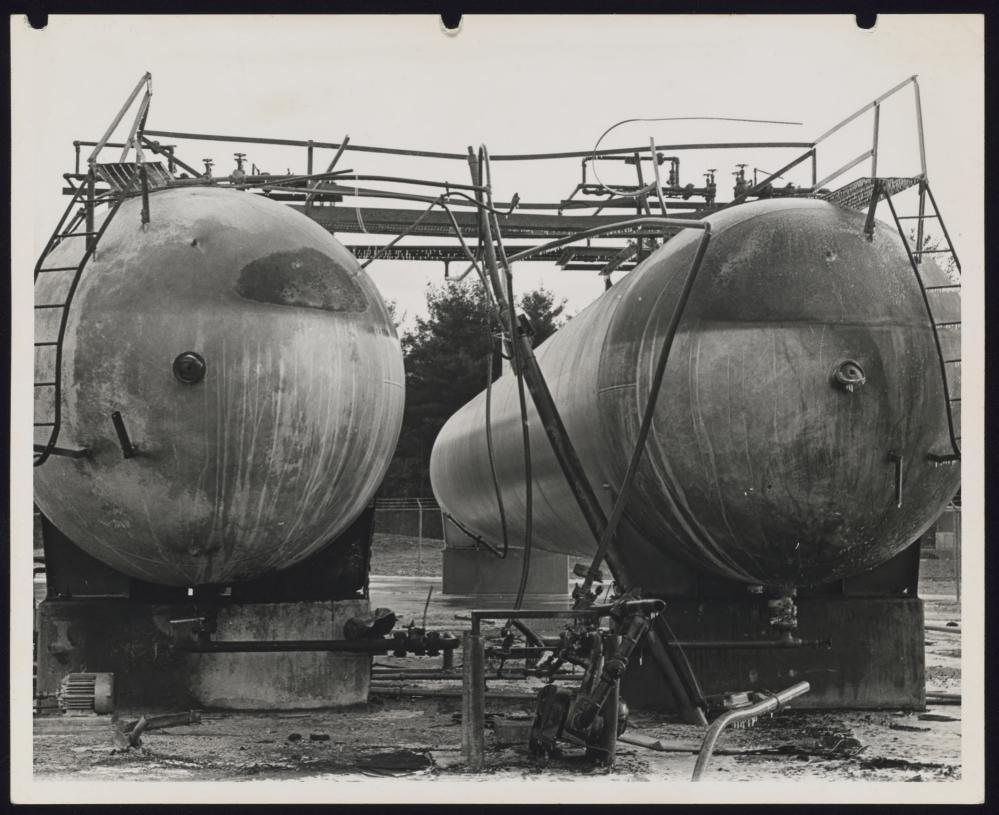
I was on the tailboard of Engine Number 5, first piece of fire apparatus on the scene. We pulled in right behind the ambulance. The two men in the ambulance had put the driver of the gas truck on the stretcher and were working on him when we arrived at the scene.

At this time, the ambulance was parked next to the building that I now know held the vaporizer. The ambulance pulled out almost immediately. Our driver, Alen Mahoney, pulled in alongside the building. He used the building to shelter the truck from the heat. Capt. Millett had us set up the deluge gun at the gate opening where there is an approximate six foot high chain link fence. This gave us a fairly clear short (overhead pipes obstructed the stream of the deluge gun to some extent) to play water on the two sixty thousand gallon tanks and also on the burning tanker.

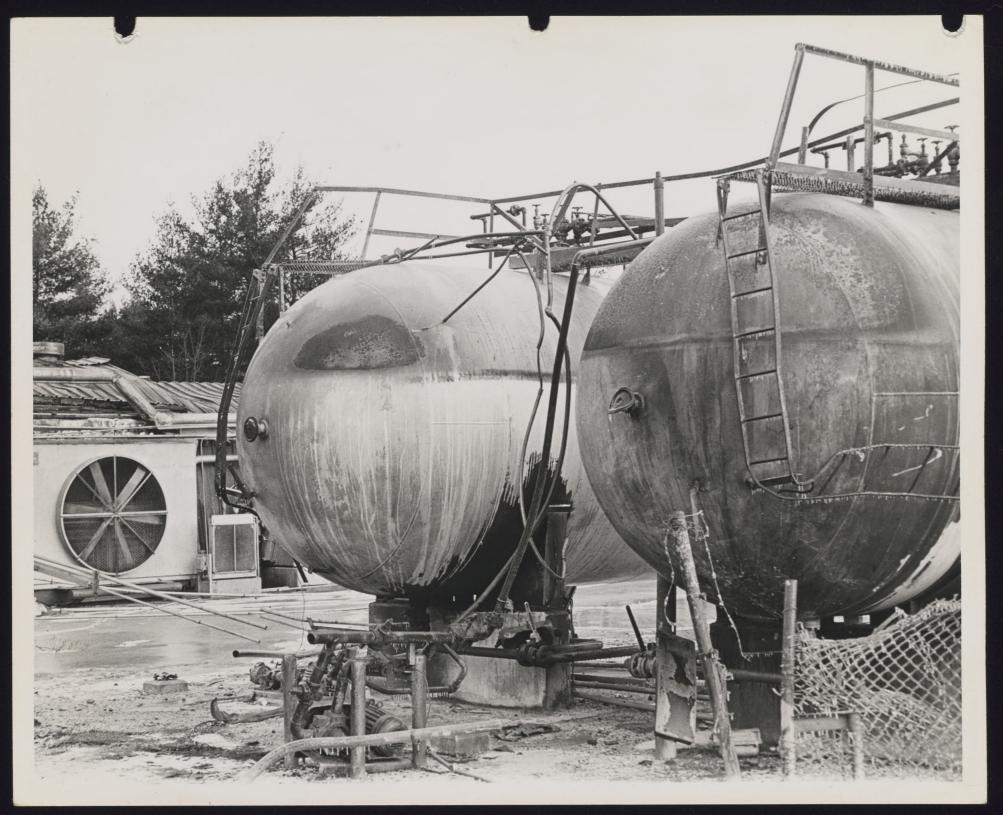
The tanker that was burning looked like it was approximately twenty or thirty feet from the sixty thousand gallon tanks. The total rear end of the truck was aflame when we arrived. There was a second truck parked approx. thirty or forty feet from the burning truck. The tires on the truck were smoldering and flat, The cab and tanker were either steaming or smoking. I do not know which.

We had water in the deluge gun almost immediately after setting it up.

The Billerica Fire Dept. was to the front of our Engine Five near the corner of the driveway at the edge of the woods. They had two two and one-half inch lines hooked up and were playing them on the burning tanker and on the smoldering tanker. After we were there a short period of time, there was a small explosion. A flame started burning on the top of the truck. (I have been told this was a relief valve on the truck.) It made me think of an acetylene











TEWKSBURY POLICE

Bureau of Photography

Date 2/10/5

By Syl Burlants

At





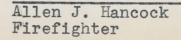


torch of hugh proportion. It had a short blue flame near the base and a hot white flame that seemed to reach sixty to seventy feet high in the air. I remember thinking to myself "Thank God" they have built-in saftey to relieve the pressure which should greatly reduce the chance of explosion.

I'm not sure how long a period of time elapsed between the time of arriving on the scene and the first explosion and the time of the second explosion, in which I was injured.

At the time of the second explosion, I was at the nozzle of the deluge gun. I do not remember if I was standing, crouched, or kneeling. (Bob Fowler stated I was standing beside the nozzle adjusting the stream.) Robert Fowler was at the screw adjustment and William J. McAllister Jr. was kneeling just behind Bob Fowler.

After the explosion hit us, I am not exactly sure of what happened. So I can only put down what I remember. I first remember my hair burning and my back on fire. I tried brushing the flames out of my hair. I must have done this three or four times but couldn't get the flames out. I knew I was burning. I can remember thinking I should roll on the ground to put the flames out but the macadam was burning with flames all over the ground. I remember looking up and seeing Engine 5 burning from one end to the other. I started to run and I don't know whether I ran into, tripped against, or over something; but I hit the chain link fence. As I was getting up, I noticed William McAllister Jr. falling beside me. I grabbed him and carried him out. I don't know how far I ran before I hit bare ground with no flames on it. But when I did, I rolled over on the ground with Johnny trying to put the flames out on the both of us. Then I was carried down and put into the ambulance.











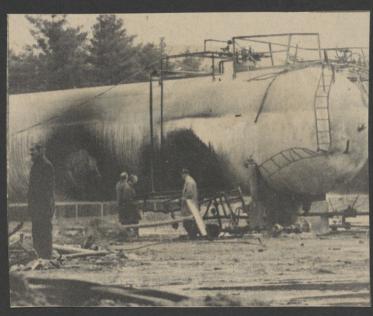
E



right and near center of photo and also damaged nearby building. Twenty-one fire fighters were in-jured, including half of the Tewksbury force and the fire chief. (AP Wirephoto) (See AP AAA Wire Story) (1950948mbr) 1972 (BX7) TENKSBURY, Mass., Feb. 10 .- EXPLOSION, FIRE SCENE .- This is an aerial view of the Lowell Gas Co. storage area where an explosion and fire Wednesday night destroyed two trailer trucks at lower









Roger Lafreniere

Upon arriving on the scene, there were flames to the rear of two large tanks shooting approximately 70 feet high. The fire seemed to be confined to this area. I assisted in laying the $2\frac{1}{2}$ " lines and helped set up the gun. There were several minor explosions and the fire increased in size. There was one tank truck parked along the east side of the paved street, and several other tank trucks parked along the fence heading easterly. At least one truck had its motor running.

The deluge gun was set up and water pressure was O.K. At about this time I heard a small rumble and then the large explosion happened. This blew several of us down the embankment and I and others made every effort to get away from the flames. It seemed that we were all engulfed in this large ball of fire. The flames seemed to last about three minutes. Then almost complete darkness.

I then assisted in helping the injured into the ambulances. Chief Chandler's clothes were burnt almost completely. I assisted in getting him into the ambulance.

We then found Deputy Morris laying over the embankment with head injuries. Bill Magro applied a bandage to his head and we then put him on a stretcher and into the ambulance. I was then told to get into the ambulance and go to the hospital.

Roger Lafreniere Firefighter





The Firefighters of Tewksbury THANKS!

We, of Tewksbury can sleep a lot sounder knowing that we have a group of dedicated men protecting our town. A group that was willing to lay their lives on the line for our safety.

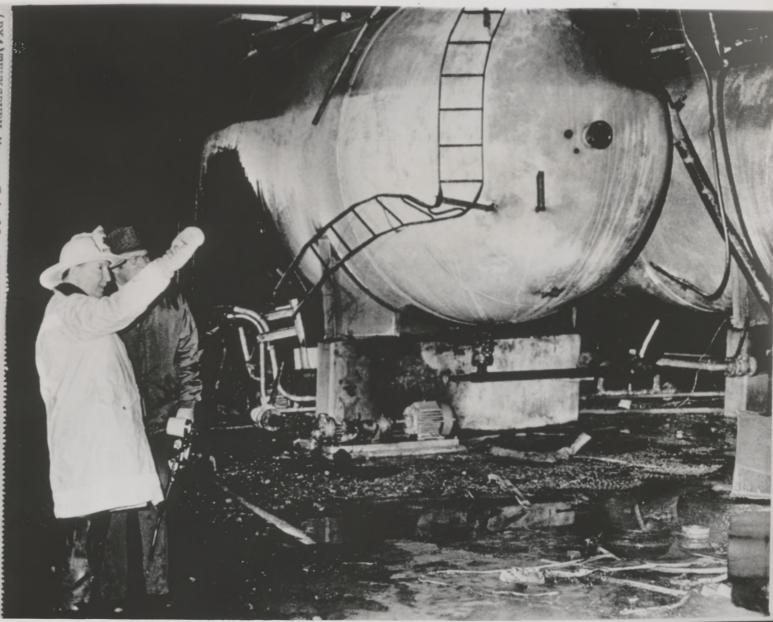
The bravery shown by them last Wednesday night will never be forgotten Their action averted what could have been the worst catastrophe in the history of Tewksbury.

Our prayers are with you, and we hope you will recover from your wounds and injuries soon, and are back with us where you belong.

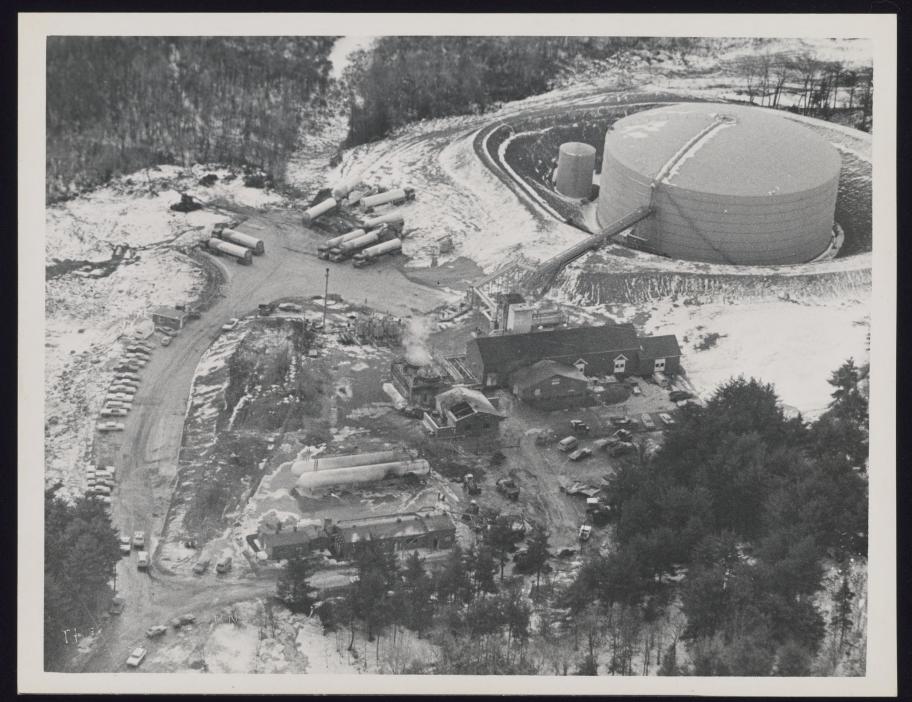
WE ARE PROUD OF YOU

THE TEWKSBURY-WILMINGTON LODGE OF ELKS

MERRIMACK VALLEY ADVERTISER
WEDNESDAY, FEBRUARY 16, 1972



(BX4)TEWKSBURY, Mass., Feb. 10--SURVIVE EXPLOSION, FIRE--F side two huge propane gas tanks at the Lowell Gas Co. Ssbury that survived an explosion and fire that left 21 jured Wednesday night. (AP Wirephoto)(1g50805stf)1972 as Co. Storage area in Tewl firefighters in-



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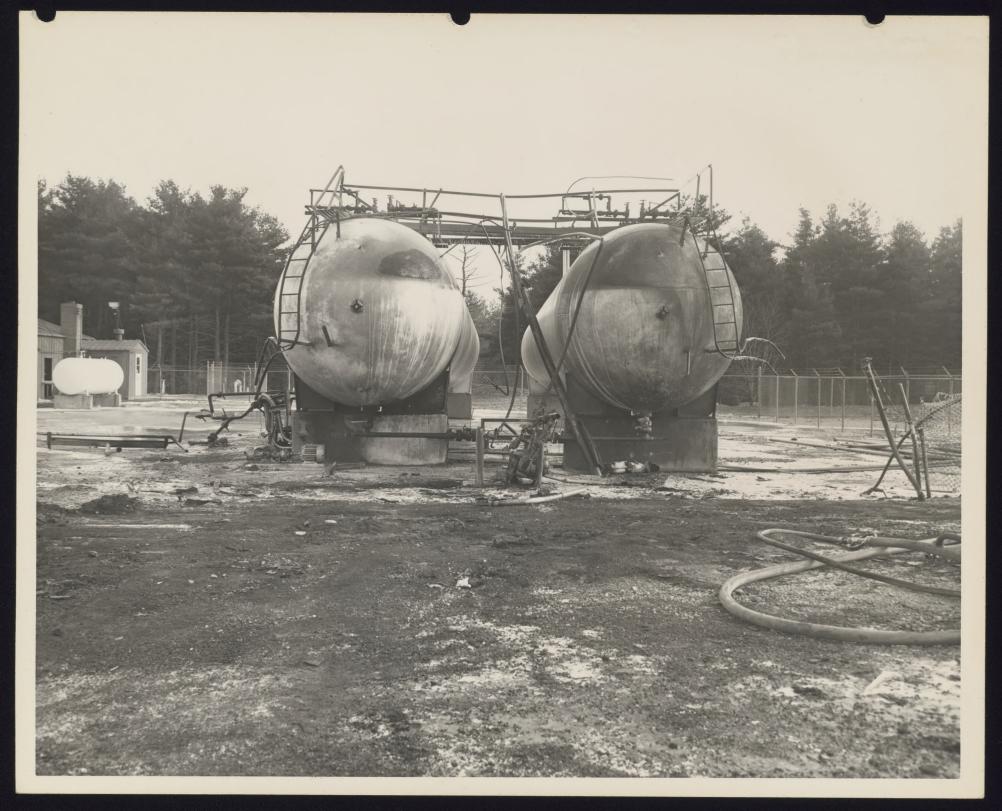
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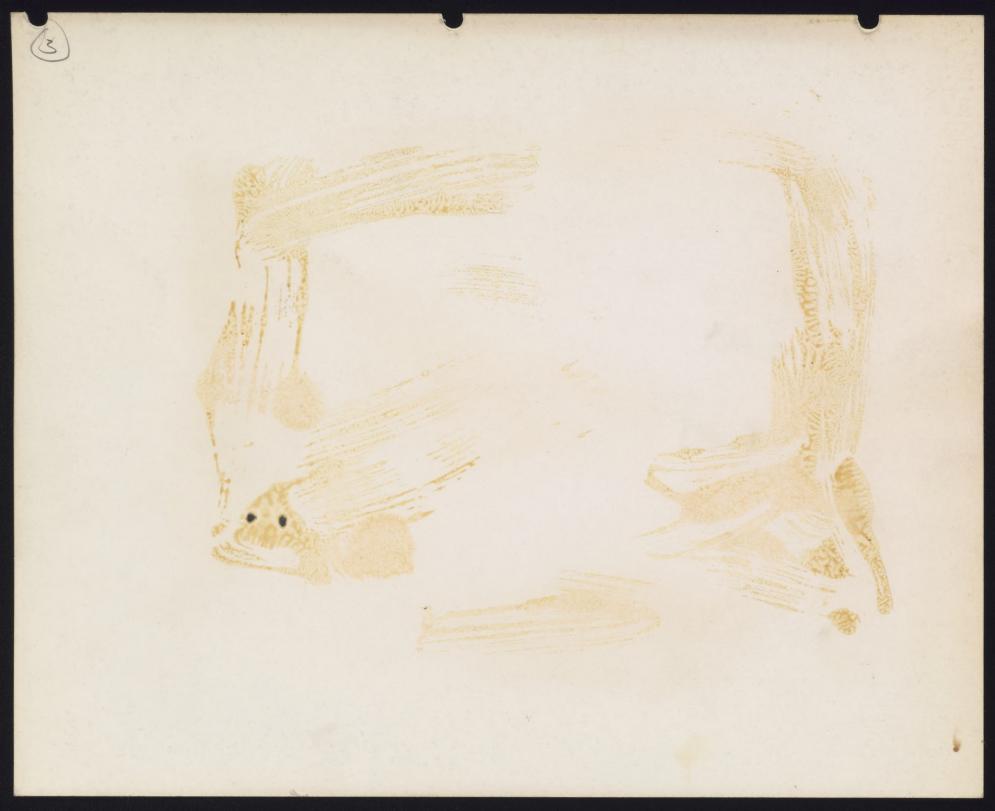
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TENKSON RY PORCE Date 2/10/72
By Syl Brokenis







(BX11) TEWKSBURY, Mass., Feb.10--CLEANING UP AFTER EXPLOSION, FIRE--A workman with a cutting torch begins cutting up the twisted metal from a liquid natural gas tank that exploded late Wednesday night at the Lowell Gas Co. killing one person and injuring 21 others. The injuries and death resulted when fire ruptured a tank truck full of gas. (AP Wirephoto) (See AP Wire Story) (1g51335stf-WCC) 1972



William Magro

When I arrived on the scene with Captain Cuneo in Engine #1 there was fire everywhere. We were told the Deputy Chief was hurt down the embankment and I went and attended to him till we put him in the ambulance.

I then went up the road where Engines #4 and #5 were.

James Farley and I added a couple of lengths of 2-1/2" hose to a line that was laying there and started to put out the fire on the tank truck that was burning there. After knocking that down, we turned our line on the two 60,000 gal. tanks that were burning in an attempt to keep them cool. We had to add a couple of lengths to reach the tanks effectively. After adding the lines, Al Cronin and I along with James Farley and William McAllister backing us up moved in and worked the big tanks. The buildings in the yard were burning, the two large tanks, the tank truck and what was left of the truck cab that had exploded.

After we had cooled off the 60,000 gal. tanks somewhat, we turned to the tank truck on our right and alternated back and forth keeping them cool.

One of the Gas Company men was able to go up on the 60,000 gal. tank and shut off the valve after we had it cooled down enough. Other lines were being brought in, in the meantime to help check the fires in the buildings, etc.

William Magro Firefighter



- CAUTION -

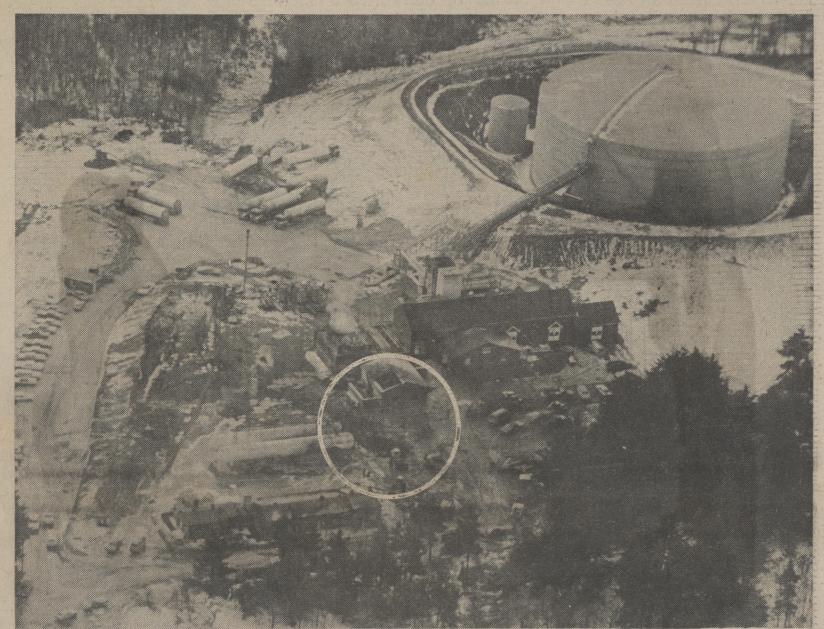
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SUN Staff Photo by Aives

AERIAL VIEW OF LOWELL GAS CO. TEWKSBURY COMPLEX
. . . area of explosion, circled, and large holding tank upper right

By GUS WEBSTER

Sun Staff

TEWKSBURY There was a huge, muffled roar and instantly the sky exploded into a brilliant white-orange. I dashed madly for the embarkment which might spell safety from the flaming gas. I tripped and somersaulted just short of that dropoff.

I saw a swath of flame hit the ground just ahead of me and start the short grass and dead leaves burning.

I was inside an inferno, would I get out in one piece? — flashed through my mind.

I glimpsed the fire in front of me die down as I scrambled down the rocky gulch toward the woods. I heard an agonized cry beside me and someone yelled, "Don't run! Don't run!" I vaguely remember the intense heat.

That advice was for me academic since I was tumbling head over heels among the jagged rocks down the embarkment.

THE NEXT moments were all a blur. There were anguished cries nearby in the gulch. The sky returned to its normal blue-black color. The fire in the Lowell Gas Co. plant was burning more fiercely, lighting up the gulley and the surrounding woods.

I caught a glimpse of my fellow reporter, Billy Lee Wood, standing on the parking strip I had just crossed in my wild flight. "You alright, Lee?" I called out.

Lee said something about "second degree burns on my arms and back." He sounded terribly casual. Later I learned he had been admitted to St. John's hospital with burns on his arms and back.

I also heard how a policeman had literally run over Veteran Sun Staffer Tony Alves, the photographer with whom I had ridden to the fire as both fled the explosion scene.

A fireman was lying among the rocks halfway down, groaning. Two or three of his buddies scrambled up and knelt over him.

Another fireman, very young-looking, was groaning and trying to get to his hands and knees.

One of the firemen kneeling over his comrade began calling frantically for an ambulance.

THE ROAR COMING from the propane gas fire seemed more menacing. I remember won-



GAS BLAST BURNED AWAY JACKET

. . . of Sun Reporter Gus Webster

dering, what if those other two huge propane storage tanks blow up too — we'll all be roasted alive. We've got to get these two injured guys out of here, fast!

The firemen were busy giving aid to their two injured buddies, seemingly oblivious to the near-burning flames and the almost deafening roar, scarcely 150 feet away. The flames were licking at one of the storage tanks. I thought, that one's about to go. Where the hell is the ambulance?

I watched the blaze, torn between the desire to run for my life and to stay to aid the injured firemen and witness their race against time and the flames.

I WENT BACK and offered my pocket handkerchief to one of those aiding the prostrate fireman. I held a cigarette lighter above his head so they could check for injuries. The flickering light showed a bloody gash above his ear. "Oh, my leg, my leg," he moaned.

I noticed the underbursh in the gulley burning slowly toward the trees, about 20 feet behind us. I wondered how long it would take to ignite them and we would face a fire just behind us. I tried to stamp out the grass and underbrush, but some of the flames were too large.

Where's that ambulance, I wondered franti-

I started up toward the main driveway where most of the fire engines and assorted disaster vehicles were parked or moving slowly, a myriad of flashing red, white and blue lights. Then I noticed a tank truck next to the gulley less than a hundred feet from where the firemen were.

There was a small fire in a pile of dry leaves burning beside it.

I wondered with a shudder how long it would take to ignite the truck's fuel tank — and then explode its propane storage tank.

A CIVIL DEFENSE disaster truck and two ambulances moved down the main driveway between the fire trucks and toward the fireman huddled in the gulley. A man in a leather jacket was leading the way, waving them on. They were hustling frantically, but they seemed to move with almost glacial slowness.

The attendants jumped out, dashed down the embankment and began to lift the injured fireman onto a stretcher. "Don't grab my leg, oh, don't grab my leg," he breathed. The other injured man was able to walk.

We moved him up the slope. "Put him in the ambulance, not the CD truck! The far ambulance," one man called out.

The ambulance with the firefighter backed around and sped out, siren wailing above the roar of the blazing propane.

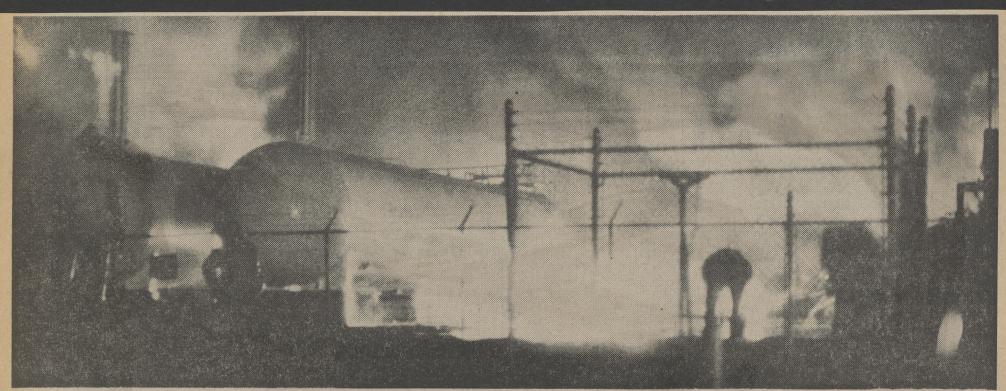
I have never known a greater feeling of relief than when the firefighters in the gulley and myself — could finally retreat to a safer distance.

FOR THE NEXT two hours I scurried around observing the various firefighting units in action from vantage points in the woods and on the roads. I waded through a rivulet of icy water and foam, stumbled over barbed wire, waited for another major explosion which I felt sure would come as the flames scorched the storage tanks. I marveled at the courage and calm the firemen displayed as they moved in close to direct cooling water on the storage tanks.

I jumped practically out of my skin each time there was another small blowup, remembering the blazing sky all too vividly.

Back at the office I shed my parka — it was then that I saw how close I had come to being burned alive.

Propane explosion rocks Lowell area



SUN Staff Photo by Wallace

Flames lick at tanks

Gas-fed flames lick at base of large propane storage tanks during fire at Lowell Gas Co. installation last

night in Tewksbury. Firefighters pouring thousands of

gallons of water on the tanks managed to prevent explosions of large tanks despite intense heat.

Hospitals respond to blast emergency

By NICK CARAGANIS Sun Staff

LOWELL — Scores of ambulances, all available nurses and more than 20 doctors were called into service last night to aid victims of a propane gas explosion which has been labeled by hospital officials one of the worst local disasters in recent memory.

When the excitment at local hospitals subsided shortly before 2 a.m., 23 patients had been treated for burns, 16 had been admitted and two were fighting for their lives.

The hospital went on a disaster alert at 11

p.m. after receiving word that scores of firemen and gas company employes had been injured in the gas explosion that shook homes and was seen at Logan airport.

At 11 p.m. the ambulances began arriving at the emergency door of St. John's and St. Joseph's hospitals.

One by one the injured men were treated by a large group of doctors and scores of nurses and aids, headed by Dr. H. Spencer Glidden.

"THIS HAS TO BE THE worst disaster in years insofar as numbers of patients brought

to the hospital," public relations director Bernard Streeter of St. John's stated.

By 11:30 15 persons had been admitted to St. John's and one at St. Joseph's.

TWO MEN, Arthur Sutcliffe, of 28 Keene St., Lowell an employe of the Lowell Gas Co., and William J. McAllister Jr., of Tewksbury, a fireman, suffered third degree burns over 90 per cent of their bodies and were transferred to Massachusetts General Hospital in Boston.

The Boston hospital had set up a burn center in the early 1940's following the devastating Cocoanut Grove fire in Boston.

Beds at St. Johns were filled to capacity.

Nine patients had to be placed in the maternity ward, while others were scattered throughout the hospital.

"It was fortunate that the disaster occurred at the time it did when two shifts of personnel were available at the hospital."

Scores of relatives jammed the hospitals while their husbands, fathers and brothers were being treated.

Thirteen firemen, four Lowell Gas Co. employes and a Lowell Sun reporter were hospitalized with burns on various parts of their body.

More than one half of the Tewksbury fire department was hospitalized including the chief and deputy chief. Deputy James Morris is confined to the intensive care unit.

One nurse observed, "relatives and friends were all over the place. At one point we had to tell them to move and go anyplace in the hospital so we (medical staff) could maneuver."

The emergency room of St. John's looked like Grand Central Station while ambulance sirens blared and police cruisers transported doctors to the hospital.

With the nine male patients on their floor, it wasn't a normal night for the maternity ward.

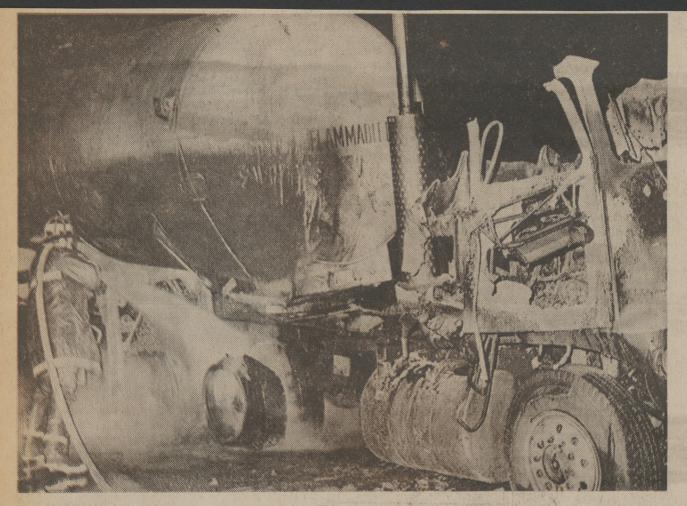
"Thank God" we didn't have any deliveries said one of the two busy nurses on the floor.

Thursday Feb. 10, 1972



INJURED FIRE CHIEF

. . . William Chandler, Tewksbury, hold casualty list in severely burned hands while recuperating at St. John's Hospital.



Burned-out truck

Fireman hoses down still-smoldering ruins of a propane gas tank truck in Tewksbury after an explosion at the Lowell Gas Company storage area Wednesday night.



Charred helmet

Tewksbury police officer Keith Weston holds charred firefighter's helmet and torn wallet, after a series of explosions ripped through the Lowell Gas Co. propane gas storage center.



SUN Staff Photo by Alves

The explosion

This photo was taken at the instant propane gas truck in the yard of the Lowell Gas Co. in Tewksbury exploded, sending a fireball hundreds of feet into the sky. Veteran Sun photographer Tony Alves was knocked down by the blast seconds after taking this picture.

Rep. Sullivan demands full probe of explosion

Stating he was "shocked" by the statements attributed to a Lowell Gas Company spokesman in regard to the fire which swept that firm's Tewksbury facility last night, State Rep. Kevin Sullivan (D) Tewksbury said today he would demand a complete investigation.

Sullivan said: "It is my intention to meet with Chief Chandler, Sen. William X. Wall and other legislators to consider the possibility of filing an order with the Mass. House of Representatives to affect a complete investigation for the safety of the residents in the vicinity of the complex."

The representative said he was "shocked and appaled" at the statements over the radio attributed to a representative of the Lowell Gas Company that it was only a minor fire in the town of Tewksbury.

"It seems to me that our firemen should never again be asked to combat a fire without proper equipment such as foam trucks, asbestos suits and other necessary equipment that I feel should be supplied by the utility," he said.

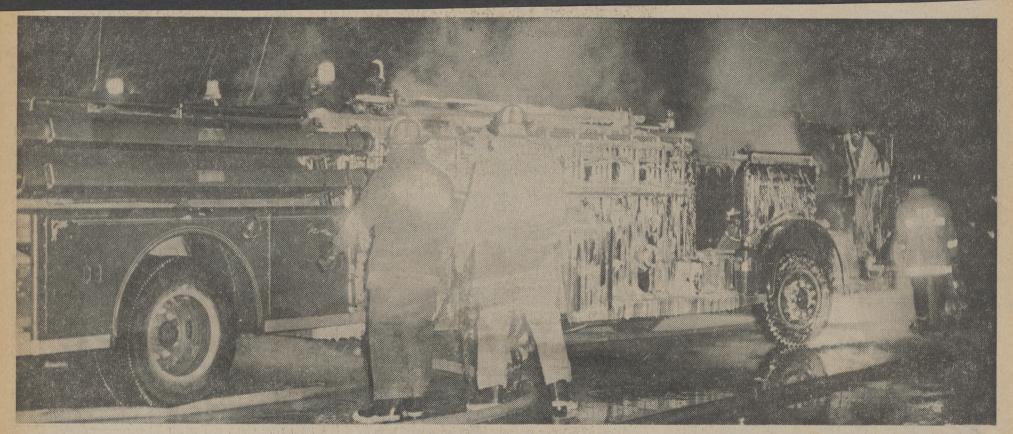
Sullivan said the people of the town should be commended for their attitude during a very serious situation in the community.

Many, he said, reported to the police station and the town hall offering help and donations of blood, if necessary.



Ruins

Firefighters hose down remains of truck after a series of explosions ripped through Tewksbury propane gas storage center.



Fire engine destroyed

Firefighters look over smoldering wreck of Tewksbury fire engine destroyed when it was set aflame by propane gas blast at Lowell Gas. Co. complex in Tewksbury.

Fireball Seen 50 Miles Away

50 Injured in Tewksbury

Gas Blast

BOSTON HERALD TRAVELER, THURSDAY, FEB. 10, 1972

By JACK GALLANT and AL NEENAN

TEWKSBURY — A propane gas plant on Chapman road exploded "like a big A-bomb" at 11:05 last night injuring possibly 50 persons in the town and jolting homes for miles around.

Hospitals in the area reported they were "too busy" to eve nestimate the number of patients being brought in. But, shortly after the blast, St. John's Hospital had counted 30 victims and said more were coming in.

Fire officials said the explosion was in propane gas storage tanks owned by the Lowell Gas Co.

Ambulances and fire apparatus from more than a score of surrounding communities sped to the blast scene.

Airline pilots heading into Logan in Boston reported seeing the huge ball of lame from as far away as 50 miles.

And one Tewksbury motorist who was four miles away when the blast came de-

scribed it as "like a big A-bomb. There was a big mushroom ball of fire followed by an explosion."

In the Roxbury section of Boston, Mark Cocorullo of 30 Iriquois St. reported seeing "a flash in the sky that lasted six to seven seconds."

Mrs. Joseph Brady of East street was driving about one mile from the plant when,

(Continued on Page Thirteen)

Tewksbury Gas Blast Injures 50

(Continued from First Page)

she said, "I saw the sky light up bright red. I heard a big explosion that shook the car, then saw a big ball of flame."

In her home three miles away, her husband reported the structure shaken by the blast.

At the scene, shortly after the explosion, Firefighter Robert Flynn reported, "It's all a mess of confusion here. We have numerous injuries. At least seven of them are firemen."

Hospitals sent out emergency alerts to call back to duty all aavailable personnel as ambulances began delivering the injured. Many victims had severe burns, fractures and dislocated joints.

Fireball 'Like Big A-Bomb' Seen 50 Miles Away

22 Injured in Tewksbury

Gas Blast

By JACK GALLANT and AL NEENAN

TEWKSBURY - A propane gas plant on Chapman road exploded "like a big A-bomb" at 11:05 last night injuring at least 22 persons in the town and jolting homes for miles around.

Hospitals in the area reported they were "too busy" to even estimate the number of patients being brought in. But, shortly after the blast, St. John's Hospital had counted 19 victims.

Fire officials said there were "several

explosions" in a field of gas tanks and that the injured were firefighters and plant emploves. The installation is owned by the Lowell Gas Co.

Ambulances and fire apparatus from more than a score of surrounding communities sped to the blast scene.

Airline pilots heading into Logan Airport in Boston reported seeing the huge ball of flame from as far away as 50 miles.

And one Tewksbury motorist who was

four miles away when the blast came described it as "like a big A-bomb. There was a big mushroom ball of fire followed by an explosion."

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(Continued on Page Nine)

Fierce Gas Blast Rocks Tewksbury

(Continued from First Page)

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said one of the victims had

St. Joseph's Hospital in Lowell. blast.

Flames that raged among the gas storage tanks were brought under control within two hours of the blast.

quelched, police kept specta- Richard McKenna, Billerica; tors who flocked to the scene Fred Millette: Allen Mahainey; at least a mile and a half Bill Wood, Lowell Sun reporter;

would explode and take a firefighter; James McInnis, heavy toll in lives.

At St. John's Hospital, Asst. farm is circled by a heavily Administrator Robert Pliskin settled residential area, Police said shattered windows apburns over 90 per cent of his peared to be the major dambody. Another was undergoing age to the homes. They said emergency surgery for frac- residents as far as 12 miles from the scene said their Three men were treated in homes were rocked by the

Admitted to St. John's Hospital were: Fire Chief William Chandler: Jack Field, Tewksbury: Thomas Joyce, Billerica; Until the flames were Peter Barschand, Lowell;

away, fearing that other tanks Allen Hancock, Tewksbury of relatives or friends or to Billerica: Donald Schultz, Bil-At a distance the gas tank lerica; Larry Nawn; James Morrison, deputy fire chief, Tewksbury. Arthur Sutcliffe and William McAllister were admitted and transferred to Shriners Burn Center, Massachusetts General Hospital.

> Released after treatment were Robert Fowler: Richard Morris, Tewksbury; Kenneth Mellinson, Christopher Neal.

Police began evacuating homes within a half-mile of the tank farm shortly before 1 a.m. Nearly 500 families were removed from a nearby trailer park.

Residents went to the homes

emergency centers in the high school and the North Street School.

By 1:30 a.m. gas company officials declared the area

The firefighters were injured when a tank exploded, setting off another tank and two tank trucks loaded with liquid natural gas. The firefighters were sent flying amidst sheets of flame.

Also demolished was a Tewksbury fire truck and a car parked nearby. A second fire engine was damaged.

A crash crew from Hanscom Air Force Base in Bedford sprayed foam over a third burning tank truck and moved two others away.

The main storage tank containing one million pounds of gas was scorched by flames.

St. Joseph's Hospital identified victims treated there as Tewksbury firefighters Richard Sheehan of Foster road and Lawrence Driscoll of South street and gas company employe Leo Caraful of Chapman road.

BOSTON HERALD TRAVELER, THURSDAY, FEB. 10, 1972

Kenneth Mallinson

On February 9th at approximately 10:30 p.m. I was home when I heard the horn go. I came to the Central fire station. When the Deputy told me we will go on Engine 2 when it comes. On the way to the fire we saw a very bright flame. We went right to the scene, the Deputy said to lay a reverse lay. The Deputy and myself took the $2\frac{1}{2}$ inch line and dragged it to where Capt. Millett had a deluge gun set next to the fence. We connected the hose to the gun. The Deputy told us to cool down the two big tanks. There were 6 or 7 men there. Then the Chief told us to move the gun back to the top of the small hill which I think saved a lot of lives. We were still waiting for water when the Deputy called me to the top of the hill where he and the Chief and Capt. Millett were. The Deputy told me to go put the fire out by the tank truck which was to my right. I went down the hill part way when the fire turned very bright, then there was a boom, it was like a nightmare. I remember parts of things, I was lying down on the driveway and there was fire all over me and around me. It took a few seconds to realize what was happening. I couldn't get up. Then I heard someone yelling, I looked up and saw six or seven firefighters on fire. By the time I got up it was like night time. It got so dark I figured I was dead but got up and ran over to the ditch, I saw men all over the place they were all on fire. Someone yelled to get the ambulance, so I started to go when the next thing I knew I was on my way to the hospital. When I got there it was like a mad house. I saw all the firefighters there, we all started to talk about the fire then some of us went home.

> Kenneth Mallinson Firefighter

Blast Showered Flames All Over

By CHARLES LEVERONI

Fire Chief William Chandler of Tewksbury was attending a was notified of the fire.

From his bed in St. John's had been sounded.

meeting in Lowell when he Hospital he said he arrived at the fire when the second alarm

TEWKSBURY FIRE CHIEF William Chandler describes explosion from hospital bed to Tewksbury patrolman Robert Haines. Chandler was hurled through the air by the exploding tank.

"Just as I got near the fire there was a tremendous explosion right behind me," he

"Thank God my back was turned or I would have been blinded. There was a large tank truck that must have been filled with the gas when it let go.

"It showered flames and searing gas all over the lot, and anyone within 100 feet was hit.

"The next thing I knew I had been blown over an embankment and rolled down behind it. If it had not been for that, my clothing would have gone and I would have been a torch.

"My deputy chief Jim Morrison was standing beside me giving me a report when I arrived. He and I went over the embankment together but we were luckier than the other two boys nearby who just went up in flames.

"In all the years I have been fighting fires this was the most treacherous to handle. If it hadn't been for the aid sent to help us, it could have been much worse."

Scores of Towns Rally to Aid

Fire companies from surrounding towns and as far as Salem, N.H., rallied to the aid of the Tewksbury Fire Department last night in battling the fire at the Lowell Gas Co.

Apparatus and ambulances were dispatched from Lowell and Andover almost immediately after the scope of the explosion and fire was learned.

The Chiefs and men from Chelmsford and Dracut responded to aid in directing the fight against the blaze. Tyngsboro sent equipment and Wilmington sent both police and firefighters.

Propane Ignitable, Heavier Than Air

Propane is a flammable gas, heavier than air and occurs naturally in crude petroleum and in natural gas. It is also obtained by cracking. Fuel oil can be made to yield propane by means of heat and pressure and catalytic agents.

The Lowell Gas Co., has two large units which are used for manufacturing propane gas.

BOSTON HERALD TRAVELER, THURSDAY, FEB. 10, 1972

SUN Staff Photo by Hunt

Sun reporter

Sun staff reporter Lee Wood, is ad ministered aid by Miss Sheila Beaulieu, a registerd nurse at St. John's Hospital.

Wood suffered second and third degree burns on his arms, back and face.

Sun reporter describes Tewksbury "rain of fire"

By NICK CARAGANIS Sun Staff

LOWELL — "Picture a thunderstorn with a flash of lightning, then thunder — but instead of rain coming from the skies picture drops of liquid natural gas."

Those were the words Lowell Sun Staff Reporter Lee Wood used to describe what happened Wednesday night when a truck containing propane gas exploded in Tewksbury.

Wood, of Nesmith Street, who has been employed at The Sun for three years, remains confined to St. John's Hospital with second and third degree burns suffered during the explosion.

He was about 150 feet away from the truck when it let go with a roar that resembled a mini atomic blast.

"I was with Chief Chandler and Deputy Chief Morris when the explosions occurred," Lee said from his hospital bed.

"I don't want to live through that again. It was hell." he said.

Wood was burned on both arms, the side of his face and almost his entire back.

"The burns hurt," he says. "especially when the medication is applied."

Lee was the first reporter to arrive at the scene and was greeted by two Tewksbury fire trucks. He was covering a Finance Committee meeting in Tewksbury when he heard the town's fire siren blaring.

He thought to himself, "This must be something big."

WOOD described the disastrous events.

"I was talking with the chief and we were about 150 feet away from the fire. Suddenly I felt an air pressure change and I knew something was wrong. I started running but you can't run far when drops of burning gas are pelting you. Then it started to rain fire.

"I had taken off my nylon jacket knowing that nylon melts to your skin when exposed to heat. I was in my short sleeved shirt, but the intense heat of the fire kept me warm despite the 10 degree temperature.

"My shirt and hair were on fire. My first impulse was to run, but I knew that was not the thing to do. I rolled down on the ground, all the time hearing people screaming for help.

"My next thought was to cool my burns off so I ran and rolled in the snow. I looked to my left and saw a man crying, others were just lying on the ground.

"I felt that I had suffered burns on 35 per cent of my body. There was no medical help around so I ran about 200 feet toward Chapman Road, flagged down an ambulance and went to the hospital.

Wood says he finds it hard to get to sleep. "I have to sleep on my side" he says.

When the truck exploded Wood remembers seeing a section of the truck body shear pine trees some 25 feet in the air.

Now he waits, day by day until the burns heal and he can leave the hospital.

"I just don't ever want to go through that again," he says.





Night of Infamy . . . The fire which preceded the explosion at Lowell Gas in Tewksbury. Firefighters can be seen battling the blaze. (Photos By Morris.)

MERRIMACK VALLEY ADVERTISER
WEDNESDAY, FEBRUARY 16, 1972



Worst Injured Taken to Mass. General

BOSTON HERALD TRAVELER, THURSDAY, FEB. 10, 1972

By PAL SALTERS

LOWELL - Two victims of last night's explosion at the Lowell Gas Company's Tewksbury plant were taken to the Massachusetts General Hospital burn center.

Robert Pliskin, assistant administrator at St. John's Hospital, Lowell, said some 18 victims were brought into the emergency room for treatment. Three others were taken to St. Joseph's Hospital. Most were firefighters, he said.

Pliskin said about a third of · "I rushed right to the hosthe victims were released after being treated for minor injuries. The rest were admitted to the hospital for treatment of burns and injuries such as bad cuts and bruises.

One of the men taken to

Massachusetts General suffered burns over 90 per cent of his body, Pliskin said. One victim was operated on for a broken leg, he said. He was the only one who underwent surgery, he said.

All but a few of the victims were firefighters, he said. The others apparently were night workmen at the plant. he said.

Pliskin said he was driving his car near the hospital when he saw a ball of flame and heard the explosion.

pital and two victims were already there by the time I arrived," he said.

Sixteen others arrived in rapid succession in ambulances called from surrounding communities.

"There must have been other explosions following the initial blast because most of the injured were firefighters," he said.

Moments after the explosions, all available ambulances in Lowell were on their way to the scene.

At the same time administrators at St. John's Hospital invoked an "operation alert" which called back to duty all key hospital personnel, including physicians, nurses and inhalation therapists. Red Cross ambulances also responded

Eighteen ambulances stood by at the scene, called from as far as Bedford Air Force Base. Shortly before 1 a.m., the ambulances were released when the emergency was declared over.



(Herald Traveler Staff Photo by Dick Fallon)

BURNED OUT CAB of propane gas tanker which Air Force firefighters prevented from exploding

when they covered the smoldering steel tank with a deluge of chemical foam.



TWISTED WRECKAGE of propane gas pumping equipment after Tewksbury blast.

Tewksbury propane tank explosion injures 40 persons-

-Story below

40 injured in Tewksbury tank explosion

By Peter Cowen and Jack Cullen Globe Staff

TEWKSBURY—A liquid propane gas tank exploded last night in several thunderous blasts that could be heard and seen from as far away as 20 miles. At least 40 persons were injured.

Pilots approaching Logan International Airport in Boston, 50 miles from the Lowell Gas Co. where the explosions occurred, said they had seen a fireball from the blast.

Fire officials said one of several propane gas tanks exploded about 10:45 p.m. and burned out of control until shortly after midnight.

The gas company is located in a hilly, sparsely populated area on Chapman road, and residents 20 miles away reported seeing flames shoot into the sky, accompanied by the explosions.

TEWKSBURY, Page 42

65 families evacuated

40 injured in Tewksbury tank blast

* TEWKSBURY

Continued from Page 1

"It looked like an atomic bomb explosion," said Ed Cunningham, who lives at 125 High st., about a mile away. "The flames were real red. Oh, the flames went way up—a big mushroom."

Lowell fire officials said about 65 families had been evacuated from the vicinity of the exeplosions because "there's always a danger from gas."

"It's all a mass of confusion here," said Robert Flynn, a fireman.

Firemen and police from several neighboring com-

The Boston Globe

munities came from Lowell, Billerica, Burlington, Hanscom Airfield in Bedford and even from Nashua, N.H.

Robert Wilson, who said he lived a half mile from the tank, said there was a slight explosion at first, then "the piping alongside the tank began to burn." Wilson said he evacuated his family.

Fire officials said the main line of the gas tank exploded first and was followed by more explosions when flames reached the tank itself.

The fire and explosions brought three alarms. The

Thursday, February 10, 1972

cause was not immediately known.

Some 40 persons, eight of them firemen, were injured, according to the Tewksbury Fire Department.

Among the injured were Tewksbury Fire Chief William Chandler and Deputy Chief Jim Morris.

Streets leading into the area were quickly blocked off, and residents trying to reach their homes were cautioned by police not make the attempt for several hours.

Cam Leger, a Massachusetts Civil Defense director for the area, said those who evacuated were expected to be allowed back in their homes at about 3 a.m.

The Lowell Gas Co. is a retail distributor for propane and natural gas to communities including Lowell, Dracut, Westford, Chelmsford, Tewksbury, Billerica, Willmington, and North Reading.

The explosions occurred at a storage and distribution plant. George Doulamas, executive vice president of the company, and Gene Robinson, plant superintendent, are investigating.

About 20 persons, some firemen and the rest workers for the Lowell Gas Co., were taken to St. Johns Hospital in Lowell, according to a hospital spokes-man.

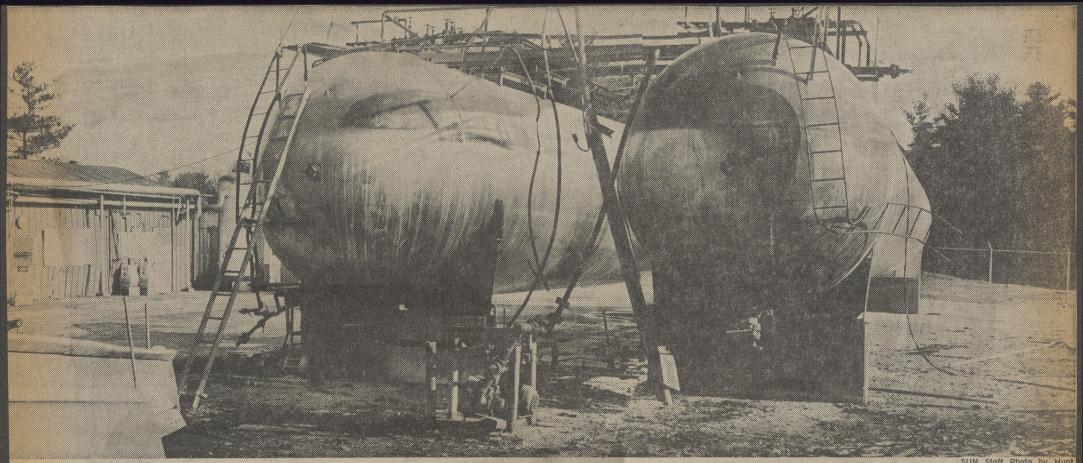
The spokesman, Bob Pliskin, said most of the injured were suffering from burns, a few had broken legs and one person had a head injury. A few persons were in serious condition, Pliskin said, but most injuries were superficial.

Pliskin said the hospital had declared "Operation Alert," a code for a local disaster, and doctors and nurses from the surrounding area were responding.

A spokesman for Lowell General Hospital said the only person admitted in connection with the explosion was a boy who injured a knee when he tripped while fleeing the scene.

St. Joseph's Hospital in Lowell refused to give any information.

Gas services was not expected to be interrupted as a result of the explosions because the company has other storage facilities.



FIRE-BLACKENED GAS TANKS AT TEWKSBURY PLANT

. . . Wednesday night blast under investigation by many agencies

Probers seek gas blast's cause

By NICK CARAGANIS Sun Staff

TEWKSBURY - The State Department of Public Utilities has called for a hearing to determine the exact cause of a general alarm fire and explosions at the Lowell Gas Co. complex which took the life of a Lowell truck driver and has a Tewksbury fireman fighting for his life.

Gas utilities engineer Arthur Fitzpatrick of the DPU said the hearing in Boston is so that a similar disaster does not occur elsewhere in the state.

The hearing will be conducted by John Verani, DPU chairman.

"We want to alert the public as to exactly what happened." Fitzpatrick said.

He added, "We are looking for anything wrong. This on its face looks like human failure. The truck apparently backed into the gas pipe. This is all we see now."

Meanwhile, inspectors from the DPU, the State Fire Marshal's office, the Department of Public Safety and the Department of Transportation along with local fire officials have begun extensive investigations into the incident.

The blast took the life of Arthur Sutcliff, 50, of Keene Street, Lowell, a gas company employe.

STATE FIRE MARSHAL Ralph Garrett today said he has dispatched state police detectives to the scene and said the consulting firm of Arthur D. Little Co., of Cambridge also will aid his agency in investigating the explosions and general alarm fire.

The fire marshal said his investigators will attempt to seek out the cause of the initial fire which led to the subsequent explosions that shook the Greater-Lowell area and could be seen for

A Lowell Gas Co. spokesman said today that the company is continuing its investigation until it is sure that what it believes to be the reason for the explosion is indeed the cause.

"We have men there measuring and attempting to establish what was actually there prior to the fire and explosion," the spokesman stated.

He said a propane mixing device was severely affected to a point where it cannot be used right now. Officials said damage will run as high as \$100,000.

Meanwhile, almost one half of the Tewksbury Fire Department, several gas company employes and a Lowell Sun reporter remained confined to the hospital.

Deputy Chief James Morris, who underwent emergency surgery early Thursday morning after suffering a skull fracture is reported in "stable" condition, confined in the Intensive Care Unit of St. John's Hospital. Officials said he is in "fair" condition.

TEWKSBURY Fire Chief William Chandler is reported in "good' condition suffering with burns on his hands.

In addition, Lowell Sun reporter, Lee Wood, suffering from second and third degree burns on his arms, back and face is reported in "fair" condition at St. John's Hospital.

Jack Fields of Tewksbury, an employee of the Lowell Gas Co., along with Tewksbury firemen Thomas Joyce of Billerica and Richard Sheehan of Tewksbury are in "good" condition today. All other persons are reported to be in fair condition.

William J. McAllister Jr., 30, a Tewksbury firefighter, is in "poor" condition and his name has been placed on the danger list at the Massachusetts General Hospital's burn center in Boston.

SUTCLIFF, WHO died yesterday morning, was identified as the driver of the truck that is reported to have backed into a loading platform and ruptured a pipe leading to two propane tanks, which touched off the fire and explosions.

Joseph J. Whelan, chairman of the Tewksbury Board of Selectmen, today said "we are indebted to all those who responded to our need from surrounding towns. They did a fabulous job."

"Chief Henry Hilton of Andover deserves particular praise, along with Harry Patterson,

who manned the police and fire radios at central control. Patterson is not a fireman but is familiar with procedure through his interest in fire department activities," Whelan stated.

On Tuesday evening, the selectmen will meet with representatives of the Lowell Gas Co. to review the facts in the explosion accident.

Volunteers have provided the town with fire protection while the state and local agencies probe for the cause.

Chief Hilton, who is running operations both at the Tewksbury fire station and his own department in Andover, said all neighboring fire departments are on stand by "ready to help us if we should need it."

TOWN OFFICIALS have made arrangements with surrounding communities to provide emergency equipment and men until the injured return to duty. One of the town's fire trucks was destroyed while a second was damaged but is expected to be back in service today.

Selectmen said they would try to borrow a pumping truck from the State Civil Service Agency and a demonstrator model from a manufacturer.

The disaster required the assistance of firefighting equipment from 20 communities and 30 ambulances.

Firemen were attempting to put out the fire when the loaded truck exploded.

Chief Chandler, from his hospital bed said, "When I looked up there was fire everywhere. Men were screaming and moaning all around me. I started to scramble on my hands. The blasting heat was so intense I could hardly breathe. I don't know why any of us are here today."





Tewksbury fireman Robert Fowler of Engine 5 leaves St. John's Hospital — bandaged for head injury — as fire official probes pile of rubble that once was tank truck, flattened by explosion-fire.

Staff Photos by Reland Oxton

Horror of the Blast Related

TEWKSBURY—"When I arrived at the gas plant flames were shooting as high as 70 feet into the air," Tewksbury Firefighter Roger Lafrenier said.

Lafrenier, whose clothing was burned of his back, explained: "We were

standing on a hill trying to get a 2-inch hose line going. We were facing the fire. There was kind of a rumbling noise before the explosion. This gae us a second to turn away.

"I was standing next to Chief William Chandler and Capt. Fred Millett. "We were thrown 30 to 40 feet through the air. The next thing I knew we were all picking ourselves up. The explosion was like a ball of fire and we were all engulfed in the flames.

Lafrenia who was treated

and released from St. John's Hospital, Lowell, lauded the doctors nurses and attendants for the wonderful manner in which they treated the burned and injured who were sped to the hospital.

Tewksbury Fire Chief William Chandler, from his bed in St. John's Hospital, said, "I turned my back to the fire and started to talk to my deputy, James Morris, when there was a tremendous explosion. I was blown into the air. I don't know how far.

"When I looked up there was fire everywhere. Men screaming and moaning all around me. I couldn't catch my breath. I guess I was thrown overa ditch. I saw the deputy chief lying face down.

"I shouted, 'Get some help'.
"I hollered 'Get to a radio and tell them to get us all the help they can.'

"I started to scramble on my hands. The blasting heat was so intense it was hard to breathe. I don't known how any of us are here—ay."

Tewksbury Gas Blast Kills One; \$50,000 Loss

TEWKSBURY—Death claimed the life Thursday of one of 21 men burned in the explosion and general alarm fire at the Lowell Gas Co. plant on Chapman rd.

Arthur Sutcliff, 50, of Keene st., Lowell, a truck driver for the gas company, died at Massachusetts General Hospital as state and local authorities began an investigation of the blast and fire which caused the evacuation of 700 from their homes.

Preliminary investigation indicated that the fire and explosion erupted when a tanker trailer truck backed into a feeder line leading to two propane gas tanks, each containing 60,000 gallons of liquid propane gas.

The explosion Wednesday night demolished the tanker section of the truck some 100 trailer truck, catapulting a feet into nearby woods, The truck's cab was shot some 75 feet through the air and damaged ventilating equipment in the plant.

Fire apparatus from 21 cities and towns from as far away as Malden on the south and Nashua N.H., on the north fought the flames which shot 70 feet into the air.

Officials at Pease Air Force Base in Portsmouth, N. H., 30 miles away, spotted the flames which illuminated the air like daylight and feared a large plane had crashed.

Fourteen members of the 38-man Tewksbury Fire Dept. in cluding Chief William Chandler and Deputy Chief James Morris were among the injured.

Twelve of the 21 burned remained hospitalized and Tewksbury Firefighter John McAllister was in serious condition at the Masachusetts General Hospital Burns Institute.

Chief Chandler's clothes and his coat had melted on his back.

Chief Henry Hilton of the Andover Fire Dept., took command of the huge fire fighting force when Chief Chandler was sped to the hospital.

Engine 5 and Engine 4 of the Tewksbury Fire Dept. were heavily damaged.

Lt, Det. Leo Walsh of the State Fire Marshal's Office, Chief Hilton, Tewskbury Police Chief John Sullivan, Dept. of Public Utilities Officials, Joseph Purcell and David Murphy of the Lowell Gas Co. Safety Division were conducting an investigation in an attempt to learn the exact cause of the fire and blast.

Residents Still Feeling Explosion Shock Waves

It was 10:39 p.m.

The air was still and crisp and most of Tewksbury was settling in to a two blanket night. Only Friday left, then a two-day reprieve from the drudgery of a mid winter work week.

Then the call that interrupted the week-end plans of

A small fire at the loading platform at the Lowell Gas Company's storage facilities on Chapman Road, Fairly routine... except that this was gas.

A few minutes later, a radioed request for a second alarm.

Twenty minutes later, an ear splitting explosion that shook the surrounding community to its eye-teeth, killing a gas company employee, wiping out nearly half the Tew-ksbury fire department in-

cluding the chief, deputy, and two trucks sending a fireball into the sky that could be seen 50 miles away.

A half hour later the town of Tewksbury was in a state of shock.

The town resembled a disaster area as ambulances, rescue units, sophisticated fire fighting equipment from surrounding towns, police and

spectators clogged every road leading into the area.

Confusion, conjecture, rumor and fear spread through the town like the wildfire which created it.

How bad it was, how worse it could get, the extent of the dead or injured..no one knew.

Police were scurrying around attempting to evacuate families in the immediate nei-

ghborhood.

There were later reports of

The fire department switch board lit up like a Christmas tree as worried families sought information about loved ones who had been sent to the blaze, and for fear of completely tying up communications, callers had to be referred to the police department.

Three foam trucks from Hanscom Field in Bedford finally brought the fire under control about 12:30 a.m.

By that time, Arthur Sutcliff, 50, of 20 Keene St., Lowell, a gas company truck driver, had died of burns;

Tewksbury fireman William J. McAllister had been taken TO Massachusetts General Hospital in Boston with third degree burns; James Morris,

Tewksbury deputy fire chief was in the intensive care unit at St. John's Hospital, Lowell, where he underwent a two hour operation for a skullfracture: a cinder block building in the complex had been completely destroyed and another heavily damaged: the cab of the fully loaded 8500 gallon propane truck had been blown 75 feet in one direction and half of the tank section nearly 300 feet in the other; six firemen had been treated and released for injuries and 15 remained hospitalized.

At 5:15 a.m., the Lowell Gas Company issued a state-ment that a minor fire at the plant was under control.

Hardly had the melted, twisted remains of the conflagration cooled when work crews with acetylene torches, trucks and front end loader began hauling away debris. They set about to make immediate repairs to a section of the roof damaged by flying debris, and lay new electrical and telephone cable from the street.

A police officer was stationed at the main gate with orders to let no one enter.

Though state and local agencies planned probes into the cause of the blaze, there was little left to see by mid-morning on Friday. The gas company had done a good job of cleaning up.

State Fire Marshal Ralph Garrett said he ordered State Police detectives to the scene and authorized the Arthur D. Little Company of Cambridge to aid in the investigation.

Sen. William X. Wall of Lawrence, and Reps. Raymond F. Rourke of Lowell and Kevin C. Sullivan of Tewksbury, said they would file a bill equiring firms storing propane gas to buy special fire fighting apparatus for local fire departments.

At s special emergency meeting of the selectmen,-Chairman Joseph J. Whelan said, "I'm shocked. When this facility was built four years ago gas company officials assured the town that it was safe from fire."

Gas company safety officers also began a probe.

Officials at Pease Air Force Base in Portsmouth, N.H. 30 miles away, spotted the flames which illuminated the air like daylight and feared a large plane had crashed.

Pilots approaching Logan International Airport in Boston, 35 miles from the Lowell Gas Co., where the explosion occurred, said they had seen a fireball from the blast.

Back in the Tewksbury fire station, fireman tried to sort and identify the charred remains of coats, boots, hats and other gear that had been literally burned off the backs of their fallen comrades. Two Two Tewksbury fire engines were damaged, one completely destroyed.

Andover Fire Chief Henry Hilton, took charge at the scene when Tewksbury Fire Chief William Chandler was hospitalized, was named acting chief of the Tewksbury department temporarily, and volunteers from fire departments of surrounding communities are providing fire protection for the town.

Those who were there say it was a miracle that more weren't killed,

Those who were there have now had time to reflect upon the quality of their luck, the graciousness of their God, or for some perhaps, the fickle finger of fate. But whatever the force that watched over and allowed the survivors another shot at life, there must among them be some questions now.

Some questions about the equipment, procedures and safety regulations employed by the Lowell Gas Company which created the necessity for such a miracle some questions about the type of training and equipment necessary to contain such a fire and some question about the priority of values which call for the risking of life for the protection of property.

WERRIMACK VALLEY ADVERTISER WEDNESDAY, FEBRUARY 16, 1972

William McAllister

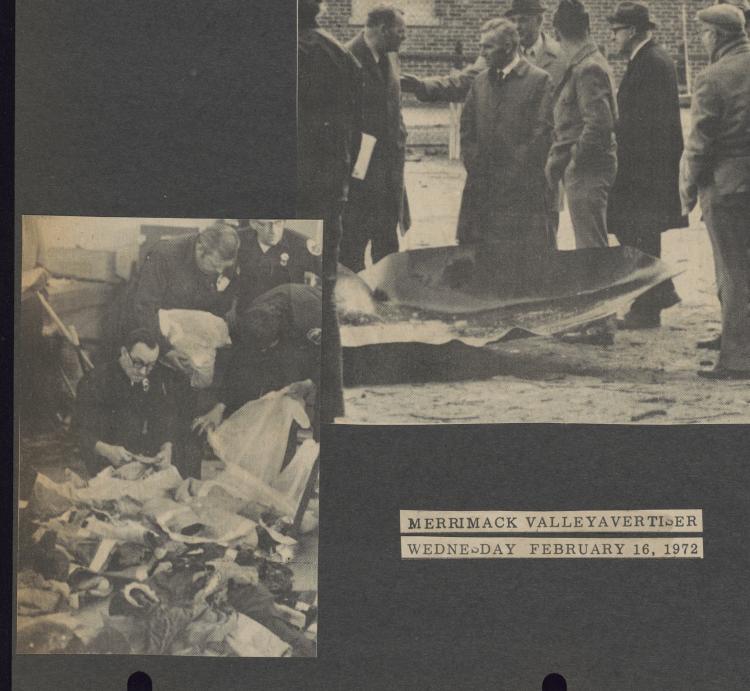
At about 10:30 p.m. February 9th, I responded on the first truck
Engine 5 to an alarm of fire at the gas company. We pulled right into the
yard. We saw two trailer trucks on fire, one of which was really involved.
Also on fire was a propane storage tank. Lines were laid and we set up our
gun and played it on the trailer tank. We located a hydrant inside the
plant but due to intense heat could not get to it. There were three other
tank trailers parked along side the driveway right next to our truck, one
of which was on fire. I attempted to move them. Then came the explosion.
I saw a ball of fire and was either knocked to the ground or tripped. I
got up and helped put the injured in the ambulances. A Hanscom Field foam
truck came up and put foam on our Engine 5. Then we moved Engine 5 out of
there by towing. Then a line was brought into the yard itself and played
water on the second trailer and the storage tank until the valves were
firmly shut down. Then started to secure.

William McAllister Firefighter **Tewksbury Explosion**

Fire, Destruction "Like An Atomic Bomb Struck"

The Advertiser photo coverage followed last week's explosion and fire at the Lowell Gas Company complex on Chapman road from before the explosion (page one) through the containment and clean-up. Extreme top shows heavily damaged Tewksbury fire truck and fire action as fire fighters desparately attempt to conthe blaze. Second row shows remains of cab portion of the gas truck which exploded, hurling it 75 feet away; officials viewing portion of tank section the next morning; and water being played on remaining tanks. Remaining photos, counter-clockwise, firefighters try to sort remains of badly burned clothing of injured comrades; trucks remove debris from scene early the next morning; forward half of the tank which exploded, some 300 feet away; gas company officials view scorched tank which fire fighters kept cool with streams of water; gas company crew go to work immediately on roof repair; bucket-dozer scoops up remains; linemen prepare to replace knocked out power, telephone.







The Members of the Tewksbury FIRE & POLICE DEPTS.

WISH TO THANK ALL OF THE OTHER DEPARTMENTS FOR THEIR HELP AND COOPERATION ON THE MIGHT OF FEB. 9, 1972 AT THE LOWELL GAS COMPANY.

WE ALSO WISH TO EXTEND OUR GRATITUDE AND THANKS TO THE MANY BUSINESSES AND TOWNS PEOPLE WHO OFFERED ASSISTANCE IN MANY WAYS.

Firefighters Get Hundreds Of Handwritten Thanks

Praise for the Tewksbury Fire Department and other towns that sent aid to battle last Wednesday's Gas Company explosion has been extensive, and shared by most residents.

But the compliments the department received from the fifth and six garders at the Center School in Tewksbury perhaps say best what the town thinks of their firefighters.

The day after the disaster, the students sent handwritten letters to the fire department, and the Advertiser is herewith reprinting several samples: Dear Sirs.

This letter is for all the firemen that fought the fire. We are grateful that you fought the fire. I hope your men get all well. I was stund when I heard the fire broke out. You men are the greates men that can handle a fire.

Sincrely yours,
George Bannister
P.S. I hope your fire chief
gets well. I am with him all
the way.

Dear Sirs,

I thank you for the bravery you put up February 9. We were all afraid February 9 but when we heard the sirens we knew everything would be all right. I am glad you won the fight instead of the fire. You risked your life to save us last night. My sympathy is with all the firemen.

Yours truly, Robert Soderlund

Dear Sirs.

I hope this letter shose my gratitud for what you have done this past morning. All of you fought a courageous battle that we will never forget. We relize that many of you men were hurt. I hope that they get better. I am

sure all of us hear appreciate your bravery. All of you did an outstanding job.

Your friends Room B 4

Dear Sirs,

This letter is for the men who where fighting the fire on Wed. Feb. 9, 1972.

I appriceate your work you saved many lives including mine. I probabably would not even be writing this if it hadnt been for you guys.

I also want to say, I hope the men who where hospatilized live. You are all very brave and deserve to be thanked.

> Your friend AL Copeland







MERRIMACK VALLEY ADVERTISER WEDNESDAY, FEBRUARY 16, 1972



Praise For Tewksbury Fire & Police

To the Editor of the Merrimack Valley Advertiser:

In times of great stress, strain and pressure the professional usually can be depended upon to perform skillfully and successfully in his field.

Tewksbury Police and Fire departments when last Wednesday's explosion at the Lowell Cas company rocked the area.

plosion and seeing the flames shooting into the sky, we immediately had the operator call in the emergency to the fire department. Within a few short minutes, the fire and police departments were on the scene, taking charge and performing skillfully.

Living so close to the fire, we were one of the first fami-

lies to be evacuated by the fast and efficient work of the police. With two children under three years of age, we don't mind saying that we were very scared, but we can empathize with the feelings of the brave firefighters and po-Such is the case of the licemen who risked their lives to save ours.

Words cannot reproduce the strong feelings of praise that we have for our police and fire departments. It is our op-Upon hearing the first ex- inion that the synergistic effects of these two departments averted what could have been a tragic catastrophe. For this we thank you.

> Sincerely. Mr. & Mrs. Laurence O. Beston

13 Chapman Rd., Tewksbury cc: Tewksbury Fire Dept.

Tewksbury Police Dept.

Rep. Sullivan avers safety factors missing

TEWKSBURY-State Representative Kevin C. Sullivan, of Tewksbury, last night said he believed there are some safety factors missing from the Lowell Gas Co. installation.

Sullivan, who along with State Senator Wil-

liam X. Wall, (D-Lawrence) attended the selectmen's hearing at the town hall, said "It would seem to me there were some safety factors missing from the installation."

Sullivan also told The Sun he recommended the board of selectmen have money transferred into a special account and the selectmen should engage a special engineering firm specializing in fire prevention in gas installations.

He said he would like this firm to study the Tewksbury plant as well as other installations throughout the state to determine what, if any, safety features are missing from the facilities.

HE WANTS this committee to report their findings to the Department of Public Utilities and "the Lowell Gas Co. be forced to implement these recommendations so a similar disaster does not happen again."

In addition, Sullivan said he and Sen. Wall have filed legislation to make it mandatory that gas companies should have foam trucks and asbestos suits on their propery so the plants "will be properly equipped."

Sullivan, who along with Sen. Wall was at the scene of the general alarm fire and explosion was shocked at the thought something like that could occur.

He said he submitted legislation in order that such a disaster does not happen again anywhere in the state.

- NICK CARAGANIS



Sign of protest A truck parked in front of Tewksbury Town Hall

last night displayed this sign urging the Lowell

Gas Co. to take steps to avert another explo-

sion. A hearing was held at Town Hall into the circumstances surrounding the Feb. 9 blast at the Tewksbury facility.

THE LOWELL SUN, WEDNESDAY, FEB. 16, 1972

500 jam gas explosion hearing

By NICK CARAGANIS

Sun Staff

TEWKSBURY — A standing-room-only crowd of about 500 Tewksbury residents last night heard a Lowell Gas Company pokesman say the lack of at least one safety feature at the company's Chapman Road plant led to the disastrous explosions which took the life of a 50-year-old Lowell man.

George S. Doulames, executive vice President of the Lowell Gas Co., speaking before the town board of selectmen and a jam-packed town hall said there was no cement barrier to prevent the propane gas struck from striking a two-inch pipe which subsequently led to the gas explosion.

"There were no barriers," Doulames said, when questioned by Town Counsel Charles Zaroulis at a hearing, called to discuss circumstances surrounding the explosion on Feb. 9.

The selectmen will study and give careful consideration to last night's testimony of events and are expected to make recommendations in the very near future.

Selectman Donald Sheehan said he did not think there were any safety precautions, "if there were it would not have exploded." he said.

DOULAMES INDICATED THE Gas Company is "taking along hard look at the matter and is seriously considering installing some form of barriers in front of the pipe, so a similar tragedy would not reoccur.

"We're looking at the thing to make it safer, maybe even installing rubber barriers," Doulames explained. "We are also thinking of installing water sprinklers over two 60,000 gallon gas tanks."

Amid a tense atmosphere, town selectmen and Atty. Zaroulis fired a series of questions at Doulames for more than an hour attempting to uncover every aspect of the disaster and to ascertain exactly what happened that ill-fated night.

Doulames told the buzzing crowd, the propane truck, operated by Arthur Sutcliffe, of Lowell, who died as a result of burns, backed up and "somehow or other the line broke."

He continued, "The man who died and the plant operator were attempting to close valves but the gas was coming from another truck that was unloading. The heat going into the tank ruptured the truck and sent propane gas flying."

HE TOLD THE selectmen the plant was shut down at the time and that six people were on duty on the grounds.

"Normally", Doulames said, "there is a man there to help the truck back up." He said Sutcliffe, who was working a double shift that day backed up himself, and struck the pipe.

Asked by Zaroulis if any of the men assigned to the plant could control fires, Doulames said all the men are taught to control fires.

Zaroulis placed particular emphasis on why the Gas Co. cleaned up the plant the morning after the explosion. Doulames said it was done as a safety precaution, and also because "they wanted to get back in service as soon as possible."

Zaroulis inquired, "Did you have authority to clean up the next day? Doulames said, "It is difficult to answer the question, but we cleaned it up because it was a hazard."

Later, Doulames said officially he was not given permission to clean up the area.

A restless crowd listened to the vice-president explain if the firemen had not watered down

the two 60,000 gallon tanks, they would have ruptured.

By means of schematic drawings, Doulames explained the operation of the Tewksbury plant and indicated what should have, and what actually did happen prior to the explosion.

HIS EXPLANATION disclosed the only firefighting equipment available in the plant was 6,000 pounds of dry powder located some 150 feet away from the main fire. "The firemen knew where the powder was," Doulames said.

Also, under questioning by selectmen, Doulames admitted the plant did not supply asbestos fire protective suits and he did not think that a foam truck was needed on the plant site. Also he said there were fourteen 30-pound fire extinguishers in the propane plant area. When asked why provisions to tie in the facility with the fire department alarm system were not made, Doulames said "I don't know."

"Did you ever consider an alarm system for the neighbors?" asked the selectmen. "We didn't feel it was necessary," he replied.

When asked what would happen to the plant if they (Gas Co.) discontinued propane on the site, Doulames said they would have to curtail and the plant would not be able to function.

Finally Doulames apologized to the residents of Tewksbury and particularly to the firemen involved in fighting the fire for allowing the statement "it was a minor fire, it's under control", to leak to the news media. "I don't know how that statement came out, and if you were there anybody would know that it was not a minor fire."



SUN Staff Photo by Brow

Tewksbury Firefighter Robert Fowler, who suffered burns on his face when the propane gas truck exploded, spoke to residents of the town last night and described the disaster. He said when the truck exploded he was blown 30 feet through the air.

THE THREE-HOUR hearing was marked by several eyewitness accounts of the explosion by firemen and police, including a detailed account of the events by Andover Fire Chief Henry Hilton, who took charge of operations when Tewksbury Fire Chief William A. Chandler was hospitalized.

Leonard Devanna, Assistant plant operator on Chapman Road, said he smelled propane and the next thing he knew a fire developed in the rear of a truck. "Next there was an explosion and the whole sky lit up yellow."

Tewksbury Firefighter Robert Fowler of Engine 5, sporting burns on his face suffered when the propane truck exploded related the events. "Upon arriving at the scene we parked as close to the fire as we could. It was a matter of a few minutes and then there were a series of small explosions. Then a thunderous explosion pushed me back 30 feet. I was placed in an ambulance."

Meanwhile residents in the area of the Tewksbury plant say they live day-to-day in fear until something is done to ease the threat of another catastrophe.

The last hearing of this type to be held in the town was three years ago when the town asked the Department of Public Utilities to investigate telephone operations in the area.

Selectman Chairman Joseph Whelan said in 1957 the selectmen voted 4 to 1 for the Lowell Gas Co. to operate the plant, and to issue a license.



SUN Staff Photo by Brow

Tewksbury and Gas Co. officials at explosion hearing

Chairman of the Tewksbury Board of Selectmen, Joseph J. Whelam, addresses residents while George Doulames, execu-

tive vice president of the Lowell Gas Co., standing, awaits questions from the residents. Seated, center, with glasses, is Town Counsel Charles Zaroulis. He also questioned Doulames. At right is Selectman Frank Antonelli.

Tewksbury fireman dies of burns



W. JOHN MCALLISTER

BOSTON — A 30-year-old Tewksbury fireman, who for the last eight days fought for his life after being burned in the Tewksbury gas explosion, died last night at Massachusetts General Hospital.

W. John McAllister, 30, of 54 Maple St., died at 10:40 p.m.

The firefighter suffered burns on 90 per cent of his body on the night of Feb. 9 when a truck containing propane gas exploded in the Lowell Gas Co. plant on Chapman Road.

"He was an eager firefighter who loved his job," Capt. John Cuneo of the Tewksbury fire department said. "There is no doubt about that."

Added Cuneo, "He was friendly with every-

Funeral services will be held Saturday morning at 11 a.m. at the So. Tewksbury United Methodist Church.

Friends and relatives may call at the Tewksbury Funeral Home tomorrow from 2 to

BOSTON - A 30-year-old Tewksbury fire- 4 in the afternoon and 7 to 9 in the evening.

A FULL-FLEDGED departmental funeral has been planned and a fire engine will either carry the casket or flowers in the procession.

McAllister was born in Tewksbury and had lived in the town for most of his life. He was the son of Mr. and Mrs. William McAllister and his father had been a Tewksbury fireman for many years.

A call firefighter McAllister was one of the first to arrive at the gas plant.

He was employed at the Tewksbury Hospital as a chauffeur and held membership in the American Federation of State and County Employes AFL-CIO Local 842. He was also a member of the Tewksbury-Wilmington Lodge of Elks No. 2070.

He leaves his wife JoAnn (Brown) Mc-Allister; a brother, Donald, of Tewksbury; a sister, Mrs. William (Ruth) Simon, of Ohio and his paternal grandmother, Mrs. Agnes Mc-Allister of Boston.

Set up blood bank

TEWKSBURY—A special Red Cross bloodmobile will be at the town hall Saturday, Feb. 26, for the purpose of setting up a blood bank for firefighters who might suffer injuries while in the line of duty.

Richard Kimball, director of the Greater-Lowell program, said an ample staff will be available from 10 a.m. until 3:45 p.m. to process donors that day.

Residents are asked to call Merrill Marshall at 851-7192, Alan Hancock at 658-3095 or Ed Kearns at 851-6669 and inform them at what approximate time they wish to donate blood.

Donors must be between 18 and 65. Vietnam veterans must have been home for at least three years from that area and anyone who has ever had malaria, jaundice or hepatitis cannot be a blood donor.

THE LOWELL SUN, THURSDAY, FEB. 17, 1972

Tewksbury residents wonder, wait for Gas Co. to correct deficiencies

By NICK CARAGANIS Sun Staff

TEWKSBURY — Residents are wondering exactly what the Lowell Gas Co. is going to do.

Families living near the company's propane gas plant on Chapman Road say something must be done.

In fact many people left the selectmen's hearing Tuesday night wondering if anything was accomplished. Some left very confused.

Residents feel there are many unanswered questions and they want answers.

The tenseness in the town is increasing in the wake of the Feb. 9 propane gas explosion which has taken the lives of a Lowell Gas Co. employee and a Tewksbury firefighter. Last night William J. McAllister Jr., 30, of Tewksbury died after being confined to the Massachusetts General Hospital burn center.

Resentment is running high, residents state. They want the Gas company to do something to prevent another explosion from occurring.

On Tuesday night, more than 500 curious, concerned and scared residents listened to gas company officials explain the circumstances of the explosion.

George S. Doulames, executive vice president of the gas company, stated at the hearing that they were taking a long hard look at the matter and are considering some changes.

He said concrete barriers to protect piping would be installed and the lone fire hydrant in the plan would be relocated. Also Doulames said a sprinkler system would be installed above two 60,000 gallon tanks containing propane.

THE LOWELL SUN, THURSDAY, FEB. 17, 1972

After three hours of discussion and crossexamination the townspeople were not satisfied.

Some left unhappy, others confused and others petrified of the thought it could happen again.

"We're living in fear," one young mother said. "What if it happens again and worse the next time—then what?"

Some residents walked out of the hearing when they were told they could not ask questions from the floor. Many came expecting a public hearing, but instead were greeted by a formal hearing conducted by the town selectmen.

"We want to keep the meeting orderly," the residents were told by Joseph J. Whelan, chairman of the board of selectmen.

One Chapman Road resident said he was not happy with what transpired Tuesday night. "I do not accept the reasons the gas company is giving us."

The unidentified man said "We want something done and done fast so that my family can have some reassurance that this type of a disaster does not happen again."

Doulames, under questioning and discussion attempted to explain exactly what caused the fire and subsequent explosion.

During his explanation, remarks and shouts from the crowd gave an indication the residents were not satisfied with his reasons.

Using schematic drawings Doulames explained a propane-carrying truck backed into a pipe which ruptured. He stated the heat going into the tank ruptured the truck and sent propane gas flying.

In the front row of chairs sat several Tewksbury firemen who were among the first to arrive at the fire scene. Robert Fowler, a young fireman, his face and arm burned, was called upon to speak and was greeted with thunderous applause.

He told how he was blown 30 feet into the air when the truck exploded and didn't know what happened. All he remembers was being placed in the ambulance.

The people listened. You could hear a pin drop. Several gas company personnel spoke including Leonard Devanna, an assistant plant operator on Chapman Road, who told the selectmen he had not been placed through any specific training program for fighting fires.

He said, "There was once a scheduled lecture for firefighting training, but I didn't show up."

The residents laughed as they had done on one or two other occasions during the hearing.

Perhaps the laughter and skepticism was an indication of how the Tewksbury residents felt.

Nevertheless they will have their chance to speak out on Monday, Feb. 28 at 10 a.m. when the Department of Public Utilities will hold a hearing in the town hall.

Another large turnout is expected along with a large number of fire officials.

It is expected members of the Tewksbury fire department will give their side of the story and perhaps make recommendations.

Meanwhile, residents in and around the gas company plant live day-to-day hoping they will never have to face a disaster similar to the one on Feb. 9.

Richard Morris

I responded on Engine #6 and we made a reverse lay to a deluge gun. Upon arrival I saw flames at the west end of the tanks and water coming from a deluge gun from the direction of Engine #5. After setting the deluge gun up, we had to wait for water due to the length of the hose lay and while standing on top of the banking I observed that the flames shot higher in the air and roared louder. Shortly after, the Deputy Chief told us to get below the edge of the bank.

As I started to turn and move down, there was a rumble and then I flew off the bank into the middle of the road. As I lay on the road it seemed as though the heat kept getting worse for two to three minutes and then everything turned black as the fire snuffed out. A short time later I noticed the fire burning on the right hand side of #2 tank as I looked at it. It seemed as though a blow torch was aimed at the side of the tank as blue flame shot at the tank from something.

Richard Morris Firefighter



SUN Staff Photo by Brow

Check for Tewksbury firefighter's widow

Officers of the 100 Club visited the Central Fire Station in Tewksbury yesterday afternoon to present a check in behalf of the widow of the late W. John McAllister, 30, a firefighter, who Wednesday night

succumbed to burns received during the Lowell Gas Co. explosion at its Tewksbury propane gas operation off Chapman Road. From left are Dr. An Wang, of Wang Laboratories in Tewksbury, representative of the 100 club; Fire Capt. James Grourke. Leo Loughlin, executive-director, 100 Club of Massachusetts, and Richard Sheehan. president, firefighters' union.

Many expected to attend McAllister funeral

TEWKSBURY - Large delegations of firemen from across the state are expected to attend the funeral tomorrow of Tewksbury call firefighter W. John McAllister.

Engine 2 of the fire department will carry the casket from the So. Tewksbury United Methodist Church to a cemetery in Westford where the body will be laid to rest.

The funeral is expected to be one of the largest in terms of numbers of people in recent memory.

Every Tewksbury firefighter will attend the funeral. Fire companies from Andover, Wilmington and Billerica have volunteered to cover the Tewksbury fire station.

McAllister died Wednesday night as a result of burns suffered when a truck containing pro

pane gas exploded following a fire at the Lowell Gas Co. plant on Chapman Road.

Two firemen. Elks club members and employees of the Tewksbury Hospital where Mc-Allister worked will be pallbearers.

Meanwhile a bloodmobile originally slated to be set up in the Tewksbury town hall tomorrow has been postponed to Saturday, Feb. 26 as a result of the unexpected death of the local fire-

The bank is for the benefit of area firefighters who might receive injuries while in the line of duty

Those wishing to donate are asked to make appointments by calling the Central fire station.

Calling hours at the Tewksbury Funeral Home today are from 2 to 4 p.m. and 7 to 9 p.m. tonight.

THE LOWELL SUN, FRIDAY, FEB. 18, 1972

Tewksbury Bloodmobile Sat.

The Tewksbury Fire depart- fighters shown by the people ment is sponsoring a Bloodmobile at the Tewksbury town hall on Feb. 26, from 10 a.m. to 3:45 p.m.

The purpose of this Bloodmobile is to replace the enormous amount of blood used in treating the many injured Tewksbury and Billerica firefighters after the explosion Feb.

It is the hope of the fire department that the overwhelming concern for their fireof Tewksbury and surrounding towns will encourage them to take a few minutes on Saturday to show their apprecia-

For further information call Firefighters Alan Hancock at 658 3095, Merrill Marshall at 851 7192. Ed Kearns at 851-6669 or the Central Fire Station at 851 7356.

Volunteers Wanted TO MAKE COLLECTIONS FOR THE DISASTER FUND ON SUNDAY, FEBRUARY 27 Call Barbara Morse 851-3283

MERRIMACK VALLEY ADVERTISER WEDNESDAY, FEBRUARY 23, 1972

Firefighter McAllister Buried; DPU Slates Hearing Feb. 28

The anger and fear that Tewksbury residents expressed last week (and are expected to express at a hearing February 28) during the selectmen's inquiry into the Feb. 9 Lowell cas Co., explosion, mixed with sadness at the news of the death of Firefighter William John Mc-Allister, Jr., Thursday night.

McAllister suffered burns over 90% of his body fighting the blaze on Chapman Rd., and succumbed to the injuries at Mass. General Hospital.

The thirty year old fire-fighter was buried in Westford Saturday with full departmental honors, as some 500 friend tal honors, as some 500 friends, relatives and fire officials braved a raging snowstorm to pay their last respects. Rev. James Shwartz of the Tewksbury United Methodist church, officiated at the funeral.

McAllister was born in Tewksbury and had lived in the town for most of his life. He was the son of Mr. and Mrs William mcAllister and his father had been a Tewksbury fire for many years. He was employed at the Tewksbury Hospital as a chauffeur and held membership in the American Federation of State and County Employes AFL-CIO Local 842. He was also a member ofthe Tewksbury-Wilmington Lodge of Elks No. 2070.

He leaves his wife JoAnn (Brown) McAllister; a brother Donald, of Tewksbury; a sister, Mrs. William (Ruth) Simon, of Ohio and his paternal

grandmother, Mrs. Agnes Mc-Allister of Boston.

The 100 club, a special organization formed to financially assist the families of firemen and policemen killed in the line of duty, presented McAllister's widwo with a check on Friday.

Meanwhile, the Dept. of Public Utilities will conduct a public hearing on the disaster February 28, at 10 a.m., at the town hall.

If last week's selectmen's hearng is any indication, this next one should send the sparks flying.

The standing - room - only crowd jammed town hall, and man y were dismayed to discover they could not ask questions from the floor.

The man they wanted to grill was George S. Doulames, executive vice president of the Lowell Gas Co., who faced tough questioning from the selectmen and from Town Counsel Charles Zaroulis.

Doulames admitted that here was no cement barrier to prevent the propane gas truck from striking a two inch pipe which subsequently led to the gas explosion.

He said Arthur Sutcliffe, operator of the truck, backed
the vehicle up and "somehow
or other the line broke." Sutcliffe died of injuries during
the explosion.

It was also revealed the Sutcliffe was working a double shift on that day.

Among the facts brought out was that the assistant plant operator had not been placed through any specific training program for fighting fires.

'There was once a scheduled lecture for firefighting training, but I didn't show

up," said Leonard Devanna.
Other discussions touched upon during the three hours were the rapid cleanup of debris by the Gas Co. the next

morninging; te lack of asbestos fire protective suits - provided by the company; and eyewitness accounts of the blaze by local firefighters.



100 Club Donation

Thanks to the 100 Club, the financial burdens of the family of Tewksbury Firefighter William McAllister, who died from injuries fighting the Lowell Gas Co. fire, are considerably lighter. Friday, the 100 Club made its contribution to Mrs. McAllister at the Fire Station. Shown here, from left, are Richard Sheehan, president, Fire Fighters local; Capt.James Grourke, representing Chief William Chandler, and the one who turned the check over to Mr. McAllister; Leo Laughlin, executive director of the 100 Club of Mass.; and Dr. An Wang, Tewksbury representative to the 100 Club.

Tewksbury bloodmobile scheduled for Saturday

TEWKSBURY — The Tewksbury Fire Department is sponsoring a Bloodmobile at the Tewksbury Town Hall on Feb. 26, 1972 from 10:00 a.m. to 3:45 p.m.

The purpose of this bloodmobile is to replace the enormous amount of blood used in treating the many injured Tewksbury and Billerica fire-fighters after the tragic explosion on the evening of Feb. 9th. It is the hope of the fire department that the overwhelming concern for their firefighters shown by the people of Tewksbury and surrounding towns will encourage them to take a few minutes on Saturday to show their appreciation.

For further information call Firefighters Alan Hancock at 658-3095, Merrill Marshall at 851-7192, Ed Kearns at 851-6669 or the Central Fire Station at 851-7356.

Tewksbury disaster fund begins drive

TEWKSBURY — A disaster fund to defray any emergency expenses and losses by members of the Tewksbury Fire Department on or since the fatal propane gas explosion on Feb. 9 has been initiated.

Donations may be mailed or left at the following places: the Middlesex Bank on Main Street, the Tewksbury police station or the Tewksbury-Wilmington Lodge of Elks on South Street.

THE LOWELL SUN, THURSDAY, FEB. 24, 1972

THE LOWELL SUN, MONDAY, FEB. 28, 1972



SUN Staff Photo by Pigeon

Giving blood for Tewksbury firefighters

John Murphy, left, a Tewksbury volunteer firefighter, is checked prior to giving blood to help replace the tremendous quantities used by Tewksbury firefighters after an explosion at the Lowell Gas Company's liquified natural gas facility hospitalized more than half of the department. From left: Murphy, Edward Hoyt of the American Red Cross and Geraldine, Meneon, R.N.

DPU to rule on gas explosion

By NICK CARAGANIS Sun Staff

TEWKSBURY — The State Department of Public Utilities has taken all evidence presented at yesterday's Lowell Gas Co. lengthy hearing under advisement and will issue a decision in the near future.

The five-member board of commissioners toured the Lowell Gas Co.'s propane gas plant on Chapman Road last evening and surveyed the area of the fatal explosion which took the lives of two men Feb. 9.

Town Counsel Charles Zaroulis attempted to show the accident involving a two-inch pipe that ruptured when a propane truck backed up was caused by fatigue.

He questioned the fact the deceased driver, Arthur Sutcliff, had worked 13 hours on that particular day and, according to gas company records had only taken a dinner break.

Upon a motion by Zaroulis, the DPU said they would seek truck driver's records of the gas company as they see revelant during the investigation.

Zaroulis also told the commission that in their original plans proposed in 1958-59, the Lowell Gas Co., a loading platform and two buildings were not included in plans submitted to the DPU and State Department of Public Safety.

"Subsequently," Zaroulis explained, "In 1970 they constructed, without approval from any agency. It is my understanding they have to get approval."

THE LOADING platform in question housed a propane truck that fed the fire.

George Doulames, executive vice president, Lowell Gas Co., said they needed the additional platform in order to alleviate congestion on the one other platform. Doulames said the addition of the new platform and buildings was legal and "I did not have to notify the DPU or DPS."

Midway through the hearing the auditorium was shaken when State Senator William X. Wall, of the 5th Essex district, in a statement to the DPU commission, said the testimony of Doulames was inconsistent with previous testimony on Feb. 15.

Doulames was questioned for some four hours yesterday, by the commission, town counsel and citizens as to the circumstances surrounding the explosion.

Sen. Wall also said he would like to see the entire plant re-located in an area where there are no housing developments. He also strongly asked the commission to rescind the gas company's license if they (DPU) found the firm was negligent.

Rep. Kevin Sullivan, of Tewksbury, said he was seriously concerned about the storage of propane and indicated he would support any legislation which would assure the people a similar disaster could not occur.

The hearing was marked by several outbursts, but essentially the proceedings remained

"WHY DID YOU clean up the debris after the explosion — what are you hiding?" You can sit there and smile but there are two men dead." one woman shouted.

Many citizens are of the opinion that closing the plant is the solution. Doulames says it is not. He told the commission it would cost some \$400,000 to stop operations.

Joseph Nee, an engineer of the DPU, directed several questions toward Doulames centering on the inspection of the propane carrying trucks and the possibility of placing firefighting equipment on the plant grounds. Doulames said the excess flow valves on the truck that fed the fire might not have been inspected for five years.

Asked by Nee if his men received any training at schools dealing with fighting gas fires, Doulames said his men had not. Nee said, "It's incumbent upon us that we might have firefighting schools."

Several persons from the audience lashed out at Doulames with questions that gave the indication they don't want the plant. One Tewksbury resident, Edmund Waken, of John Street, said he felt there was enough liguified natural gas to last and supply the Greater-Lowell area without the propane.

A local businessman, Chester Sullivan, presented commissioners with photographs of a liguidfied natural gas plant in Hopkington that the Lowell Gas has rented for storage while the Tewksbury plant is not working to capacity. The photos showed firefighting apparatus and dry powder used to combat fires were located on the grounds. The commission accepted the photos as evidence.

ASKED BY SULLIVAN if it was necessary for the operation of the Tewksbury facility to have the propane air system, Doulames said, it did.

Sullivan: "How much liquid natural gas does your company sell outside your franchise area?

Doulames: "About 55 per cent."

Sullivan: "If you sell outside your area and restricted the sale to the Greater-Lowell area

would this propane air system still be neces-

Doulames referred to the future potential growth of this area as a basic reason for requiring this part of the Tewksbury facility.

Richard Gath, a Tewksbury firefighter, testified he took Arthur Sutcliff to the hospital and said he had a brief conversation with him. He said Sutcliff told him, "I was backing up, and I guess I hit a pipe. Then I started closing valves then I got caught in the flash."

THE LOWELL SUN, TUESDAY, FEB. 29, 1972



SUN Staff Photo by Brow.

Crowd attends initial gas explosion hearing

Shown here is part of the crowd that attended an initial hearing on the Lowell Gas Co. explosion at its Tewksbury propane plant, which was conducted by the

selectmen on Saturday. Yesterday's lengthy meeting conducted by the DPU did not draw as many people due to the session being held during working hours. However, several people voiced discontent with the plant being operated at its present location off Chapman Road.

February 29, 1972

Call special town session to replace Tewksbury's fire-damaged apparatus

By PRUDENCE BRIGHTON Sun Staff

TEWKSBURY — The selectmen last night called a special town meeting for March 13 to consider the replacement of town equipment lost in the Lowell Gas Co. explosion and to empower State Rep. Kevin C. Sullivan to file legislation allowing the appointment of "call men" as regular firefighters.

Two articles will appear on the warrant for the special town meeting. The first calls for the appropriation of \$55,000 for the purchase of a fire truck damaged beyond repair in the explosion.

The second article will be entered on the warrant at the request of Rep. Sullivan.

SULLIVAN told the board last night he had been approached by the Fire Department officials on the matter. He said he explained to file the legislation he would need the approval of a town meeting.

The request by the Fire Department was made because of the efforts of the "call men" in battling the Gas Co. blaze.

Sullivan said, "I feel the request has some neerit. Some of these men were injured that night. They have shown their ability and worth. Not one of them 'cut and ran' that night as they could have."

THE MEASURE would circumvent some of the provisions of civil service. They would still be required to take the exam and pass the physical, however.

Seven of the call men have applied for appointment, according to Sullivan. Two openings now exist on the Tewksbury Fire Department.

In other action last night, the selectmen named Robert Hooson, a Tewksbury resident and AVCO aerospace engineer, as a special consultant to the board to conduct an investigation into conditions at Lowell Gas Co.

Hooson approached the selectmen last week with an offer to conduct an investigation based on system's analysis at no cost to the town.

HE TOLD THE board last night he will study potential hazards at the plant, existing rules and regulations governing operations there, and the need for new rules and regulations.

During the study he will use experts in various fields. He will use the expertise of "two human factor engineers," a civil engineer, two safety engineers, and a small research staff.

THE STUDY WILL be completed by March 31, Hooson told the board, and will contain "sufficient data to provide the necessary material to act on the recommendations."

Some 70 agencies regulate the operations of a "plant such as Lowell Gas." Hooson said his system's analysis will provide an "easy road map through the rule and regulations" of the 70 agencies.

Chairman of the board of selectmen, Joseph J. Whelan, reported he had received assurances from the State Fire Marshal's office last Friday the permit for propane gas operations at the Lowell Gas facility would not be reinstated "until all possible investigations have been conducted into the disaster."

WHELAN VISITED the State Fire Marshal's office after abuttors of the Tewksbury facility last week asked the selectmen to lift the permit. They were told the permit had already been lifted by the State Fire Marshal's office.

It has been a long haul, but fire department is back to normal

By LEE WOOD Sun Staff

TEWKSBURY—It's been a long haul since Feb. 9, when a propane truck exploded at the Lowell Gas Company on Chapman Road, but the fire department finally is back to almost normal.

Two men are still out. Fourteen firefighters had to be taken to St. John's Hospital in Lowell because of the explosion which killed a truck driver and call firemen William McAllister.

Still not working are Larry Nawn who is getting treatment for blocked up ears and John Fields who sustained knee injuries.

The impact of the fire and explosion was lessened by one fire truck which was heavily damaged in the process of fighting the fire.

The catastrophe also completely wiped out the budget of the department; salaries; overtime and medical expenses. It took a special town meeting to raise money to buy a new fire engine, pay overtime and pay for fire expenses.

But equipment is a logistical consideration. The men left at the two town fire stations outdid themselves working 12 hour days, including days they were normally off. Everyone pitched in and morale soared to new heights as the need for co-operation became critical with almost half the 38 man force out of commission.

The Andover Fire Department, aware of the problems, automatically responded to Tewksbury fire calls for the first two weeks following the explosion.

John Cuneo took over after the fire chief determined he, as well as Deputy Chief James Morris, would be in the hospital for an extended stay. Chief Chandler, who remained at St. John's for one month and three days, said, "Cuneo was an excellent choice as an acting chief. The selectmen couldn't have picked a better man for the job."

Cuneo, a believer in training, is going to North Shore Community College studying for an associate degree in Fire Service Technology. A fire officer only 18 months, Cuneo said, "It's one thing to go to school and read books ... another to have it happen."

Said Cuneo, "Quite a few new men came through with flying colors that night. To the best of our knowledge, there wasn't a one who turned and ran." This, despite the danger that the explosion might have further damaged two 60,000 gallon storage tanks and who knows what other facilities.

Fire Engines two and six were quickly put back in service. Engine five was destroyed. Engine four was back in service at 6 p.m. the day following the fire thanks to Bruce Tibbets, the American LaFrance representative (maker of the fire engines) who lives in town.

Tibbets had burned wiring to contend with. An upholstery company in Lowell returned covered seats the next day. A fire equipment supplier found 3,000 feet of new hose in Charlestown. A highway department truck was dispatched to pick it up. The Andover fire department stood by with a truck until engine four was going again.

And in all this, Cuneo noted, "We were never without a full, regular complement of firefighters on duty from the time of the explosion right up to the present. Equipment that would normally take months to get, came pouring in as state-wide cooperation continued. Firefighters called from all over the state to offer to work on their days off."

"Actually, the day after the fire we were better equipped than the day before because so many offers came from everywhere, said Cuneo.

Meanwhile, it was determined engine five was too far damaged to repair at the station. It was sent to the factory. But what to do about the destroyed truck? New trucks normally take 18 months to get after placing an order. American LaFrance successfully bid, and May 1 a new engine, now numbered "1" arrived.

Fortunately, no major fire broke out for the next six weeks as injured firemen recovered in and out of the hospital. But nerves were on edge for awhile as the men averaged working 50 per cent more time than usual. About

two weeks later, some kids pulled a false alarm at the high school.

Cuneo said, "Everybody went off the floor as the horn blew in the station. It was almost like being back on like the first day of each man's career."

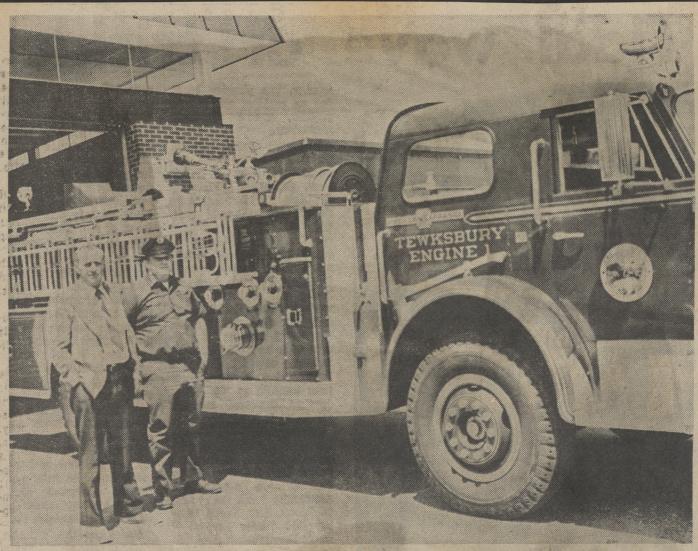
The department even responded on Feb. 13 in a mutual aid effort to combat a bad apartment fire.

Cuneo told how it was that night. He was baby sitting his children. Normally at the department on the second call, he was delayed about 15 minutes. The Andover department had responded on the second call. Six or seven men had arrived and were talking about the fire when Cuneo arrived.

"The sky lit up. Normally we don't report to a fire until asked," noted Cuneo. "All the trucks were gone. We went in a pickup. We figured the traffice would be heavy. But everyone was coming away from the fire, going the other way. When I arrived, Richard Sheehan told me it was all mine since the other guys were gone. The main fire was still going under two storage tanks. Engines four and five were burning. The other two were on Chapman Road pumping in water.

"At least three buildings were on fire. Brush fires were in the woods all around. A couple of gas trucks were on fire."

Cuneo immediately posted a third alarm and said over the radio, "I got a full scale disaster on my hands." Unbeknownst to him, this resulted in fire companies for miles around responding to the call.



There it is

Tewksbury Fire Chief William Chandler, left and fireman Ken Mallison, proudly stand by the new Engine I delivered May I. It replaces Engine five destroyed in the Feb. 9 gas explosion. The new apparatus features a 1250 gallons per minute (gpm) pumper, a 500 gal-

lon water tank, 1000 gpm for the deluge gun and and a high expansion foam system. Because of cooperation from American LaFrance, the engine was delivered so quickly. Normally delivery takes about 11/2 years.

Town of fewksbury L.P.G. explosion (Feb. 9, 10:39 P.M.) 1972 Report from Chief H. L. Hilton, Andover Fire Dept. to Chief W. Chandler, Tewksbury Fire Department concerning actions taken, investigations wade and findings on behalf of Chief W. Chandler, Feb. 9, 1972, approximately 10:39 p.m. I heard the Tewksbury Fire Dept. responding to Chapman Road and the Lowell Gas Co. natural gas installation, with both an ambualnce and fire fighting equipment. The Tewksbury ambulance reporting on the scene to the Central station stated that the area was quite involved and additional fire equipment would be necessary. A request for a second alarm was made and Tewksbury fire dept. asked Andover to send a pumper into the central station for stand-by and then requested Wilmington to send a pumper to the south station to standby. I believe that Billerica had probably already sent a pumper to the scene of the fire. Hearing the request for Andover to respond I left my home in Andover and proceeded on Lowell St. (Rte 133) to North street in Tewksbury. I turned left here and at a point beyond the Wang Laboratories the sky lit up like daylight and a fireball, the likes I have never seen, even in the military, appeared in the sky and lasted for approximately 10 to 15 seconds. After the explosion the sky darkened even to the elimination of the reflection I had first observed on leaving my home. Prior to the flash I had heard trucks on the air concerning the laying of lines from a hydrant on Chapman Road and I believe the Billerica truck inquiring about a road they were using from Chapman Rd. to the scene of the fire. There concern was to the effect as to whether or not this dirt road would get them into the area. I also heard someone request Engine 2 of Tewksbury to catch a hydrant out on Whipple Road. It seemed to me at the time of the fireball and for approximately fifteen seconds thereafter that no broadcast was heard. The next I recall was a radion message from someone on the scene for a third alarm and more fire trucks and ambulances. I think it was Capt. Cuneo of the

Tewksbury department that I heard at this time, call his station and report a catastrophe and that ambulances from the area would be necessary and to alert the Lowell Red Cross Disaster Unit as he reported a full scale disaster on their hands. I think hea also reported that the Chief, Deputy Chief and Captain Millett were burned or injured and were on their way to the hospital, also many other firefighters had either been injured or burned and were to be removed from the scene.

As I entered Tewksbury center I heard a report from the Tewksbury ambulance, I believe, that Chief Chandler requested the station to get in touch with Chief Hilton of Andover and have him take full charge of the operations at this point. Immediately I turned into the station to inquire as to the exact location, and at or near the watch desk which was a bee hive, I observed Kevin Sullivan, Representative from Tewksbury and I think it was his brother Chester who acknowledged me.

I left for the scene immediately with Firefighter Cronin and another firefighter from Tewksbury whose identity I did not know. We encountered none of the usual traffic problems going to the scene as for once in my life as a firefighter and Chief the traffic was all headed in the opposite direction.

Upon arrival at the scene and after sizing-up the layout of equipment, manpower and assessing the damages suffered to trucks, hose lines and fire fighting forces I ordered the deck gun, which was being operated onto the two sixty thousand gallon propane tanks; to be relocated to a slightly more advantageous position which would allow the cooling effects of this water to simultaneously cool both of these storage tanks at once.

Another deck gun which I believe had been placed at the entrance to the docking and unloading area where Engines 5 and 4 of the Tewksbury dept. had been operating at the instance of the explosion and the hose lines to it had been rendered inoperative due to the explosion. This deck gun

had played water onto the fire and tractor-trailer tanker which soon exploded. The two Tewksbury fire trucks, Engines 5 and 4 and the parked empty tractor-trailer tankers at this same location had to be removed after fire involving them had been extinguished. I believe that the Hanscom Field foam unit used foam to extinguish the fires in the fire apparatus and the rear tandem tires on one or two of these parked tractor-trailer tankers had to extinguished by the now substituted hand lines replacing this deck gun. These lines were also used to mop up fires in the compressor building and the area of the vaporizors which had been demolished by the explosion and tractor and front section of the tank which was rocketed away in this direction by the force of the blast. Billerica lines were repaired and operated into the remaining fires on buildings, debris and the remaining tanker which was originally unloading its cargo by pump to the storage tanks. This tanker received heavy damage to its tractor, tires and unloading hoses. The tanker itself never did pop a relief valve as pressures internally apparently never reached proportions to activate it. It is apparent from investigation and interrogation that the product from this tank was the actual gas or liquid which was originally being spewed out and under the tanker which eventually exploded. This occured after the tanker Arthur Sutcliff had been backing-up came in contact with the piping connected to the pump used to pump to the storage tanks thereby either rupturing them to some extent or perhaps severing the piping entirely.

As soon as it was deemed safe a gas company employee, I believe a Mr. Clark, was allowed to mount the storage tank to a catwalk erected on the two and he operated some valves which greatly reduced the flow of ruptured lines of flaming gas which had been giving the greatest concern at the time as they were lapping and coming in contact with one of the two storage tanks. Although this didnot immediately stop the fire we were able to get into it and baffle it away from the tanks

with metal debris that was in the area.

About this time I received a call from the station informing me that many towns and cities had sent ambulances and fire equipment to them and just where did I want them to be sent. The situation as it presented itself now was in our favor so I notified the station to relieve all this equipment and ambulances to their municipalities as I felt we had sufficient help on the scene. I believe it was a Mr. Patterson who was on the station desk. The situation appeared now to require a mop-up of operations. We did experience a slight flare-up at the discharge of the remaining tanker which required a cooling line while a gas company employee used a wrench to shut off a vlave or connection which caused the trouble. This tanker concerned me though and if it were not for the fact that the tires had been burned off all wheels I would have had it towed from the area for safety sake itself. As it was I felt that to drag it over the hot top may prove more dangerous from sparks than to leave well enough alone so left it where it was and extinguished all remaining fire in tires and cab of its tractor and so forth. I radioed now to the Tewksbury station and asked them to notify the Police department and I also notified the on scene police officer that it was my considered opinion that it was safe enough to now notify those residents who had evacuated the areas surrounding the plant to return to their homes if so desired. Chief Reed was asked to begin breaking down his pumpers operation

Chief Reed was asked to begin breaking down his pumpers operation and Captains Grouke and Cuneo were requested to begin relieving out-of-town companies on the scene of the fire and start breaking down over-all operations. We decided to leave two lines connected to the yard hydrant with two firefighters from Tewksbury to stand-by for security purposes until daylight.

I remained at the Tewksbury station throughout the rest of the early morning surveying the manpower losses and the necessary equipment that would be needed to replaced damaged or lost equipment and hose.

I kept a pumper and its crew at the Tewksbury'station from both Andover and Lowell in case of any eventuality which might arise before a plan of action could be initiated.

Bruce Tibbetts, a resident of Tewksbury, and a field engineer of the American LaFrance Co. was contacted early in the morning of the tenth and he agreed to come in and survey the two damaged fire trucks and make arrangements for the repairs and disposition of them. He reported to me later in the morning that he could get Engine 4 back into service but that Engine 5 should be sent back to the factory for extensive repairs and overhaul.

Edward Retelle was contacted and agreed to come in and survey the needs of hose and firefighting equipment and make arrangements to procure what he could as soon as possible. Later in the day Engine 4 was put back in-service with new hose and the necessary equipment and tools to make it a servicable pie & of firefighting apparatus. Clothing and some equipment will necessarily take longer to acquire but in the meantime all surrounding towns and cities have offered help at a minutes notice.

Early in the morning of this same day I contacted Lt. Walsh of the state fire marshals office and requested him to assist me in the ivestigation as it was at the time only conjectural on my part as to just how the spilled product became ignited. The two persons who were on the scene at the time of ignition were now in the hospital and one of them (Mr. Sutcliff) had been transfered to the burn center of the Mass. Gen. Hosp. in Boston along with John MacAllister a callman in the Tewksbury department. Paul Barchard a student-employee (Lowell Tech. Institute) was also in the kospital. I related to Lt. Walsh that from my investigation so far there was no reason to suspect any suspicious action and that Mr. Doularmes, a vice president in charge of the Lowell Gas Co. had reported to me at the scene that he had been told by Mr. Barchard that there had been an accident involving the tractor-trailer tanker which Arthur Sutcliff had been backing into the unloading area when it came into contact

with piping leading to the unloading pump which at this time was being used to unload the tanker a Mr. Boyce had hooked-up. Upon contact with the piping Mr. Sutcliff shut off his vehicle and went to the rear to survey the damage and it was at this time that he hollered to Paul Barchard to help him shut off valves to stop the flow of product at this location.

Shortly thereafter Lt. Walsh appeared at the station and once again I related to him the information I had learned. At this time I received a call from David Murphy, formerly a Captain of Detectives with the fire marshals office out of Lowell and at present a safety director for the Lowell Gas Company, requesting from me permission to put tires on the remaining trailer, we had had trouble with, in order to move it out of the area for safety reasons. I agreed because if I could have removed this trailer-tanker after the fire I 'd have done so for the same reasons.

Lieutenant Walsh and I then went to the scene of the fire and explosion at approximately eight o'clock in order that he m ight inspect the area which I had been explainning to him. We wanted to get pictures by the Tewksbury police. On arrival we observed that there were approximatley fifteen or more employees of the gas company on the premises clearing out all debris, piping and so forth and dumping it in an area to the rear of the natural gas system installation. These actions were of concern to both myself and Lt. Walsh and when we inquirred as to the haste to clean up we were told it was for safety reasons, and necessary in order to resume operations of the system just as scon as possible. Realizing most of the area was already cleared and knowing where the damaged equipment was and was available for pictures and inspection but not actually in the location after the blast we didnot press the point too much. The local police photographer accompanied by Chief Sullivan took pictures of the area and of scenes we were interested in and also later took aerial shots of the layout.

About this time we were informed that Arthur Sutcliff, 50 yrs. old, 28 Keane St., Lowell had died as a result of his burns. He was the driver of the truck which had the accident with the pump piping at the second unloading station. A different problem appeared now in the investigation as here we had a fatality from the results of the fire and explosion. Requests for any and all available photographs taken before, during and after the facts were asked of all news media and any amateur photographer who may have shot pictures at the scene.

Captain Cuneo took charge of this.

Lt. Walsh and I then went to the offices of the Lowell Gas Co. in Lowell to confer with officials there. We met with several gas company officials, the state tank inspector I believe to be a Mr. Dormer, a couple of D.P.U. members and others. Lt. Walsh has a copy of those in attendance. We went over the plant layout and were briefed on the method of operation at the scene of the explosion and just what is supposed to be accomplished. Mr. Dormer, the state tank inspector, stated that the two sixty gallon storage tanks would have their permits with held until such time as an extensive visual inspection of the tanks could be held and until they were purged and static tested to at least twice their rated operating pressure of 250 pounds per square inch pressure or I imagine 500 pounds per square inch.

Priday the 11th I met with John Clougherty, ex-chief of the Boston Fire Dept., now a consultant for the Federal Bureau of Standards, Office of Fire Reaearch and Safety. His interest is in the clothing worn by men on the scene and as to its reactions. He will take pictures of the clothing and catalog it by the name of the wearer. He is also interested in the overall investigation. He and I went to the scene and inspected the area again. We left there and at 1 p.m. went to the Lowell Technical Institute to meet with Lt. Walsh and Dave Murphy in the registrars office to interview Mr. Devanna another student-employee who is reported to be the person who placed the call to the Tewksbury

department reporting the call for an ambulance and fire equipment at the scene. Lt. Walsh took notes as to this students actions before, during and after the explosion and fire. After this session I requested Dave Murphy to set-up another meeting at the offices of the gas company and have on hand the records, graphs and so forth that had been removed from the propane gas control room and the natural gas control room and to have someone there who was qualified to interpret the readings for us. John Clougherty also agreed to attend this meeting as he was due back the next day to take more pictures of clothing.

Monday morning the 14th was the date set for this meeting at 11 a.m. after the services for Mr. Sutcliff.

On Monday the 14th I met again with John Clougherty and we again went to the scene and measured distances of hose lines laid and the size of the mains used and number of hydrants used during the operation. It was determined that the main on Chapman Rd. is a 6" main and that the original hose lines were laid for approximately a distance of 600 feet to the location of Engines 5 and 4. It was determined that Billerica lay from a hydrant approximately 1500 feet beyond this one and off the 6" main on Chapman Rd. using perhaps a hose lay of 300 feet at the most. A hydrant out on Whipple Rd., on an 8" main was used by the second alarm assignment from Tewksbury Engine 2 and laid approximately 1200 feet of hose to the scene. Some or all of these lines were double laid 2½" hose lines.

At eleven o'clock this date(2/14) John Clougherty and I went to the offices of the gas company in Lowell and met with Mr. Doularmes, Mr. Robinson, Mr. Murphy, Mr. Girard and Mr. Wilson at which time the information I was interested in concerning the records, product loss and so forth was produced and explained to us. They estimate that there could possibly have been at least 1000 gallons of propane spilled.

A fine technical expla nation of the operation of the propane plant was given by Mr. Doularmes and I feel that now I'm clear in my mind

as to just what did occur and satisfied that the original trouble was an accidental truck incident at the docking and unloading station for the propane gas. Also that there is no doubt now that apparently the ignition came as a result of the propane vapors reaching the pilots of the vaporizers or the burners of the vaporizers if at the time a thermostat in the buildings had called for heat. The hot water in the vaporizers being used also to heat some of the buildings of the propane plant. Just why the slug valves, on the remaining trailer which was being unloaded, did not activate is conjectural and may have been due to the piping damage not severe enough to interrupt the flow of gas pressure sufficiently enough to warrant them to operate. Another unknown question arising in my mind which will never possibly be known is why the driver of the vehicle causing the damage didnot immediately drive his vehicle away from the area of the spill. Also it apparently never entered Sutcliff's or Barchard's mind as to just where the actual spill of the propane was coming from. That being the tanker in process of unloading.

The propane gas system is explained as opaerating in the following manner. There are two sixty thousand water capacity or approximately 56, 000 gallons of propane storage tanks each. These run parrelell to each other and are separated by perhaps ten or fifteen feet and are resting in concrete saddles positioned at each end of the tanks. Tractor-trailer tankers are transported over the road from Lowell to here to keep liquid propane in storage in these tanks. They are backed into unloading and docking stations which have preconnected flexible hose lines(2) which are then attached to the discharges of the tankers and pumped into the storage tanks. Aclosed system pumping of vapor and liquid takes place. When the propane plant is in operation, and records show that it was shut down that evening at approximately eight or nine o'clock, the liquid propane is pumped from the storage tanks by another pump through overhead piping into the vaporizers where it is heated and returned to a vapor and then it goes into a mixing operation whereby air, propane vapors

and natural gas vapors are mixed, compressed and then introduced into high pressure service lines for consumer use.

The following are recommendations that may be of some value in the future to eliminate or reduce to a minimum the possibility of this type accident from occuring again at the same site.

To begin with the operation of the unloading and docking area should be carefully studied and plans made to eliminate the possibility of any tractor-trailer tanker in the future from ever being able to damage any piping either at or near the unloading area by erecting barriers which would allow the vehicle to backed up to them with nothing on the vehicle but the rear tires being able to touch the barrier. If another chain link fence is erected these barriers and a curbing on the docking side of it should be erected so that no part of the vehicle could come in contact with the fence before hitting wheel or tire barriers. Also that any lines, flexible or not that may be used to connect to these tankers be positioned inside the fence and available only by stretching them out to the tanker connections.

If it is imperative that there be two unloading stations for simultaneous unloading of two tankers at once then there should be attendants with these vehicles until the unloading is completed. No tanker should ever be left alone in case some unforseen event occurs.

Electrically operated hydraulic valves which would return the valves to a shut position on the operation of their circuit, plus a manual override feature should control every valve that requires operation during the unloading or operation of the propane plant. Even to plugin electrically operated valves on the discharge valves of trailer tankers. A master shut-down disconnect switch should be remotely located in order to shut-off all electrical power to these valves and controls in case of an emergency, and clearly identified for its purpose.

To cool down the propane storage tanks if ever necessary should be accomplished by running at least a two inch dry pipe along the top

of each from a point at the rear of the tanks, away from the docking area, connecting these to a 3 or 4 inch feed line(dry) preferably underground at this point to a remote control valve on the outside of any fenced in area. One or two more hydrants located in a far more advantageous position than that now present should be installed. One preferably where the driveway wyes and goes to propane plant and the natural gas plant. This may also be the area to locate the remote control for the cooling system for the storage tanks, the master shut-down electrical disconnect and the identifying devices which may be used to signify their operation in time of emergency. The other hydrant should go somewhere in the area of the natural gas complex.

A trainning program of emergency operations should be set-up and strictly adhered to for both installations. Protective clothing should be on hand in a remote area also for on plant personnel when necessary. Such as hard hats and asbestos suiting and head covers. Incidental fire first aid fire devices can be located within the buildings for incipient fires but I do not believe they should be relied on to any degree for instances such as has been recently encountered. The shut-down of all gas product flow being of primary importance to the control of fire involving either of the products.

Chief Henry L. Hilton, Andover Fire Department

for and on behalf of Chief William Chandler Tewksbury Fire Dept.

Tewksbury, Mass.

75 SAINT MARK'S ROAD DORCHESTER, MASS. 02124

Telephone: 617-288-2389

Fire Investigation — Fire Protection — Evaluations — Inspections — Fire Prevention Operations — serving Municipalities, Industry, and Domiciliary Installations.

March 17,1972

Chief William Chandler Fire Department Headquarters Tewksbury Fire Department, Tewksbury, Mass.

Dear Chief:

Enclosed is a copy of the report of the Lowell Gas Company fire and explosion which I sent to the Office of Fire Research and Safety of the National Bureau of Standards.

I regret that I did not get to see you during the investigation, but I was given a running commentary on your condition each day, both by Chief Hilton and also your most able Captain Cuneo.

To say that I am grateful for the courtesies extended to me during this investigation would be the understatement of the year. Everybody was tremendous and did everything in their power to contribute to the success of the said investigation.

Hoping to catch up with you when you are again well enough to attend the Fire Chiefs' meetings, I remain.

Gratefully yours,

John E. Clougherty.

Fire Investigation — Fire Protection — Evaluations — Inspections — Fire Prevention Operations — serving Municipalities, Industry, and Domiciliary Installations.

Subject: Fire And Explosion At Lowell Gas Gompany Plant - Chapman Road, Tewksbury,
Massachusetts at 10.39 P.M., February 9,1972

To: Dr. John A. Rockett, Office of Fire Research and Safety

This plant, having a frontage of approximately four hundred and sixty (460) feet and a depth of three hundred and eighty (380) feet, is used as a distributing plant for Liquefied Natural Gas, hereafter referred to as LNG, to surrounding communities. This plant has a direct feed of LNG from Texas through a 12 and 6 inch pipeline. An auxiliary tank having a capacity of 1, 175,000 liquid gallons of LNG (photo 1.) is located on the premises and draw off is made from the pipeline to this tank in warm weather. This auxiliary supply is then used during peak periods in the winter months. The LNG in this pipe line and the 1,175,000 gallon liquid capacity tank is owned and controlled by Aerojet Company, a subsidiary of General Tire Company.

This gas through refrigeration and compression is stored as a liquid and kept at a temperature of - 260 degrees Fahrenheit. Upon escape as a liquid it boils instantly (boiling point - 259F.) evolving vapors, usually methane, which ordinarily is contained in a dike or mounded earth around the tank. Upon release from containment to the atmosphere, this product will vaporize and release gas which at ambient temperature will have about six hundred (600) times the volume of the liquid. While this LNG was not directly involved in the fire and explosion, it did create a severe exposure hazard at all times until the fire was brought under control and extinguished.

The second auxiliary supply was from two sixty thousand (60,000) tanks of Liquefied Petroleum Gas, hereafter referred to as LPG, which can and is directly fed into the LNG pipeline during peak load periods. This is accomplished by lowering the BTU content of the LPG from 2500 to 1300 under which conditions in readily mixes with the LNG.

This gas consists of propane or butane or a mixture of the two which liquefies under moderate pressures and upon release of this pressure they are readily converted into the gaseous phase. Advantage of this characteristic is taken by industry. The escape of liquid into the atmosphere, as was the case at this fire and explosion, normally results in rapid instantaneous vaporization, as the gases are above their boiling point (Propane - 44F.). The volume of gas being evolved being 200 to 300 times the volume of the escaping liquid. While in this state these gases are heavier than air (1.5) and have a narrow range of flammability (lower limit 2%).

The properties of the Liquefied Petroleum Gas(LPG) was a most important factor in the progress of this fire and eventual explosion.

Origin and Spread of Fire

Somewhere in the neighborhood of 9.45 P.M. on February 9th, current year, the driver of a tank truck owned by the Lowell Gas Company and hauling LPG from Lowell to their Tewksbury plant started to unload said tank truck at the Tewksbury plant. This tank contained 8,000 gallons of LPG which requires a period of 1 1/2 to 2 hours to empty. This unloading was through a piping system to two 60,000 gallon LPG tanks. (See diagram for layout of piping system.) This tank truck is shown as Truck #1 on diagram and is referred to as such hereafter.

At this time the driver of another tank truck (shown on diagram as Truck #2) left the Tewksbury plant and proceeded to Lowell, picked up another 8,000 gallon lead of LPG. He then returned to the Tewksbury plant, entered the gate and attempted to back into position at another connection on the piping system. This connection was located directly in front of the two 60,000 gallon tanks containing LPG. In doing so his truck broke or sheared off the connection to the piping allowing LPG to escape to the atmosphere. This driver (later identified as Arthur Sutcliff-deceased) then tried to close all valves in the immediate area of the broken connection and also the line leading to the two 60,000 gallon LPG containers. He also shouted to a Mr.Barchard, an attendant on the premises, who climbed over a ladder to the top of the two 60,000 gallon containers and tried to close valves at this point. (Photo #2.)

It is evident that the leaking LPG coming out of the broken connection under a pressure of approximately 25 pounds per square inch, and being heavier than air, drifted to the indirect fired LPG vaporizer used to change liquid to vapor at 120 degrees F., which was located approximately 70 feet distance downwind. It is believed that either the pilot flame or the flame of the vaporizer, being open to the atmosphere, ignited the LPG vapors and fire flashing back caught Arthur Sutcliff as he was at ground level. Mr. Barchard was driven back from the front to the rear of the tops of the two 60,000 gallon LPG tanks, from which he eventually escaped out of the area involved in fire. Arthur Sutcliff was severely burned and died later with 85% of burns over his body, at the Massachusetts General Hospital (Shriner's Burn Clinic).

At approximately 10.32 P.M. a Leonard DeVanna, Assistant Supervisor of the night shift and a daytime student at Lowell Technical School left the control room of the LNG plant, via the front door, to work on his car. His explanation was that the plant had shut down at 9.00 P.M. and that he had nothing to do. He stated that he immediately smelled propane gas, but did not think too much about it. After a period of time, which he believes to be about seven(7) minutes, he looked up and seen a vapor cloud approximately three (3) feet high which he immediately recognized as LPG. He also saw a small fire in the area of truck #1. At no time did he see truck #2 as it was hidden from his vision due to the position he was in at the time.

He immediately entered the LNG control room and called the Tewksbury Fire Department by telephone. This alarm is recorded as having been received at fire headquarters at 10.39 P.M. Within a minute, he claims an engine company and an ambulance were at the scene and he then went to the assistance of Arthur Sutcliff who was running out the gate with his clothing aftire. After assisting in placing the victim in the ambulance, he was ordered out of the fire area by the police, for his own safety.

On arrival of the first alarm apparatus, which consisted of two engine companies from Tewksbury it wasfound that fire was showing under truck #2 and that the relief valve on this truck had operated and that fire was spouting fifty (50) feet in the air from this relief. Due to the large number of calls received by the Billerica Fire Department, they immediately dispatched one engine and one ladder truck to this location.

A hydrant in the plant yard was unavailable for use as it was located approximately five (5) feet from the compressor house of the LNC plant and the heat, smoke and fire conditions at this time precluded its use. As a result, a hydrant six hundred (600) feet away and outside of the plant area was the first hydrant connected to. This hydrant was on a six (6) inch main. The second arriving Tewksbury engine company had to take a hydrant twelve hundred (1200) feet away.

Due to the necessity of running an exceptionally long line to the rear of the two

sixty thousand (60,000) LPG tanks had to set up a relay operation of two pumpers to get adequate water. This line was run to a point outside of the chain link fence at the rear of the LPG tanks and was supplied by an eight (8) inch main.

Owing to the large volume of fire as it progressed and the intense heat conditions present, deck guns were chosen as the initial operation in order to cool down the large LPG containers and to try to place water onto truck #2 which were enveloped in fire.

The first deck gun was set up inside the entrance to the property through the chain link fence(see personnel diagram) and operated between the vaporizer house and the LPG tanks as well as on Truck #2 with their stream. The purpose being to cool down the LPG tanks as well as truck #2, the latter being involved in fire with the relief valve operating and afire. The second deck gun was set up outside the chain link fence behind the LPG tanks (personnel diagram), but did not have water at the time of the explosion. A hand line was broughtto the right of the property by the Billerica Fire Department, but did not proceed very far due to the intense heat and fire at this location. This line was ran and operated try to cool down truck #1 involved in fire. While some water was being placed on the two sixty thousand (60,000) LPG tanks, due to the intolerable conditions it is believed very little was was being placed on either truck #2 or truck #1 or the area directly under them to prevent heat build-up.

A second alarm was sounded for this fire at 10.45 P.M., and a third alarm at 10.56 P.M. This constituted a general alarm which summoned mutual aid companies. Chief of Department, William Chandler of the Tewksbury Fire Department on his arrival after the second alarm found a vent or relief valve spouting flame 60 feet in the air from truck #2 and a fire underneath this truck of severe intensity. He could see that the fire departments efforts at that time weren't getting anywhere and told some of his fire fighters to move back to a small hilly area, just in case the thing blew. When he turned his back to talk to his Deputy Fire Chief, there was a tremendous explosion and he and the other fire fighters were hurled into the air. Severely burned and injured he ordered additional help immediately and was removed

from the scene to the hospital, turning command of the fire fighting forces over to Chief Henry Hilton of the Andover Fire Department.

This explosion took place at 11.04 P.M. when the tank on truck #2 exploded due to rupture from internal pressure. A fireball resulted from this explosion which was seen by airlines pilots at a distance of fifty miles away. The lateral travelof fire encompassed an area of approximately fivehundred (500) feet in all directions and a vertical height of about one thousand feet was reached by this fire ball. Duration of blast was approximately three (3) seconds, followed by raining droplets of LPG which ignited fire apparatus and other combustibles not already after from the flash of the explosion. Fire fighters involved in fighting the original fire were involved in a mass of flame and hurled forty(40) and more feet into the air by the blast.

Part of the tank section of truck #1 flew three hundred (300) feet toward and through the chain link fence at the entrance to the property (personnel diagram) and came to rest after shearing off a pine tree. The cab section of this truck was hurled seventy-five (75) feet in the same direction, demolishing the vaporizer house. (see diagram). All brush within this area was seared by fire. A cinder block building in the opposite direction (see diagram), identified as new compressor building was practically demolished from the blast and two Tewksbury Fire Department pumpers and an unidentified sedan were also destroyed by the explosion and following fire.

An immediate call was placed for all available equipment to respond to the area, including ambulances. Hospitals were alerted to take care of the burned and injured fire fighters as well as civilians.

A severe fire ensued after the explosion aid by LPG under pressure feeding the fire from the mangled piping leading from the tops or vapor space of the two sixty thousand (60,000) LPG tanks, until suchtime as these valves on top of these tanks could be reached and closed by a Lowell Gas Company employee.

The fire, following the explosion, was fought for a period of two hours before it was declared definitely under control. In the intermin some seven hundred (700) persons living within a half a mile of the plant were evacuated from their homes as fire officials feared one or more major storage tanks would explode.

Upon extinguishment of the fire it was found that the tank on truck #1 which made the original connection was intact, but the cab or tractor as well as the tires were destroyed. It was also evident that when the hoses burned off the filling connections at truck #1 the excess flow valve contained therein operated, shutting off most of the gas in that area feeding the fire. It is probable that the initial break in the piping system was insufficient to operate this excess flow valve.

An interview was arranged with representatives of the Lowell Gas Company and Chief Henry Hilton, acting in command of the Tewksbury Fire Department and the following employees were interrogated:

George Doulames, Executive Vice President

Ronald E. Girard, Management

Eugene L. Robinson, Management

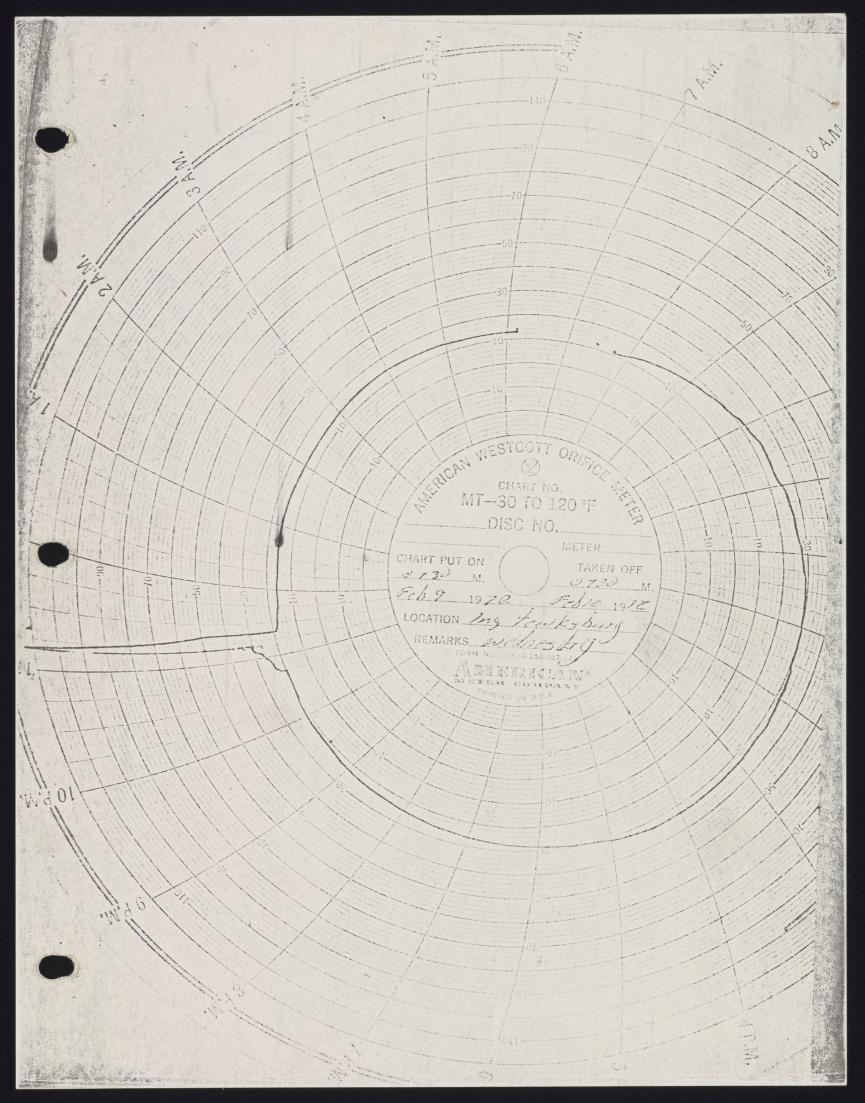
Daniel B. Murphy, Safety and Security

All of the above were present during the fire and assisted with the investigation. As a result of this meeting and two public hearings on February 15th and 28th, the following facts were established:

- (a) That there was no barrier protecting the piping connection which truck #2 backed into.
- (b) That the discharging of liquid from trucks, including the making of hose connections, was not set up as a standard operating procedure. It was established that sometimes the drivers connected the hoses and at other times the attendant; nor was an attendant constantly assigned during the discharge of liquid from tank trucks to the LPG storage tanks.
- (c) That when the initial piping connection was broken off from the piping system a backflow or check valve in the form of a weighted clapper prevented any liquid from flowing out of the two 60,000 gallon tanks to the atmosphere (photo #2)
- (d) That the explosion broke two pipes behind this check valve, between the check valve and tanks, allowing LPG vapor to escape from the vapor space at the top of these tanks, which increased the intensity of fire until they were shut off by an employee of the Lowell Gas Company, by the operation of valves at the tops of the LPG tanks.
- (e) That tank trucks took a period of 1 1/2 to 2 hours to unload in most instances.
- (f) That if the driver of truck #2 had immediately removed his vehicle from the area at the time of the accident, the explosion of same would not have happened.

- (g) That all of the product discharged into the atmosphere, prior to the explosion, came from truck #1, and that if the pumping equipment had been shut down immediately this disaster would not have happened.
- (h) That both auxiliary supplies, the LNG and LPG tanks, could be used simultaneously as a feed to the LNG pipeline.
-)i) That the tank on truck #1, which made the original connection was intact after the fire and explosion, although the cab or tractor was well burned, as well as the tires.
- (j) That in all probability the original break was not a shearing off of the connection completely. If this had happened it is believed that the excess flow valve on truck #1 would have operated immediately to shut off all gas flow to the atmosphere.
- (k) It was approximated that in the neighborhood of 1,500 gallons of LPG was discharged from the piping system during the entire incident.
- (1) That at the time of the rupture and explosion truck #2 was filled to 85% of its capacity of 8,000 gallons with liquid and that truck #1 was filled to 15% of its capacity of 8,000 gallons
- (m) That the original plans of this property as submitted to the Department of Public Safety of the Commonwealth of Massachusetts for the purpose of obtaining a license, did not show a piping system to connections for truck #1. The original plans called for only one connection for tank trucks and that directly in front of the two 60,000 gallon LPG tanks.
- (n) That an outdoor thermometer, in the shape of a birdhouse, was located 130 feet from the two 60,000 gallon LPG tanks and near the control house. The first temperature rise on this dial, readings of which were recorded in the LNG control house, was at 10.45 P.M., increasing very gradually until the time of explosion when needle went off dial and temperatures above 120 degrees F. were recorded.

 This was at approximately 11.04 P.M. In 18 minutes or at 11.22 P.M. the needle on the dial was back to normal. (see copy of recording)



- (o) That according to a recording dial, the plant was completely shut down at 9.00 P.M. before the fire and was not restored to operation at any time during the night.
- (p) That all debris and evidence of the explosion was cleared and removed from the site starting at 5 A.M. the same day, before the arrival of the State Fire Marshal's investigating force, on decision of Lowell Gas Company officials.
- (q) That Lieutenant Leo Walsh of the State Fire Marshal's office is conducting an investigation as to the cause and circumstances of this fire and explosion, with consultant engineering assistance from Arthur D. Little Co. of Cambridge, Mass.
- (r) That the last date of an inspection of this plant by an outside agency is unknown.
- (s) That employees received little or no instructions as to how to conduct themselves in the event of an incident involving fire or explosion.
- (t) That while there were 14 30 pound dry powder fire extinguishers hung at various points throughout the plant and yard, as well as 6,000 pounds of dry pq extinguishing medium at a central location remote from the main plant; it is universally agreed that dry powder is not the proper extinguishing agent for a gas or vapor fire. In fact no extinguishing agent is suitable for this purpose. The best manner to handle any situation involving these materials is to shut off the flow of gas and if this cannot be accomplished immediately to cool any containers or pipe lines in the vicinity with water until such time as it is feasible to reach and shut off the valves. A fixed system of water spray nozzles for protection of larger tanks, adequately supplied with water, will go a long way towards reducing the hazard of rupture of such containers under fire conditions.

Protective Clothing - Casualties

It is apparent that in most instances the fire fighters either had a momentary warning, seen the explosion approaching, or their sixth sense felt its happening as most of the evidence of burning of fire coats and night-hitches were on the back and the fire coat outer shell was destroyed in practically each case, while the front of the fire coats were intact. Human nature being what it is, while they turned their backs to the explosion, it is believed that they were curious as to what was happening and did not completely turn their faces away, with the result that many fire fighters received severe facial burns.

The fire fighters involved in the incident were equipped with and wearing a Hypolon fire coat and night-hitch, so called, as made by the Globe Manufacturing Company, Pittsfield, New Hampshire. The exceptions were the Chief of Department, William Chandler and J. McAllister (volunteer-deceased) who were wearing ordinary suit coats. The night hitch consisting of low rubber boots and rubber pants with a cloth liner.

Fire hats or helmets were of the Cairns leather type, without chin straps. In each case hats were knocked off the heads of the fire fighters by the concussion caused by the explosion and in each instance were discolored with paint peeled, but no distortion.

Captain Millett, being of the old school, was just wearing rubber boots at this incident with no leggings. As a result he received severe burns to his buttocks which possibly would have been avoided if he were properly equipped.

Pictures, an injury report of each member of the Tewksbury Fire Department, and the protective clothing worn in practically each instance have been forwarded to the Bureau of Standards for perusal, research and tests and are included in this report.

Persons not members of the Tewksbury Fire Department included as casualties are listed as follows:

Captain Schult, Billerica Fire Department - 1st, 2nd and 3rd degree burns on all exposed parts of the body and still confined to hospital as of March 1st.

Fire fighter Joyce, Billerica Fire Department- Shattered knee from flying object during explosion; 1st, 2nd and 3rd degree burns on exposed parts of body. Still confined to hospital as of March 1st.

Fire fighter McInnis, Billerica Fire Department- 1st,2nd and 3rd degree burns on face and hands.

Fire fighter McKenna, Billerica Fire Department-1st, 2nd and 3rd degree burns of face and hands.

Arthur Sutcliff, Lowell Gas Company-Deceased-Burns over 85% of his body.

Peter Barchard, Lowell Gas Company- 1st and 2nd degree burns on hands, face

and legs.



Fire at storage tanks after flow from T-25 stopped (about 11:40 P.M.). (Photo by R. Carter).

At about 10:30 P.M., Truck T-24 entered the yard, turned and began to back into position at Unloading Terminal No. 1. Unlike T-25, T-24 had its connections located under the center of the cargo tank, necessitating spotting with the rear of the truck beyond the unloading terminal.

At about 10:35 P.M., T-24 struck the unloading terminal and broke it. The lriver, together with the operator in the Propane Plant Control Room who heard the impact, began closing valves they hoped would stop the leak.

The first valves closed were those near the ground level in the manifold, and on the storage tanks (the latter were not connected with the manifold). While there reportedly was one valve at this point controlling flow from T-25, it either wasn't closed or else the break(s) was such that operation of this valve had no effect.

They then climbed the ladder (located at the manifold end of each tank) and began closing valves at the top connections. At this time, they reportedly noticed that the white cloud (always produced when liquid propane escapes) visible in the lighted unloading area was nearing the propane vaporizers. The driver of T-24 apparently scrambled down the ladder to shut down the vaporizer pilots and burners. As he reached the foot of the ladder, the "cloud" was ignited at one of the vaporizers and flashed back to the leak very close to im at about 10:37 P.M. He succumbed rom burns early the next morning.

The other operator (still on top of a tank) although burned below the waist in the flash, was able to run over the top

of the tanks and slide to the ground.

Meanwhile, an LNG plant operator in its Control Room had heard the commotion and went outside to investigate. He smelled the escaping propane and saw the gas ignite. He returned to the Control Room and telephoned the Tewksbury Fire Department which received this alarm at 10:39 P.M.

At this time, liquid propane from Truck T-25 was burning at the break at a rate of probably nearly 100 gpm in the confined area between the ends of the storage tanks and the cargo tank of Truck T-24 and contacting the cargo tank extensively on the exposed side and rear head. Fires and combustible cab materials on both trucks were ignited almost immediately.

An ambulance and pumper (Engine 5) were dispatched on first alarm. Engine 5 had its normal company manning of a captain and four fire fighters. After a delay of a few seconds for the ambulance to clear with the badly burned gas company employee, Engine 5 parked at the plant roadway alongside the Propane-Air Mix Building at 10:42 P.M. The captain immediately radioed a second alarm and asked that hose lines be laid to supply Engine 5.

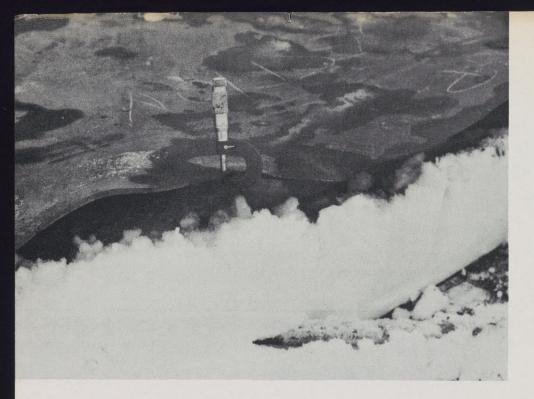
A deluge gun was set up just inside the gateway and by the time two 2½-inch lines were hooked up to the gun, Engine 4 had completed an 800 ft. lay of two ½-inch supply lines to Engine 5 from the town hydrant on Chapman Road near the plant entrance driveway. The prompt action of Engine 4 was possible because there were off-duty men in the station who had not waited for the second alarm.

At 10:44 p.m., this deluge gun was in operation, playing water on the ends of the storage tanks and T-24's cargo tank in the fire area at a rate of 400 to 500 gpm. The stream was being directed from side to side to alternately cover the storage tank ends and the cargo tank although little movement was necessary to accomplish this.

The men on Engine 4 took its deluge gun to a position east of the storage tanks and waited for lines to be run in by Engines 2 and 6 from the next closest hydrant about 1,000 feet from the gun. Problems with this hydrant delayed this supply.

At about 10:46 p.m., one of the two relief valves on T-24 operated sending a burning torch about 60 feet into the air. At this time, the men working the operating deluge gun were directed to leave the gun fixed in position and take cover behind the corner of the Propane-Air Mix Building — coming out periodically to reposition, if necessary. The relief valve remained open steadily. The second relief valve on this cargo tank did not operate nor did the relief valves on the storage tanks.

About 10:48 P.M., a stream from a 2½-inch hand line was in action from Engine 1 of the Billerica Fire Department from a point in the blacktop drive and parking area playing on T-25 and attempting to reach T-24. However, the initial hose lay was too short to reach T-24 effectively. The Billerica Fire Department had received an alarm that a fire was occurring in a trailer park southwest of the plant. While responding, they received word, by radio, as to the true location of the fire, swung



(Left) Close-up of thinned portion of the shell of the cargo tank on T-24 due to weakening from flame contact. The metal thickness varies from 3%-inch to the left of the micrometer to less than ½6-inch near the right of the picture. (Photo by Lowell Gas Company).

around south, east and north of the plant and entered from Chapman Road through a path in the woods.

At 10:54 P.M., plus a few seconds, the T.F.D. Chief (near the second deluge gun) was alerted by a change in the fire (which he cannot recall the nature of) and ordered the men in that area to take cover (water had not yet been received).

At 10:55 p.m., the cargo tank on T-24 ruptured violently and came apart in two sections. Of the 6,500 gallons of propane in it at this time (about 2,000 gallons having been discharged as vapor through the relief valve), about 3,600 gallons flash-vaporized, mixed with air and was ignited by the fire — creating a large ball of fire. The remaining cold propane was atomized and was flung in all directions in burning and unburned form.

The rear portion flattened out and its contents spewed laterally in a nearly 360 degree arc. As a result, the men at the second deluge gun about 150 feet away and at the hand line (BFD) about 120 feet away, were knocked around and burned. Ironically, at this time water reached the gun.

The front portion remained in cylindrical form and, still attached to the tractor, was propelled forward jack-knifing the rig. The combination moved along the ground and impacted a vaporizer 30 feet away. At this point, a fifth wheel pin sheared, separating the tractor and front portion of the cargo tank. The tank portion became airborne and sailed through the air into the wooded area. After shearing off three 8-inch diameter trees several feet

off the ground, it came to rest about 300 feet from its original position.

The tank, spewing its burning contents, passed almost directly over the men at the operating deluge gun(who were at the gun at this time). They were tossed about and burned.

At 10:56 P.M., a third alarm was called.

At this time, other piping in the area was broken, resulting in propane and natural gas fires at the propane process pump area alongside the northernmost storage tank, in the propane vaporizer area, the insulation in wall and roof panels in Propane Plant structures, the roof of the LNG Plant Boil-off Compressor Building and the redwood portions of the Cooling Tower. Propane from T-25 continued to feed the fire.

Burning propane vapor and liquid ignited hose, tires and other combustibles on Engines 4 and 5 and on the two nearer empty (of liquid) propane transports parked in the Plant Roadway. Grass and fir tree needles and small branches were ignited for a radius of about 400 feet from the original position of T-24.

The shock and pressure wave and subsequent vacuum phase popped wall and roof panels in the Propane-Air Mixing Building, cracked concrete block walls at the mortar joints and blew in and out windows and doors in the Boiloff Compressor Building, and LNG Plant Control Room. Burning liquid propane entered these openings and started small fires in Class A combustibles inside these buildings.

Between 11:00 P.M. and 11:15 P.M., as help arrived, cooling water was re-

established on the storage tanks, propane vaporizer area and T-25 and the numerous structure and grass fires extinguished. Fifteen fire companies from fourteen municipalities and an Air Force Base ultimately handled the fire or filled in.

At about 11:30 P.M., the excess-flow check valve in the liquid withdrawal connection on T-25's cargo tank close when the rubber unloading hose burned off — thus shutting off the major fuel source. Shortly after this, gas company employees closed valves at the top of the storage tanks and controlling broken natural gas lines. By midnight, the situation was under control although another couple of hours was needed to mop up.

Discussion

Incidents of this sort, while not frequent, occur too often and analysis of the causes and effects invariably reveal preventative and protective deficiencies which offer valuable lessons.

1. Leak Prevention and Control

The propane portion of this facility is covered by NFPA No. 59, "Storage and Handling of Liquefied Petroleum Gases at Utility Gas Plants."

The immediate cause of the fire was the breaking of Unloading Terminal No. 1 by Truck T-24 maneuvering into position to unload. Paragraph 434 of NFPA No. 59 has recommended, since 1954, that suc terminals be located at least 5 feet from a driveway and protected against physical damage.

It is apparent that the driver and plant



Front portion of T-25 before being moved. The cab was of aluminum and plastic construction. (Photo by Lowell Gas Company).

operator were not familiar enough with the unloading manifold valving to select (under emergency conditions) the valve or valves which could effect flow through the break. Considerable time was wasted manipulating valves which were not factors. Even if he had the needed familiarity, it is doubtful whether the operator in the Propane Plant Control Room would have been in a position to detect and initiate shutdown promptly enough to avoid ignition with the existing manual shutdown arrangement.

There were no automatic or remote means of closing valves in the liquid piping system as recommended by Paragraph 435 of NFPA No. 59 since 1968. The only automatic device present which could have shut off the flow was the excess-flow check valve in T-26's cargo tank. However, this was a 3-inch valve rated to close at a 250 gpm flow rate and the actual flow through the break near the end of the 162 ft. equivalent length of 2 inch manifold piping never approached this rate.

2. The Boiling — Liquid — Expanding — Vapor Explosion

This accident once again demonstrates the hazard of the Boiling-Liquid-Expanding-Vapor Explosion (BLEVE).

Propane in a container at any temperature above its normal boiling point of about minus 45 degrees F., contains sensible heat which is immediately available for vaporization of the liquid if the container pressure is reduced to atmospheric pressure. At 70 degrees F., this heat is sufficient to practically instantly vaporize about 36 per cent of the liquid in the container. At 130 degrees F. (the approximate temperature of the liquid corresponding to 250 psi vapor pressure — the initial discharge pressure of a relief valve on a propane storage tank or transport cargo tank), this heat is sufficient to practically instantly vaporize about 55 per cent of the liquid in the container.

The remaining unvaporized propane is refrigerated by the "self-extraction" of heat when the pressure is reduced to atmospheric and cooled to near its normal boiling point.

Liquid vaporization is accompanied by a liquid-to-vapor expansion of more than 270 to 1 — that is, one gallon of liquid will expand to about 270 gallons (36 cubic feet) of propane vapor. It is this expansion process which provides the energy for crack propagation in the container structure, propulsion of pieces of the container, rapid mixing of the vapor and air resulting in the characteristic fire ball upon ignition by the fire which caused the BLEVE and atomization of the remaining cold propane liquid. Many of the atomized droplets burn as they fly through the air. However, it is not uncommon for the cold liquid to be propelled from the fire zone too fast for ignition to occur and fall to earth still in liquid form. In this case, dissolved spots in asphalt paving were noted up to 1/2 mile from the BLEVE site. In other BLEVE's, firemen have been cooled by cold liquid passage in their vicinity.

Reduction of container internal pressure to atmospheric level results from structural failure of the container. This failure is most often due to weakening of the container metal from flame contact as in the present instance. (This is why hose streams should be directed on this point of flame contact, if possible—Ed.) However, it will happen if the container is punctured or fails for any other reason.

As noted in Figure 2, the ultimate strength of steel may actually increase as it is heated to about 400 degrees F. Above this temperature steel loses strength rapidly and its yield strength steadily drops with temperature rise. Figure 2 is based upon a low carbon steel and the curves will vary quantitatively with other steels, but the loss of strength with increasing tempera-

ture is valid for all metals and the critical temperatures are well below those attainable in a fire.

Figure 2 also shows why entirely satisfactory performance of a spring loaded relief valve to design parameters cannot prevent a BLEVE. By its nature, such a valve cannot reduce the pressure to atmospheric but only to a point somewhat below its start-to-discharge pressure. Therefore, the propane liquid will always be at a temperature above its normal boiling point, there will be pressure inside the container and the container structure will be stressed in tension. This stress area is shown crosshatched in Figure 2. Again, while this area will vary for different steels or pressure vessel-relief valve design characteristics, it is evident that if the metal is heated above this range (quite possible in the event of direct flame contact), the metal will not withstand the stress and the container will

It is extremely difficult to heat the container metal sufficiently where it is in contact with liquid propane because the liquid conducts the heat away from the metal and acts as a heat sink. For example, when the relief valve is discharging, the propane liquid cannot be above about 120 to 140 degrees F. As a result, the metal temperature is well within safe limits. This situation does not exist for the metal in the container's vapor space as propane vapor is relatively non-heat conductive and the vapor has little heat capacity.

In most BLEVE's involving propane containers, the failure originates in the metal of the vapor space and is characterized by the metal stretching and thinning out, the appearance of a longitudinal tear which progressively gets larger until a critical length is reached. At this point, the failure becomes brittle in nature and propagates sonically through the metal in both



Rear portion of T-24's cargo tank. This has been moved from its original position. (Photos by Lowell Gas Company).



Front portion of T-24's cargo tank after being moved from its position in the woods.

longitudinal and circumferential directions. As a result, the container often comes apart in two or more pieces.

In this instance, the tear originated at a point just above the liquid level on the fire-exposed side of T-24's Quenched and Tempered steel cargo tank about 5 feet forward of the rear head-to-shell joint and at about the 2 o'clock position looking forward from the rear end of the tank. At this time, the liquid level in the tank had been lowered due to operation of the relief valve. The ductile longitudinal tear progressed forward and rearward for about one foot in each direction resulting in a two foot long section ranging gradually in thickness from about 3/8-inch (the nominal shell thickness) to the thickness of a dull axe blade. (See Figure 3). This gradual tear gave some warning of the impending BLEVE due to an increase in fire size as the propane vapor issued from the crack and was probably what alerted the Tewksbury Fire Chief. A fireman took the three photos on page 18 which portray the development of this failure.

The rapid brittle fracture progressed rearward to the head-to-shell joint and forward for about eight feet where it changed to a circumferential fracture. As a result, the rear section (about fourteen feet) of the cargo tank separated from the front portion, opened up, and flattened out on the pavement below its original position. This failure was somewhat unusual as the fractures usually convert to circumferential fractures sooner and result in two, more or less cylindrical sections. The expanding propane vapor and propelled cold liquid was sent in all directions, but was counteracted somewhat forward near the ground by gas and liquid released rearward from the still-cylindrical front portion of the cargo tank.

The front portion of the cargo tank did not fail longitudinally and thus assumed

characteristics similar to a rocket with effects previously described.

Given currently acceptable propane storage tank and cargo tank fabrication and overpressure protection criteria, a BLEVE can be prevented only by keeping vulnerable areas of the container structure cool with water. If a film of water exists on the container surface, the metal temperature cannot exceed 212 degrees F.—a safe temperature.

If adequate water cooling is not achieved, experience with LP-Gas BLEVE's shows that container failure is likely ten to thirty minutes after flame contact. In this instance it was eighteen minutes, as revealed by the temperature recorder monitoring yard temperature.

At Tewksbury, water could be applied only through hose streams manned by the public fire departments. In spite of exceptionally fast response and application of water within seven minutes of the start of the fire and two minutes before the relief valve operated, the quantity of water supplied was not adequate and/or directed to the critical area of flame contact. There was simply too much fire and critical area to cover with one stream between the cargo tank and the ends of the two storage tanks.

It is possible that additional water from the second deluge gun and the Billerica Fire Department hand lines may have done the job. However, with the additional draft on the public water supply the effective reach of the deluge guns would have been diminished and, in any event, the Billerica lines would have had to be lengthened (in process when the BLEVE occurred).

It is evident that securing of an adequate water supply was a problem. Had the plant had a more extensive yard main system and several well-placed hydrants (instead of the single hydrant located too close to the fire area for use), it is probable that several streams would have been in service. How-

ever, the fortuitous extra manning in this instance cannot be counted on.

When fire exposes numbers of containers, hose stream application problems are increased — not only because the "targets" are more in number, but because visibility is reduced from interference between containers. Where, in addition, the positioning of orientation of the containers is in several directions, it becomes difficult for firemen to position themselves safely out-of-line with the ends of the containers. In this case, all three groups of men were, more or less, in line with at least one container.

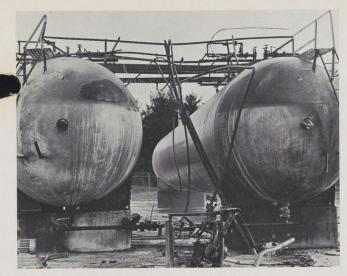
Effective application of water by hose streams in situations like this requires prefire planning. There had been none in this case nor had the fire department had any training in handling LP-Gas fires.* Such planning may have revealed that the fire was not handleable by fire departments and resulted in provision of in-built fire protection.

While fire departments have prevented many LP-Gas BLEVE's, in other situations circumstances have been far more favorable than they were in this Tewksbury incident. Both the gas company and the fire department must share the failure to recognize the unfavorable circumstances that existed.

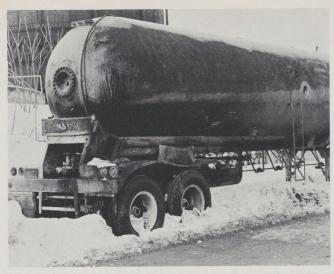
3. T-24 Fire Exposure

Calculations of the nine-minute period between the time the fire started and the relief valve operated, indicate a heat input rate of about 15,000,000 Btu/hr. This is equivalent to a rate of about 17,500 Btu/hr./sq./ft. of total cargo tank surface area or 19,400 Btu/hr./sq./ft. based on a liquid

* Of approximately a dozen fire fighters and officers queried, only one officer had seen the NFPA film, *Handling LP-Gas Emergencies*— about 600 prints have been distributed since 1968—and this officer was not present until after the BLEVE occurred



Fire exposed ends of the two 60,000 gallon propane storage tanks. The propane liquid level is apparent. Note the severely heated portions of the ends above the liquid level. Deluge gun stream came from left.



Truck T-25 after the fire (new tires). When the rubber unloading hose burned off, the excess flow check valve (not visible) closed. The hose was probably ignited by burning tires. (*Photos by Lowell Gas Company.*)

propane-wetted area of 90 percent of the total area.

This is in close agreement with published fire test data of around 20,000 Btu/hr./sq./ft. (based on wetted area) and indicates the minimal cooling achieved by water application for the two-minute period prior to operation of the relief valve.

T-24 was equipped with two 3-inch relief valves. Because of damage to these (the ameplate data was on aluminum plates which were destroyed in the fire) and lack of recorded data, the rating of these could not be determined. However, as several nearly identical trucks belonging to the same company were fitted with the same 3-inch relief valves, it is likely that T-24 was similarly equipped.

If so, each relief valve was rated at 9660 cfm of air. This valve is estimated to be able to handle about 10,000,000 Btu/hr. or about 13,000 Btu/hr./sq./ft. of wetted area without greatly exceeding its start-to-discharge pressure setting (if it had done so, the second relief valve would have operated assuming it was in operating condition). As the relief valve remained open, this indicates the limited cooling achieved.

4. Leak Flow Rate

Based upon the amount of propane in T-25 before and after the fire, the average leak rate was about 95 gpm. As this is consistent with the heat input rate, exposure, and combustion efficiency of a free burning liquid propane fire, it would indicate that the original break was complete and was not enlarged by BLEVE effects.

5. Man Effects

The driver of T-24, caught in a confined ea near the leak when ignition occurred, was burned over 85 percent of his body. His attire is unknown, but he wasn't wearing special protective clothing. He died about ten hours later.

The Propane Plant operator, standing on top of one of the storage tanks when ignition occurred, was burned below the waist and is recovering.

At the time of the BLEVE, nineteen firemen were reportedly in the immediate area, three on the operating deluge gun, seven setting up or near the other deluge gun, two at the Billerica hand line, two in the driveway northeast of the propane vaporizers and the remainder scattered about.

They were attired in outfits ranging from full conventional protective clothing (rubberized coats, pants, boots, helmets and gloves) to street clothes.

A Billerica firemen suffered a broken leg when struck by something propelled by the BLEVE and the Tewksbury Deputy Chief suffered a fractured skull when he dove over the 20 foot bank east of the storage tanks and landed head-first on a jagged rock after losing his helmet.

The remainder of the injuries were largely burns from radiation and from contact with burning drops of liquid propane. The latter were local and more serious than the former in the case of survivors.

Protective clothing demonstrated its value dramatically as the extent and severity of the burns was generally inversely proportional to the extent of the protective clothing worn. For example, several men wearing boots and coats but no pants suffered painful and somewhat embarassing burns. Helmets which fell off are reflected in burned scalps and faces.

The clothing itself was damaged extensively. Generally, the outer shell of jackets was shredded from heat, but the inner light-colored lining was intact. Some helmets and boots were melted.

In all, one fireman died several days later as the result of burns and seventeen were injured — about four or five seriously enough to remain hospitalized two weeks after the fire.

6. Damage to Property

Except for transport vehicles, plant damage was relatively minor and temporary repairs were made in a day or two. Operation of the LNG plant was not affected.

The two storage tanks were damaged by heat in the exposed heads and their suitability for continued use must wait requalification testing (upper left photo).

Overall plant damage is estimated at \$150,000.

Tewksbury Engine 5 was seriously damaged and must be returned to the factory for overhaul. Damage is estimated at \$20,000 and it will be out of service for about six months.

Engine 4 was not seriously damaged and has been returned to service.

Overall fire department damage is estimated at \$70,000 exclusive of substantial medical costs.

7. Use of Extinguishing Equipment

There was extensive dry chemical extinguishing equipment located in the plant ranging from hand extinguishers to large wheeled units. The fire was much too large for the hand extinguishers. It is also doubtful that it could have been handled by the large units and, in any event, a continuing leak of nearly 100 gpm of liquid propane would have posed an explosion problem if it had been extinguished.

8. The Tewksbury Fire Department

The Tewksbury Fire Department is comprised of thirty-nine paid men and twelve call men. The normal shift complement at the time of the fire consisted of ten men in two stations. However, at the time of the fire, three or four extra men were in the Headquarters Station (nearer the fire) attending a meeting.

Equipment consists of four pumpers, with pumping capacities ranging from 500 to 1,000 gpm. There were no ladder trucks.



Fire Service Division Report

By Martin E. Grimes, Director Fire Service Division, NFPA.

New Public Fire Protection Standards Committee

WHAT are reasonable levels of public fire protection?

How many men constitute an effective pumper crew under the varying conditions that confront fire departments?

What is the optimum spacing for fire station locations?

Are distance and time of response the only factors?

How can the Fire Chief justify his budget requests?

How can city management determine if it is effectively serving the taxpayer?

These and many similar questions are being asked increasingly and so far no one has provided all the answers. Probably, because of the variables involved, there are no simple answers.

Simple answers or not, criteria should be established for determining acceptable levels of community fire protection in addition to the familiar Grading Schedule. The public has a right to be assured that fire protection is neither excessive nor below that which is adequate to meet all normal requirements. Such criteria should have flexibility to allow for differing approaches to the problems and should include a means of evaluating performance.

In line with its policy of initiating consensus codes and standards relating to all aspects of fire protection, the Board of Directors of NFPA has authorized setting up a new committee to develop criteria for assessing and evaluating public fire protection services.

This committee will be comprised of representatives from all related interests. It will require considerable input from ongoing and future research programs. It will explore all the relevant factors in depth and examine techniques used in cities large and small, in rural areas, in district and county combinations. It will study means of measuring cost effectiveness of the Fire Service.

The committee has to identify every factor relating to public protection, assessing its role and importance to the problems. This will include the fire suppression forces, and also fire prevention including codes and standards, their effectiveness and degree of application.

The committee has a massive task ahead. Its importance is obvious. It can be helped by the cooperation and active participation of the public fire service and all those having related interests.

Fire Service Professional Qualifications Standards

Professional Qualifications Board

The Joint Council of National Fire Service Organizations is continuing with development of a Professional Qualifications Board to act as the supervisory body over a nationally coordinated continuing professional career development program for all levels in the fire service. The Board will act in a check and balance role to insure relevance and correlation of minimum professional standards, and to approve the drafts of any such standards before submission for final adoption procedures. It will also be responsible for accreditation and supervision of any national programs of certification.

The Board, which will consist of nine persons eminently qualified by virtue of experience, education and integrity, will be appointed from persons nominated by member organizations of the Joint Council which is representative of all national fire service organizations.

The associations nominating members for the Board obviously have a great responsibility in their selection

and the Council will need to insure the integrity, competence and impartiality of the Board members ultimately appointed.

Professional Standards Development Committees

The Joint Council has also made progress in the establishment of committees to develop the minimum standards to be used in the career development program.

Each of four committees, a) fire fighter, b) fire inspector and investigator c) fire service instructor, d) fire service officer, will consist of representatives from the principal organizations having a direct interest, together with three independent members nominated by the Joint Council. Each of these committees will develop draft standards of minimum qualifications at their respective levels.

Prior to the adoption of the standards, the approval of the overseeing and independent Qualifications Board must be obtained.

The committees will have no involvement in actual certification of fire service members or in the direct implementation of the standards.

The final product of the work of these committees will be standards which can be adopted at local level for implementation by States or fire departments.

As with the adoption of any national consensus standards, it should be possible for local authorities having jurisdiction to make variations as they so wish, or for that matter decide not to adopt the standards. However, if the long term program of up-grading the professional status of the fire service is to succeed, local adoption would seem to be very desirable.

The Joint Council has requested NFPA to provide the secretariat and standard making machinery to enable the standards to be produced. The Board of Directors of NFPA has agreed to the setting up of four new committees for this purpose. They have also agreed to a variation in NFPA normal standard making procedures to insure that fire service members are involved throughout the procedure; and ac ditionally that approval of each standard must be obtained from independent Qualifications the Board prior to final adoption.

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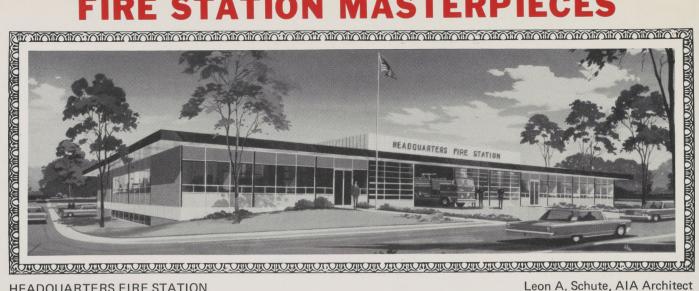
FIRE ENGINEERING

APRIL, 1972

50th

Anniversary New England Association of Fire Chiefs

FIRE STATION MASTERPIECES

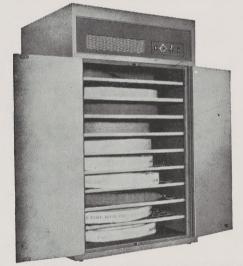


HEADQUARTERS FIRE STATION HIGH POINT, NORTH CAROLINA

This one-story building has a full basement, a repair and maintenance shop being located there. A 4-bay apparatus room separates administrative offices from quarters of combat firemen and offices, dormitories, showers, lockers, kitchen, dining and class rooms.

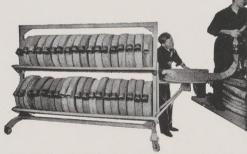






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Leon A. Schute, AIA Architect High Point, N.C.

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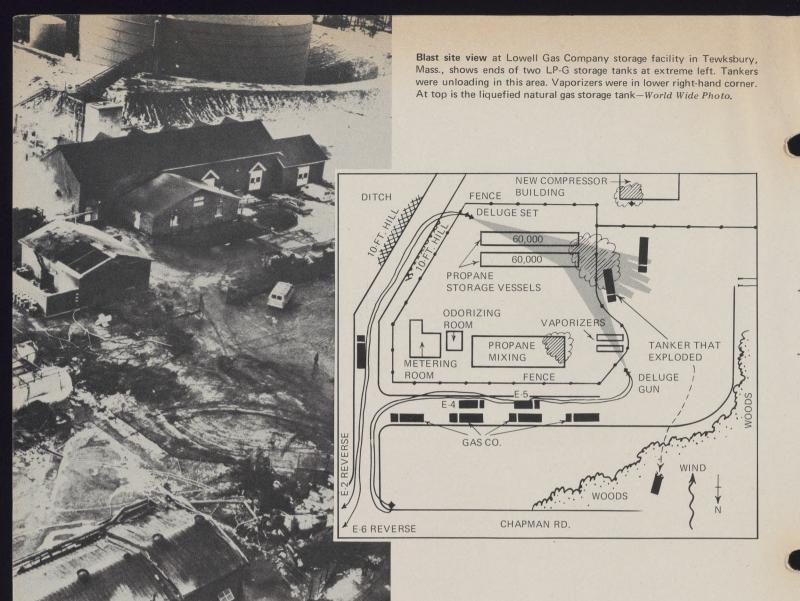
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FIRE STATION DESIGN

New 96-page edition shows every conceivable type of fire structure including training towers, centers, etc. Free to Chiefs, Commissioners, etc.



Propane Blast Kills Two

BY DICK SYLVIA
Associate Editor

The explosion of a liquid propane semi-trailer tanker during a fire at a natural gas and propane gas storage facility in Tewksbury, Mass., injured 18 fire fighters, one of them fatally. The tanker driver was fatally burned, and three gas company employees and a newspaper reporter also were injured.

Only four or five fire fighters were still on their feet as additional men and apparatus reached the scene immediately after the blast. The tanker that blew was unloading 7800 gallons of LP-G when the fire occurred, and the explosion that split the tank in half hurled one part of the tank more than 200 feet into woods. The other part of the tank was found flattened

on the ground not far from where the truck had been parked.

The fireball and surge of flame that followed the blast burned two Tewksbury Fire Department pumpers and started 18 or 19 fires in the natural gas area of the Lowell Gas Company facility on Chapman Road and started fires in the wooded area surrounding the scene. The gas company storage area included a large liquefied natural gas tank about 350 feet from the blast site.

Tanker causes leak

According to investigators, the chain of events that led to the fire started around 10:30 p.m. last February 9 when Arthur Sutcliffe, the Lowell Gas Company employee who lost his life, backed the tanker that later exploded into position to unload. The tanker apparently struck a pipe used to fill two 60,000-gallon LP-G horizontal

storage tanks. Whether the pipe was broken off or cracked is not known, but this pipe was connected to the fill pipe that a second tanker was using to unload its 7800 gallons of liquid propane into the same storage tanks. Although it was not known at the time, the investigation showed that the gas was flowing from the tanker unloading and it was escaping from the damaged pipe.

As Sutcliffe and the other driver attempted to shut off the flow of gas, the vapors spread against the wind, estimated at 10 to 15 mph, to vaporizers about 50 feet away, where they were ignited. The vaporizers were not then being used, but the investigators concluded that a pilot flame was the ignition source.

Sutcliffe, who was on the ground, was caught in the vapor cloud when ignition occurred, and he died the next morning in Massachusetts General Hos-



The Chief's Influence Should be Strengthened

We know that our readers will want to extend the heartiest well wishes to the New England Association of Fire Chiefs on its forthcoming Golden Anniversary. Fifty years is a long life for any organization—a lot never make it—but the New England Chiefs started out with 38 men in 1922 and now number over 1000. And they are still a growing, tight-knit group which wields considerable influence in their own area, influence that frequently spills over on the national scene.

Influence is what fire chiefs need badly today, in this era of self-appointed (and non-uniformed) experts. The importance and influence of chiefs has somewhat diminished during these last several years, and wrongly so. Perhaps it is their own fault in that they lacked "visibility" (read: public relations) either singly or collectively. Perhaps they abdicated their leadership and importance to the well-educated and highly visible experts. Or perhaps they were just plain indifferent.

Recently we overheard a conversation in which the question was raised: "Why bother with him? He's only the fire chief." Only the fire chief, indeed!

What the speaker didn't seem to realize was that the fire chief almost invariably is the *only* person legally responsible for the extinguishment of fire in his own town. And often he is the *only* person legally responsible for administering the fire prevention code. This is no small responsibility. And in our book, these responsibilities make the fire chief one of the most important men in town, if not the most important.

The fire chief is also the *only* (and the very lonesome) guy who has to stand in front of a fire building and call the shots that will save lives and property—an awesome responsibility.

Add to this the responsibility of controlling a hundred or more men, and their apparatus, equipment and stations, the responsibility for managing a high-figure budget, labor relations, community relations and, of course, public relations. A pretty big job the chief has, and one that should command more prestige and influence than it gets.

How to get it is not too difficult. Every state and regional association should have a permanent spokesman who will pop off loud and clear on everything that affects any fire department in his area, his region, his state and his country. It is only in this way that the fire chief will improve, maintain and increase his influence on the plans that affect his job.

Jim Casey

pital. The other driver, who was atop the LP-G storage tanks trying to close valves, escaped with his life.

The first alarm for the fire was received at 10:39 p.m. Tewksbury Engines 4 and 5 responded with 10 men. Chief William Chandler and Deputy Chief James Morris also responded. As the captain of the first engine reached the scene, he called for a second alarm, which was transmitted at 10:42 p.m. This brought in Tewksbury Engines 2 and 6.

About this time, the Billerica Fire Department dispatched two engines and a ladder truck to a reported fire, which turned out to be this propane fire. Although it was over their town line, the Billerica men continued to the Lowell Gas Company facility and put two 2½-inch lines in operation on the west side of the area to cool the two tankers. Four Billerica men on those lines were among the fire fighters who were burned.

Third alarm ordered

Captain John C. Cuneo of Tewksbury, who was off duty, reached the fireground immediately after the explosion. He ordered a third alarm, which was transmitted at 10:56 p.m., to bring mutual aid companies to the scene. The second alarm put all Tewksbury men and pumpers at the scene and brought in mutual aid to cover the headquarters station. The Tewksbury Fire Department has 38 paid men plus some call men.

The first response, Engines 4 and 5, had stretched 21/2-inch lines to the tanker area to cool the propane storage tanks and the tanker with a deluge set in the driveway. This gun was put out of service when the blast occurred and John McAllister, one of the department's call men operating the 500-gpm stream, was fatally injured. Flames were under the two tankers and the ends of the storage tanks.

Engines 2 and 6, responding on the second alarm, set up a second deluge set east of the horizontal tanks and stretched back to a hydrant. The blast upset this deluge set, but it remained in operation and was later sighted in on the tanks again.

Assume calculated risk

The Tewksbury fire fighters were well aware of the danger of approaching tanks from the ends. Their problem was that the position of the two tankers near the storage tanks made anything but an end approach of one pair of tanks impossible to avoid. They knew that their only hope was to cool all four tanks involved, and they did this while assuming the calculated risk.

Fire fighters reported that the first indication that heat was becoming excessive was when the relief valve on the unloading tanker blew and noticeably lighted up the area with a white torch in a balloon of orange flame.

When the explosion occurred, many of the men apparently were already turning from the increasing fire heat. Fire Fighter Robert Fowler of Tewksbury reported that his plastic-coated gloves were steaming. Just before the blast, he saw fire lapping the rear third of the tanker that blew. Investigators later concluded that a flame impinging on a small tank area weakened the steel shell and caused the explosive tank failure.

Coats protect men

As Cuneo reached the scene, those left on their feet were aiding the injured. Chief Chandler was severely burned on one leg and Morris, his deputy, had a fractured skull, a broken arm and cracked ribs. All the others injured received various burns except for one man with a vertebrae injury. However, none of the burns was in any part of a man's body that was protected by his turnout coat. The exterior shell of many coats disintegrated, but the interliner and liner maintained protection.

Engines 4 and 5 were burning. The latter pumper was a full burnout-including the wood deck over the hose bed and 1800 feet of hose. It will be sent back to the manufacturer to be rebuilt at an estimated cost of \$20,000. The seat upholstery burned completely and paint was scorched on Engine 4.

While the two engines, parked on the north side and partly shielded by a one-story building, were burning, a crash truck arrived from Hanscom Air Force Base at Bedford and covered the pumpers with foam. This extinguished the fire and protected the two engines from further heat.

Attack renewed

As Chandler was being taken to the hospital, he asked Chief Henry L. Hilton of Andover to take command because he thought all his officers had been disabled. Chandler and Cuneo regrouped the survivors and with the aid of mutual aid companies from about 20 towns renewed the attack on the

The east side deluge gun was restored to effective service. Then under cover of the deluge set and two hand lines, gas company workers eventually were able to reach valves and shut them. This effectively removed the fuel and final extinguishment quickly followed. The tires burned off the unloading tanker and its cab melted down in the extreme heat. A yard temperature recorder went off the graph at the 120-degree mark some 150 feet from the fire at the time of the blast.

It was estimated that the remaining tanker still had 10 to 14 percent of its LP-G load when extinguishment was completed. Fires in two adjacent buildings were relatively small and were extinguished without any problem, as were the woods fires. Recall finally came at 8:30 in the morning.

The two hydrants used were on a 6-inch dead-end main, and lack of water and long lines were problems.

"If there had been a barrier to protect the pipe from being hit by the tanker," Cuneo commented, "this

Robert P. Morris photos



Ball of fire begins to erupt just before the fatal blast.



Flames tower over area seconds before blast occurred.



50th Anniversary

The New England Association

BY ALBERT W. KIMBALL

Secretary-Treasurer New England Association of Fire Chiefs

On July 12, 1922, 38 men, "interested in fire departments," met in the office of the Gamewell Fire Alarm Telegraph Company in Boston. The group consisted of fire chiefs, ex-chiefs and manufacturers of fire fighting equipment. Chief John P. Doyle of Wellesley was elected temporary chairman and Chief John W. O'Hearn temporary secretary. Following this, Chief John F. Leonard, Belmont, Mass., "moved and it was so voted (that) the association be now organized as a permanent organization to be known as the New England Association of Fire Chiefs."

The first slate of officers was then elected: Chief John P. Doyle, Wellesley, Mass., president; Chief John Moran, Hartford, Conn., first vice president; and Chief John W. O'Hearn, Watertown, Mass., secretary-treasurer. O'Hearn, incidentally, was to hold this post until his death in 1959.

Plans were then made for the first annual convention of the association which was held at the Hotel Stratfield, Bridgeport, Conn., on June 21-22, 1923. Membership by this time was up to 119. It is interesting to note that at this convention there were 27 exhibitors of apparatus and equipment. The exhibits covered 5,880 square feet of floor space at 10 cents a square foot. (How times have changed!)

Some of the red-hot topics presented at the meeting of this historic first conference were: The Fire Hazards of Popular Radio, How to Get Better Insurance Classifications, and Standardization of Fire Hose Threads.

Conference locations varied

Conferences following the first were held at a variety of locations in the New England States including Pittsfield, Mass., Burlington, Vt., Manchester, N.H., and Dixville Notch, N.H. Two conferences were cancelled because of World War II—1941 and 1944. The 1945 conference was held at The Wentworth, Portsmouth, N.H., and the association has returned to this famous seaside resort every year since. It is fitting, therefore, that the Golden Anniversary will be held at The Wentworth in June 1972.

We note in the records of 1925 that members went to and from Pittsfield, Mass., on the Boston and Albany Railroad and in parlor cars. And that the membership list had increased to 281. By the time of the 1926 meeting in

Chief Lester R. Schick, president of the International Association of Fire Chiefs, who addressed the New England Association in 1967, posed with NEAFC President James L. Grote, left, and Secretary-Treasurer Al Kimball.



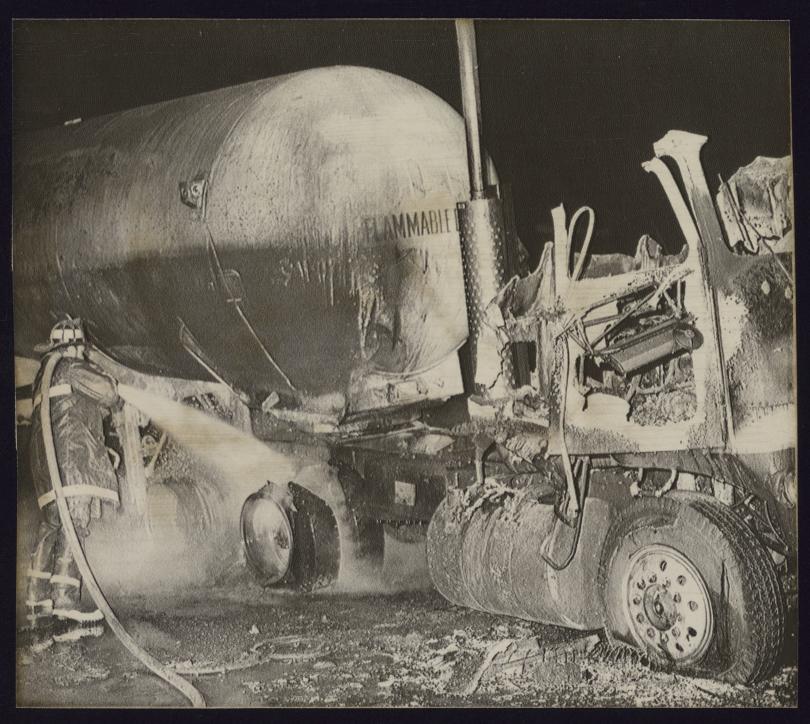


(BX5)TEWKSBURY, Mass., Feb. 10--INJURED IN EXPLOSION, RETURNS TO JOB-Tewks-bury fireman Robert Fowler, right, a bandage covering a head injury, returns to the Tewksbury fire station carrying his fire-charred coat after last night's explosion and fire at the Lowell Gas Co. storage area. Twenty-one fire fighters, including half of the Tewksbury force, were injured in the fire. Man at left is unidentified. (AP Wirephoto)(lg50840mbr)



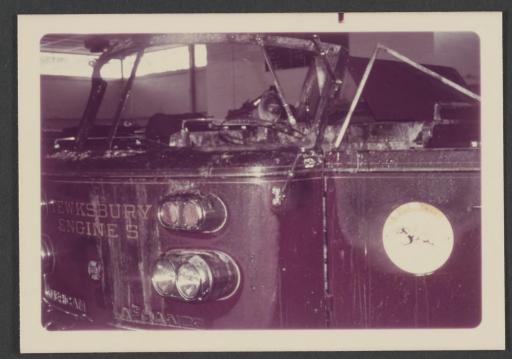


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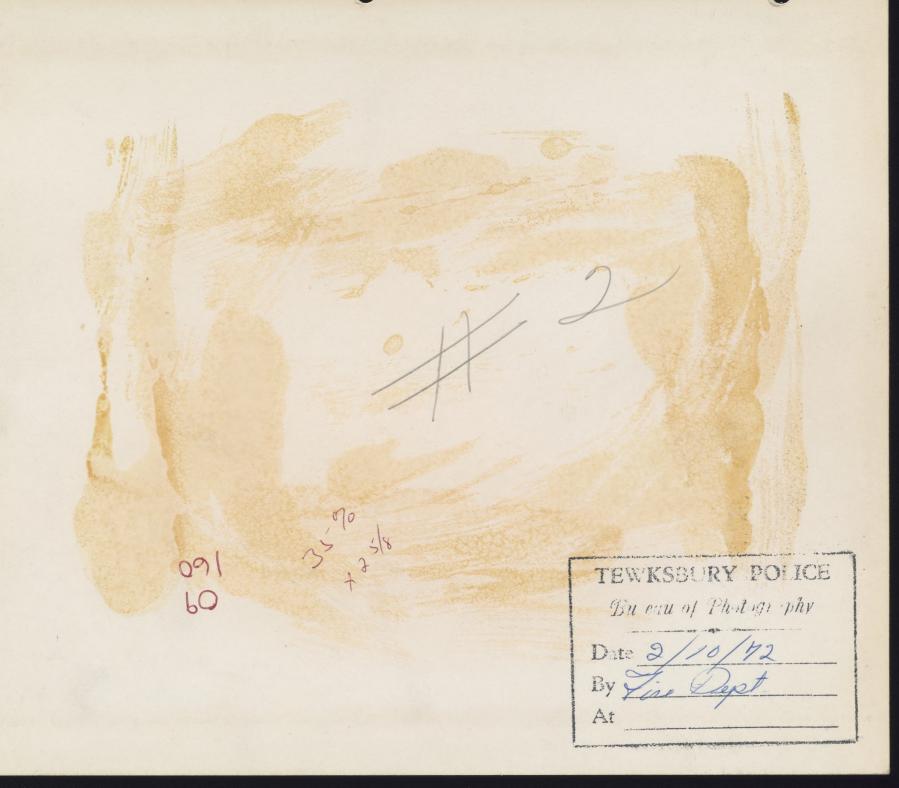
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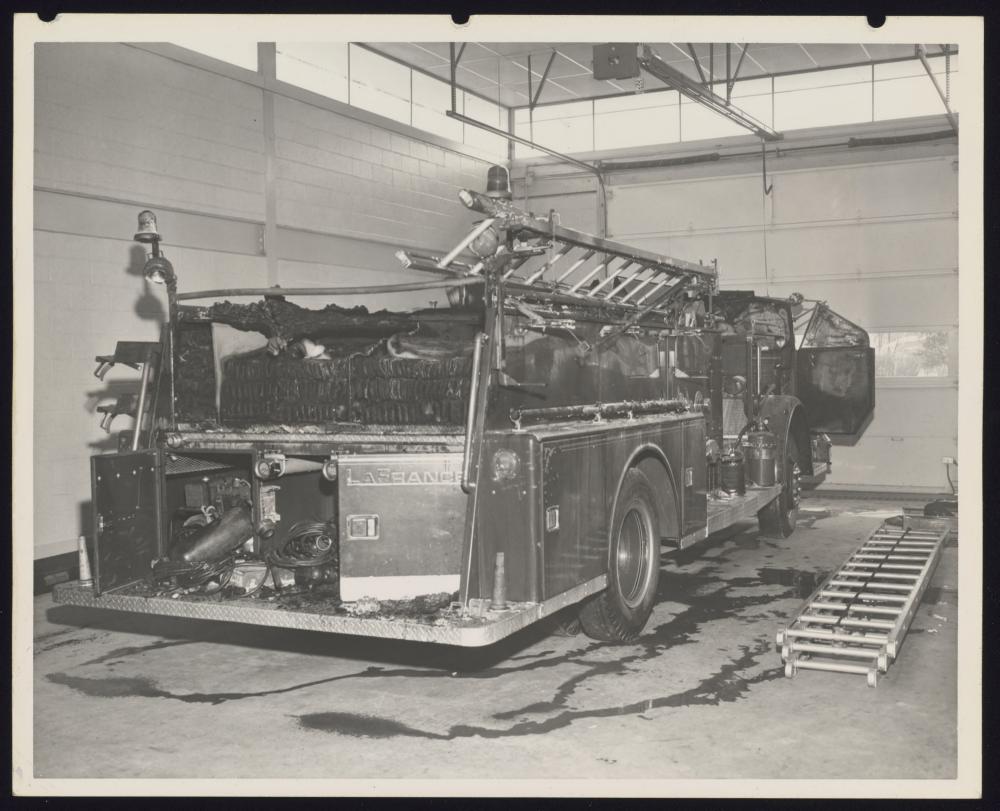
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