

U.S. Fire Administration/Technical Report Series

Evacuation of Nanticoke, PA Due to Metal Processing Plant Fire

Nanticoke, Pennsylvania

USFA-TR-005/March 1987



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U.S. Fire Administration Fire Investigations Program

The U.S. Fire Administration develops reports on selected major fires throughout the country. The fires usually involve multiple deaths or a large loss of property. But the primary criterion for deciding to do a report is whether it will result in significant “lessons learned.” In some cases these lessons bring to light new knowledge about fire--the effect of building construction or contents, human behavior in fire, etc. In other cases, the lessons are not new but are serious enough to highlight once again, with yet another fire tragedy report. In some cases, special reports are developed to discuss events, drills, or new technologies which are of interest to the fire service.

The reports are sent to fire magazines and are distributed at National and Regional fire meetings. The International Association of Fire Chiefs assists the USFA in disseminating the findings throughout the fire service. On a continuing basis the reports are available on request from the USFA; announcements of their availability are published widely in fire journals and newsletters.

This body of work provides detailed information on the nature of the fire problem for policymakers who must decide on allocations of resources between fire and other pressing problems, and within the fire service to improve codes and code enforcement, training, public fire education, building technology, and other related areas.

The Fire Administration, which has no regulatory authority, sends an experienced fire investigator into a community after a major incident only after having conferred with the local fire authorities to insure that the assistance and presence of the USFA would be supportive and would in no way interfere with any review of the incident they are themselves conducting. The intent is not to arrive during the event or even immediately after, but rather after the dust settles, so that a complete and objective review of all the important aspects of the incident can be made. Local authorities review the USFA’s report while it is in draft. The USFA investigator or team is available to local authorities should they wish to request technical assistance for their own investigation.

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Evacuation of Nanticoke, Pennsylvania Due to Metal Processing Plant Fire

Investigated by: Hollis Stambaugh

This is Report 005 of the Major Fires Investigation Project conducted by TriData Corporation under contract EMW-86-C-2277 to the United States Fire Administration, Federal Emergency Management Agency.



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Department of Homeland Security
United States Fire Administration
National Fire Data Center

U.S. Fire Administration

Mission Statement

As an entity of the Department of Homeland Security, the mission of the USFA is to reduce life and economic losses due to fire and related emergencies, through leadership, advocacy, coordination, and support. We serve the Nation independently, in coordination with other Federal agencies, and in partnership with fire protection and emergency service communities. With a commitment to excellence, we provide public education, training, technology, and data initiatives.



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TABLE OF CONTENTS

OVERVIEW	1
THE COMMUNITY	2
THE BUILDING/OCCUPANCY	2
THE FIRE	3
THE DECISION TO EVACUATE	4
Assessing the Threat: Pre-fire Planning and CHEMTREC	5
Weather Conditions	5
THE EVACUATION	5
PREPAREDNESS BEFORE THE FIRE	8
TOXICITY LEVEL READINGS SLOW IN COMING	8
CAUSE OF FIRE	9
LESSONS LEARNED	9
MAP OF NANTICOKE AREA	12
DIAGRAM OF APPARATUS LOCATIONS	13
PHOTOGRAPHS	15

EVACUATION OF NANTICOKE, PENNSYLVANIA DUE TO METAL PROCESSING PLANT FIRE Nanticoke, Pennsylvania March 24, 1987

Local Contacts: Fire Chief Don Casey
Nanticoke Fire Department
Ridge and Market Streets
Nanticoke, PA 18634
717-735-6290

James Siracuse
Executive Director
Luzerne County Emergency
Management Agency
Control Center, Courthouse
Wilkes-Barre, PA 18711
717-825-1776

OVERVIEW

On March 24, 1987, shortly after midnight, an electrical fire at a metal processing plant in Nanticoke, Pennsylvania, generated a cloud of potentially toxic fumes which caused 15,000 residents to be roused from sleep and evacuated from their homes. Emergency workers operating from local and county Emergency Operations Centers staged an extraordinarily smooth and successful evacuation, including the relocation of over 250 hospital and nursing home patients. The disaster showcased the value of good emergency operations planning, training, coordination, and practice as well as the wisdom of pre-fire plans.

The incident in Nanticoke taught and/or confirmed many important lessons; the most outstanding of the positive lessons were:

- Pre-fire plans are critical to decisionmaking about proper firefighting tactics and measures to protect the population during hazardous materials incidents.
- Emergency management planning followed up by training and field exercises enhances the quality of volunteer response.
- Prior exposure to evacuation alert and notification procedures helps residents avoid panic and respond sensibly when a real emergency occurs.

- The presence of a nuclear power plant can enhance local preparedness for all disasters requiring evacuation due to current Federal requirements for the utility to help sponsor (fund) preparedness exercises.

Emergency personnel at the city and county levels were well informed and well rehearsed in their respective roles for a disaster requiring evacuation. The residents of the area, too, were knowledgeable about warning and alert signals and basic evacuation guidelines. A comprehensive pre-fire plan prepared two months before this fire occurred, gave local fire officials an immediate reading on the types of chemicals and dyes used at the plant – information which in turn they reviewed with CHEMTREC, and which lead to an efficient and appropriate series of decisions.

THE COMMUNITY

Nanticoke, Pennsylvania, has a population of slightly over 13,000 people, and is located approximately ten miles southwest of Wilkes-Barre. The general area is one where coal reigned as king, having been the largest known site of anthracite in the world. Deep mining left the valley with serious subsidence risks and other related, potential hazards. Flooding from the Susquehanna River which borders the area on the west occurs frequently. In addition, there are a number of natural and man-made hazards, such as dynamite factories and a major fuel supply tank close to the airport, which may impact on the residents and are outlined in the county's Hazards Vulnerability Analysis Report. These emergencies-waiting-to-happen, coupled with the presence of the Susquehanna Steam Electric (nuclear) Station in the county gave rise to the preparation of comprehensive emergency response plans and annual evacuation drills.

Local officials estimate that 70 percent of the town's residents are age 65 and older. Most of these people live in private homes; the rest of Nanticoke's senior citizens reside in three high-rises for the elderly and two nursing homes. There is also a State-owned hospital in the town.

Nanticoke is protected by a 210-member volunteer fire department. Eight paid drivers assure a limited, around-the-clock presence at the stations. The Nanticoke Fire Department has six engine companies, one truck company, and two ambulances.

THE BUILDING/OCCUPANCY

In 1973, Spencer Metal Processing Company set up shop in a three-story 100-year-old brick and wood building that originally had been the site of a coal company. The central floor area is open from the first floor through the third to accommodate the large processing vats on the main level and rising steam.

Spencer Metal is an aluminum finishing business, also called an "anodizing shop." The primary work of the business is to put protective coatings on aluminum and other metals to ward off corrosion. The plant also processes side-view mirrors for all Ford Motor Company trucks and vans. Twenty-nine different hazardous materials, such as acids and dyes, are used in the plant and stored in the large processing tanks, as well as in containers on the premises. Among the hazardous chemicals on site are sulfuric acid, nitric acid, phosphoric acid, acrylic acid, ammonia, caustic soda, and chromic acid. Contact with the vapor from these chemicals can cause reactions ranging from eye irritation to lung damage, depending on the concentration and combination of chemicals.

The plant employs 52 people on two 20-22 people shifts with a third (swing) shift of about seven employees. It was during the third shift in the early morning hours that a devastating fire broke out.

THE FIRE

Shortly before 12:30 a.m., on Tuesday, March 24, the foreman at Spencer Metal smelled what he described as burning wire or rubber. He left his first floor office to investigate, but could not see much initially because the anodizing process creates a lot of steam. As he looked up to the third level he saw a 35-foot flame shooting along the rafter of the roof. He got a fire extinguisher and ran to the second floor level where smoke prevented him from going further. He quickly warned a female employee there about the fire and she left immediately. Then he returned to the first floor to evacuate the other employees. After he was sure everyone had left the building, he re-entered the plant to call the fire department. Flames were showing through the roof by the time he went back outside.

Nanticoke's fire headquarters, less than a mile from Spencer Metal, logged in the first alarm at 12:30 a.m. The chronology of major actions that developed afterward is shown in the following table.

Key Actions Taken During Nanticoke Fire and Evacuation*

Time	Situation	Actions Taken
12:30 a.m.	1st Alarm	Engine 3 and Truck 1 dispatched. Fire Chief Don Casey contacted immediately.
12:33	2nd Alarm	Engines 1, 2, 4, and 5 dispatched.
12:34	3rd Alarm	Engine 6 called to report to headquarters.
12:39	4th Alarm	Mutual aid requested from neighboring Tilbury to help with back-up at fire headquarters.
12:41	Ladder truck develops hydraulic leak.	Replacement ladder truck requested from Hanover Township.
12:43	Concern mounts over possibility of chemicals running off into stream and ultimately the Susquehanna River.	Heavy rescue truck from Civil Defense called to begin help with diking. City backhoe requisitioned to do job faster.
12:45	Emphasis begins to shift from putting out fire to protecting population from toxic cloud.	City and County Emergency Management offices notified.
12:50	Evacuation looms as a possibility.	Fire department calls CHEMTREC which advises they should act on "worst possible case scenario." Information radioed to fire chief.
1:20	Concern continues over air and water quality.	City alerts regional office of the Environmental Protection Agency.
1:28		City alerts State Department of Environmental Resources (County also contacted DER).
1:45	Evacuation options reviewed. Communication with City and County EOCs continues.	Mayor of Nanticoke is contacted. Fire chief recommends evacuation.

continued on next page

* Nanticoke firefighter Chester Prymowicz maintained an on-going log of the situation as he managed the dispatch operations from Fire Headquarters.

Time	Situation	Actions Taken
2:21	Mayor confers with other emergency officials.	Mayor calls for evacuation of western section of Nanticoke. (See Evacuation Area Map.)
2:38		Hospital is evacuated.
2:50		Mayor calls for evacuation of the rest of west side and northwest quadrant.
3:10		Evacuation orders carried out for East Ridge to Market Street to city limits, including Birchwood Nursing Home and Hanover section. (See map.)
3:42		Entire town of Nanticoke, Sheatown, and the Alden sections of Newport Township are evacuated. (See map.)
6:30	Primary fire extinguished.	Spot fires continue to be put out until 1:30 p.m.

The first engine to arrive laid a 4-inch supply line and began firefighting operations. As more volunteers arrived, they helped to lay additional lines. Engine 2 hooked up to a hydrant 700 feet south of the property then connected dual lines into the aerial. At that point, the ladder truck hydraulics failed. A diagram of fireground apparatus deployment is detailed in Figure 1.

Nanticoke used all of its available equipment to control the fire. At the height of the blaze, they needed six engines, one truck, two ambulances, and a rescue truck with paramedics. The only time back-up assistance was involved in firefighting occurred when the ladder truck developed a hydraulic leak, early in the fire. A call to Hanover Township brought a 75-foot ladder truck and a service truck to supplement Nanticoke's units.

By 6:30 that morning the fire was extinguished, leaving behind only the burned-out remains of the building. Some portions of the brick walls were still standing but the roof and other sections were destroyed by the blaze. Firefighter efforts saved the out buildings and outside storage containers.

THE DECISION TO EVACUATE

The call to CHEMTREC, made 20 minutes after the first alarm was received, started the clock ticking toward the eventual evacuation of over 15,000 Nanticoke area residents. The decision on whether or not to evacuate could not be made on a moment's notice – yet neither did officials have time to waste. Careful review of all aspects of the emergency had to be assessed and shared among all the jurisdictions involved.

First of all, moving hospital and nursing home patients carries its own special risks, and evacuation in general gives rise to numerous potential accidents. Secondly, three major and several smaller neighboring jurisdictions would be involved in any decision to evacuate.

The Luzerne County Emergency Management Agency would be in charge of coordinating and lending assistance to local evacuation efforts. Spencer Metal's location at the far western edge of Nanticoke placed sections of contiguous Newport Township in jeopardy. Thus, both the local Nanticoke and Newport Township Emergency Operations Centers would have to be activated. Support from nearby jurisdictions in the form of transportation (buses and ambulances for the evacuation) as well as

Reception Centers for evacuees would draw even more emergency personnel into the situation. The Fire Chief, Mayor, and Emergency Management Director of Nanticoke, the County Emergency Management Agency's Executive Director, and Newport Township officials had to weigh these factors. Ultimately, the decision rested with Nanticoke Mayor John Haydock.

After considering advice from Nanticoke Fire Chief Don Casey and consulting separately with the county and city emergency management directors, the mayor decided to begin evacuating the city in stages.

Assessing the Threat: Pre-fire Planning and CHEMTREC

One of the most important aspects of Nanticoke's successful evacuation was the fact that the fire department had had the foresight to become familiar with conditions at Spencer Metal before the fire occurred. Chief Casey, Deputy Chief William Ives, and Firefighter Mark Pavelitz conducted an on-site visit three months earlier to obtain a list of all the chemicals used in the metal processing, to scope out the floor plans, and to prepare drawings. Thus, when the department placed the call to CHEMTREC, fire department personnel were able to supply a complete list of chemicals used and stored at the plant. CHEMTREC then advised that they should assume the worst and take action accordingly.

Sulfuric acid was the major concern. This acid is one of the strongest known, and when combined with water reacts violently, creating a toxic cloud. In small doses, the vaporized acid burns the eyes, throat, and skin. Breathing a strong concentration can destroy lung tissue, and can kill.

The standard operating procedure for protecting populations from sulfuric acid toxic clouds, according to the U.S. Department of Transportation Handbook, is to evacuate within a radius of 280 feet to a maximum of 2.2 miles. Weather is a factor in deciding how far to evacuate. Nanticoke area officials had to ponder all these variables.

Weather Conditions

On the night of the fire, Nanticoke was experiencing a temperature inversion. The air above 3,000 feet was warmer than the air near the ground. This created a stagnant system with very light (3-10 mph) winds. The inversion prevented the rise and dissipation of the toxic cloud that formed during the fire. The plume remained virtually stationary while upper atmosphere winds were shifting from south to northwest, to southeast, and then to northeast. It was hard to predict when the inversion would break up, and which direction the wind would be blowing when it did.

THE EVACUATION

By the time Mayor Haydock ordered the evacuation to begin, Nanticoke, Newport Township, and Luzerne County already had activated their Emergency Operations Centers (EOCs). Volunteers had been called in to staff their posts and the system was ready to respond.

At the County's EOC, the operations, communications, transportation, police, mass care, and medical/health group coordinators were setting the stage to provide support for Nanticoke's evacuation. Other volunteers stood by to carry out directives from their group coordinators. The County Emergency Management Executive Director, Jim Siracuse, alerted the Pennsylvania Emergency Management Agency (PEMA) in Harrisburg that a chemical fire was burning and that citizen evacuation was a possibility. The county wanted PEMA to know as early as possible that the State might

be called on to authorize requests for assistance from neighboring counties. According to State emergency response plans, such inter-county requests are to be generated through PEMA, which in turn, put the National Guard and State police on alert.

One of the three consoles in the County Communications Center (co-located with County EOC) was dedicated to handle all emergency-related dispatch. The other two consoles continued to monitor regular police, fire, and ambulance calls elsewhere in the county. These actions were carried out in accordance with previously developed emergency plans. A remote radio transmitter was used for live broadcast from the EOC to disseminate information over the Emergency Broadcast System (EBS). A siren system installed to provide public warning and route alert teams (emergency vehicles with public address systems) were activated to notify residents of the situation and advise them to tune to EBS stations for additional information.

At this point in the emergency, the county also began notifying the State hospital in Nanticoke and the nursing homes of the possibility that the mayor might order an evacuation. Nearby hospitals assigned as support medical facilities were called to begin planning for bed availability and triage so they would be ready to accept patients evacuated from Nanticoke.

Meanwhile, at the Nanticoke EOC, Executive Director John Fedorchak and his staff had moved from fire headquarters, where they had set up a limited EOC early in the emergency, to the Municipal Building across the street. They directed their attention to assessing the types and amount of transportation support needed to begin evacuating residents. These estimates were updated over the course of the evacuation as more territory was added to the evacuation area. The city communicated their support requirements to the county which had responsibility for filling needs the city could not meet with their own resources.

City EOC staff also had to determine what help was required for alerting the public. Calls were placed to the three high-rises for the elderly so they could be ready should the order come to evacuate.

Mayor Haydock then gave the nod for the first evacuation. Many actions occurred simultaneously. County communications activated the closest sirens within range of the first evacuation area. There are 110 sirens in the system which can be sounded singly, in groups, or as an entire system. At the same time, the county “went live” on the Emergency Broadcast System. A uniform message – used in the broadcasts and by the route alert teams – was prepared and distributed. According to plan, the notice was brief. Paraphrased, it announced, “There is a chemical fire in Nanticoke. At this time the exact level of chemicals or toxicity from the fire is unknown. As a precautionary measure we are evacuating (border streets of area).”

At the end of the message, the radio and television stations carrying the alert asked residents to avoid using the phones. If they absolutely needed more information, they could call Rumor Control whose number was given. At the EOC, Rumor Control already was in operation and a Media Center was established on the first floor of the County Courthouse, away from the direct work area of the EOC in the basement, yet close enough to allow access to the latest emergency news.

In Nanticoke, volunteers went door-to-door telling residents to evacuate. As people awoke to the sound of the sirens and the calls to leave, most thought something had happened at the nuclear plant because drills in the past had focused on evacuating for radiological emergencies. Consequently, many citizens were familiar with the alert process.

The evacuation was conducted in textbook-like manner. Those who could leave the area on their own drove out of the city to stay with relatives or friends in nearby towns, or to the designated

Reception Center/Mass Care Facility three miles northeast of Nanticoke at Hanover Area High School. Reportedly there were no accidents – not even fenderbenders, as the mass exodus proceeded. People in main thoroughfares yielded to motorists trying to gain access from side streets. Though traffic understandably was slow, the residents were able to leave in good time and without panic.

Choosing the school in Hanover at a host site for evacuees was a departure from the evacuation plan in place for a nuclear disaster – and is an example of how all-hazard evacuations can vary from those specific to radiological emergencies. Normally, reception centers would be located outside a 10-mile radius (and a safe distance) from the nuclear power plant. However, since the evacuation radius for this type of chemical fire was 2.2 miles maximum, it was reasoned that there was no need to relocate people any further away than absolutely necessary. The recently completed all-hazards evacuation plan annex called for just this sort of analysis in choosing shelter locations. As the Hanover High School became full, Red Cross volunteers who were assigned responsibility for staffing the mass care centers opened up other centers and helped direct the populace to those spots. The County EOC handled making arrangements for the main mass care facility and the various smaller public shelters.

As it turned out, only about 2,000 of the 15,000 evacuees sought refuge in mass care centers. The remainder either had other homes where they could go or were patients at the nursing homes or the hospitals and were evacuated by ambulance or bus to nearby medical centers. By far, the majority of the 2,000 (1,500) went to Hanover Area High School. Other sites each housed between 35-300 evacuees.

Over 250 patients from the hospital and nursing homes also were transferred with few known incidents. In accordance with city and county plans, Nanticoke emergency personnel maintained a steady stream of requests for transportation vehicles from the county. County staff, in turn, consulted their lists of suppliers and requisitioned the ambulances and buses needed in Nanticoke. Over 100 ambulances responded to the call for help. Nanticoke EOC staff dispatched vehicles as they arrive at fire headquarters. A copy of each patient's medical chart accompanied them to their new, temporary facility.

While all this was occurring, the County EOC lined up county and State police and National Guard units to handle traffic control, access control, and security in and around Nanticoke. Existing plans assigned these tasks to the Police Group, and the plan was carried out as written.

Most of the activity during the Spencer fire and evacuation centered on the Nanticoke and County EOC's. Newport Township, under the guidance of Executive Director Norman Bodeck though, was in readiness as part of their population prepared for evacuation. An example of their cooperation during the events of March 24 is demonstrated in the way they took charge of helping Township evacuees. Realizing that the county had their hands full coordinating the evacuation in general and that Township resources were not tied up fighting the fire as was the case in Nanticoke, Newport Township radioed that they would handle arrangements for sheltering relocated residents in their jurisdiction. They set up a mass care center in a private building and staffed it with EOC volunteers. They had to ask the county for supplies because the center was not Red Cross approved and thus did not qualify for supplies from that organization. Nonetheless, the County EMA Director was pleased with the Township's adherence to the basic tenets of the plan for local and county EOC coordination during disasters – that the local jurisdiction is the first line resource and the county lends support to and coordinates resource requests from the local EOC, as needed. The Nanticoke EOC operated likewise.

By dawn, the evacuation of residents and patients was completed. Without exception, those involved in the events of the emergency reacted with praise about how smoothly the evacuation was handled.

PREPAREDNESS BEFORE THE FIRE

Why were the Nanticoke Fire Department and the city and county EOCs so well prepared? Local officials indicated that their excellence in preparedness was due to large part to the presence of the Susquehanna nuclear power station. After the 1979 nuclear power incident at Three Mile Island, State and Federal regulations on community disaster planning around nuclear reactors tightened. Among other requirements, plant owners and operators were required to do a better job of assisting local emergency planners. In Luzerne County, the County EMA, the power plant, and the key at-risk jurisdictions developed a good working relationship.

For example, the Susquehanna Steam Electric Station and the EMA prepared an excellent public information brochure succinctly detailing what citizens should do in the event of a radiological disaster. The 18-page brochure is mailed out every year to all homes receiving utility bills. It lets people know their responsibilities and options in time of evacuation and contains clear information on routes, shelters, what to take, and where to get official news. The contents are reprinted in the blue pages of the telephone book. Many area residents knew what to do when the sirens range or the bullhorns of route alert teams awakened them because they had read this brochure.

The power plant also worked with local and county officials on both table-top and exercise drills. Federal regulations now require that nuclear plants and neighboring jurisdictions practice a full-scale, Federally-evaluated evacuation exercise every other year. Luzerne County EMA has organized and conducted three of these drills since the rule has been in effect (1981). But the county has done more than meet the minimum requirements. Fearing that too much is forgotten in the span of two years between drills, the county holds their own medical evacuation practices in the off years. They also conduct on-going training sessions for the 19 at-risk municipalities and four school districts within the 10-mile radius around the plant. On the Saturday before the fire, the county EMA held its first radiological response seminar that brought all the risk communities together at one time. PEMA plans to use the all-hazards plan prototype as a model for other Pennsylvania communities. Proof of the importance of planning, training, and conducting evacuation exercises was found during the Spencer fire and evacuation.

TOXICITY LEVEL READINGS SLOW IN COMING

One of the biggest problems faced by emergency officials during the Spencer fire and evacuation was getting an accurate reading of exactly how threatening the toxic cloud was. What types of chemicals and what quantities actually burned? How did those substances affect the quality of the air and water? Reliable air and water sample readings were not forthcoming for most of the day, thus complicating decisions on whether and when residents could return to their homes.

As soon as the County EMA was activated, they contacted the Pennsylvania Department of Environmental Resources which has a regional office in Wilkes-Barre. That State agency has responsibility for monitoring air quality. According to some reports, the DER mobile lab arrived without the proper equipment to monitor air quality. Water run-off samples were checked for contamination, and DER verified that any contaminated water run-off was being contained by the dike system on site. They had no word on the toxic cloud. Since early firefighting had created water runoff before diking operations could begin, as a precautionary measure the county notified communities downstream at 3:40 a.m. that some chemicals might have leaked into the Susquehanna River.

Meanwhile, representatives from the Federal Environmental Protection Agency (EPA) showed up. Still the county received no word on air quality. Ultimately, the county sent a technical group of representatives from the EOC who had access to testing equipment from local colleges. They donned protective gear, took air and water samples, then turned their readings (“slightly above normal”) over to DER and EPA for further analysis. The county stressed that they needed the results quickly because if conditions were untenable for re-entry, mass care centers needed to begin preparing to feed and house evacuees for that evening. Extra cots, bedding, and food had to be brought in from supply centers and shelter officials needed enough advance notice to set that in motion.

By the deadline of 2:30 p.m., county officials still had no answer; in fact, DER asked to receive the county’s readings again. Two hours later the county prepared to tell shelter operators that re-entry to Nanticoke could not yet be authorized. They checked again with DER for word on the air tests and asked to be informed immediately of the results. Instead, DER, minutes later, broadcast news over television stations that evacuees could return. The county scrambled quickly to dispatch traffic control units to ease the congestion as 15,000 people made their way back to Nanticoke.

CAUSE OF FIRE

The cause of Spencer Metal Company’s early morning blaze was not immediately known. Clues to the fire’s origin were gleaned, however, from the early observations of the foreman and several shift workers who saw flames glancing over the rafters inside the roof. At the time of the fire, electricians were in the process of piping the wires throughout the building.

After the fire, the State Fire Marshal’s Office conducted an investigation into the cause. Their conclusion: It was an electrical fire caused by corrosion of the wires, probably as a result of exposure over time to the caustic fumes from the metal processing vats.

LESSONS LEARNED

If the Spencer fire and evacuation proved anything, it proved the value of pre-fire planning and emergency preparedness. Credit for the safe and orderly evacuation of 15,000 people rested largely with four key factors.

1. Pre-fire Planning is Essential to Adequate Response

The Nanticoke Fire Department had done a pre-fire plan of the Spencer plant with a list of all the chemicals on-site. The fire department could relay that information to CHEMTREC as they tried to decide the best strategy for fighting the blaze, protecting the firefighters, and safeguarding the population.

Chief Casey reported that in recent years, younger volunteers had been exposed to the value of pre-fire planning in their training classes, and added impetus to the department’s efforts to begin a systematic risk analysis of commercial and industrial facilities. Obviously, the time they spent reviewing conditions at Spencer Metal paid off.

2. Coordination of Local and County Emergency Plans Streamlines Emergency Response

The local and county emergency management agencies had interlocking emergency operation plans containing a basic plan, standard operating procedures, and resource/notification lists. Because these plans were so well coordinated chain of command was clear, roles and responsibilities were well-known, and communications were excellent.

3. Practice Makes Perfect

The emergency operations plans were not thick with dust or unfamiliar territory for key officials. Those in charge and those helping them knew what to do because such vital operations as alert and notification, traffic control, and evacuation had been taught in county-sponsored training and practiced repeatedly during field exercises. This experience paid off in a big way on March 24 as one after the other emergency worker reported that he or she knew instinctively what to do – their actions were like second nature.

Another benefit that was realized from the training and practice exercises was that the volunteers responded naturally to their roles and were well-prepared. Because the emergency management volunteers had been called upon regularly to participate in classroom and field training and to assist with other disasters over the years, they perceived their volunteer “jobs” as vital, took them seriously, and were accustomed to emergency operations. They had been kept active and involved and were ready to perform.

4. There is a Silver Lining to Having a Nuclear Power Plant as a Neighbor

Due to recently enacted Federal regulations, nuclear power plants are obligated to be good neighbors and actively lead in planning local radiological emergency response. Communities where nuclear plants are located should utilize this resource to the fullest, especially since the mere presence of such utilities place additional preparedness demands on the local jurisdiction.

Luzerne County developed a cooperative relationship with the Susquehanna Steam Electric Station which has helped fund various training and public awareness activities associated with evacuation due to a nuclear accident. The beauty of this arrangement has been the spin-off benefit of the Radiological Emergency Response Planning exercises to preparedness for other types of disasters in the county. Specifically, the activities undertaken in preparation for a potential incident at the nuclear power plant enabled fire and emergency officials and the general populace to handle the Spencer fire and evacuation with aplomb.

Other lessons can be learned from actions taken during the fire and evacuation:

- One person, the Nanticoke Mayor, was responsible for making the decision on evacuation. He took that responsibility and wisely conferred with other parties in a position to offer guidance.
- Key medical facilities and housing facilities for the elderly were given early warning of the pending evacuation.
- Most of the dispatching was done centrally from the County EOC.
- Rumor Control was activated early.
- A special media press center was set up at the County EOC which accommodated the media’s need-to-know yet protected the nerve center of the County EOC from interference as they carried out their duties.
- The fire department wisely acted to construct a small dike behind the plant to prevent the water from the firefighting operations from carrying chemicals into the Susquehanna tributary at the rear of the property.

While fire and evacuation actions were carried out in a praiseworthy manner, some problems did develop:

1. Ambulance Staging Area Needed

There was considerable congestion when dozens of mutual aid ambulances reported to Nanticoke Fire Headquarters where parking and circulation patterns are less than optimal. Nanticoke emergency officials are now considering amending their evacuation plan to allow for an ambulance staging area at a shopping center with ample parking outside city limits. An ambulance coordinator from their cadre of emergency personnel would be sent to the staging area to direct ambulance routing from there.

2. Tighter Perimeter Control Needed

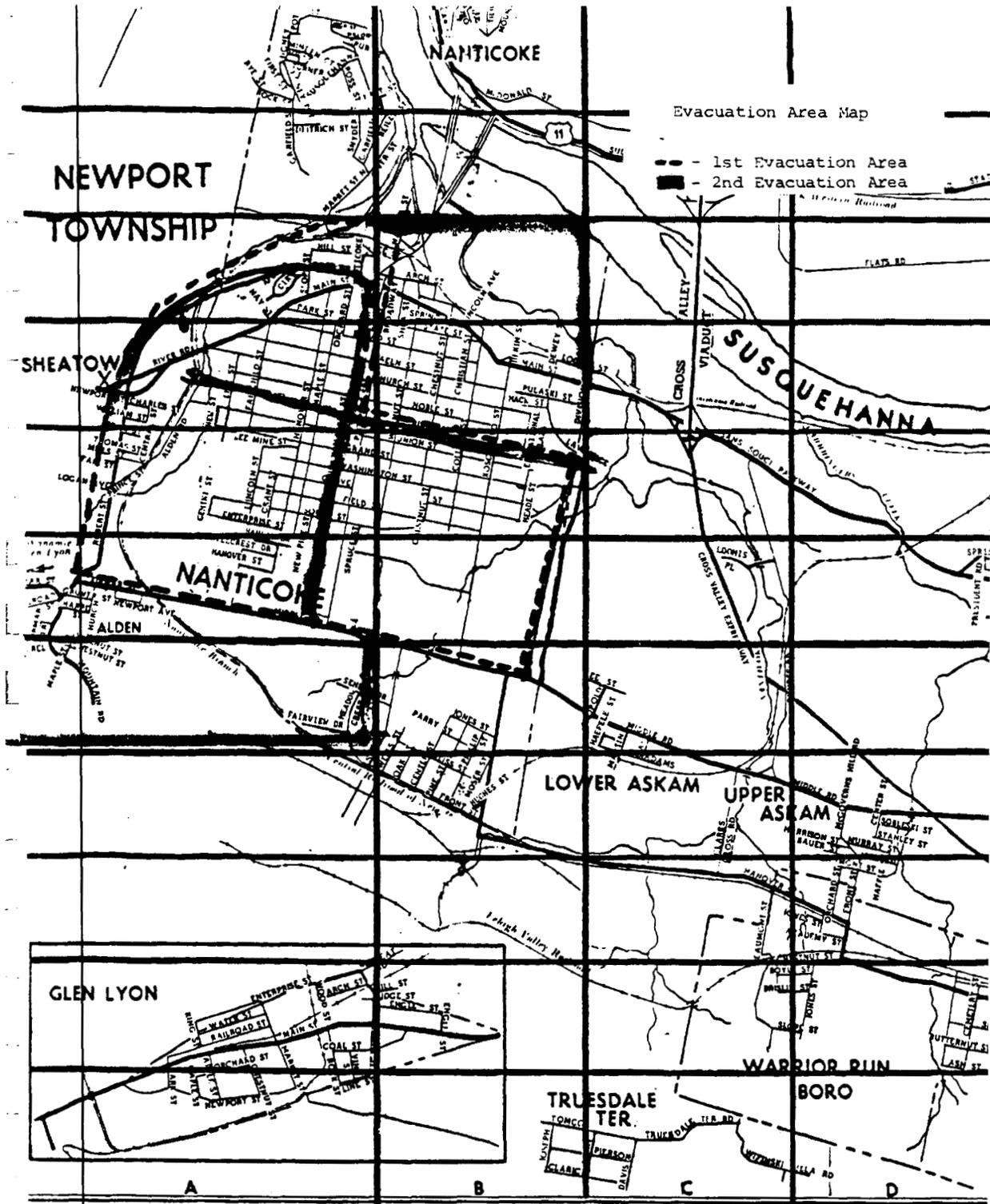
Some problems arose with perimeter control and access at the site of the fire. Reporters and photographers were moving in to within 25 feet of the building while helicopters from the electronics media buzzed overhead. Some firefighters at the scene feared there would be a collision in midair. These issues are being reviewed to determine whether any changes to the plan could be made that would mitigate such problems.

3. More Protective Equipment Needed

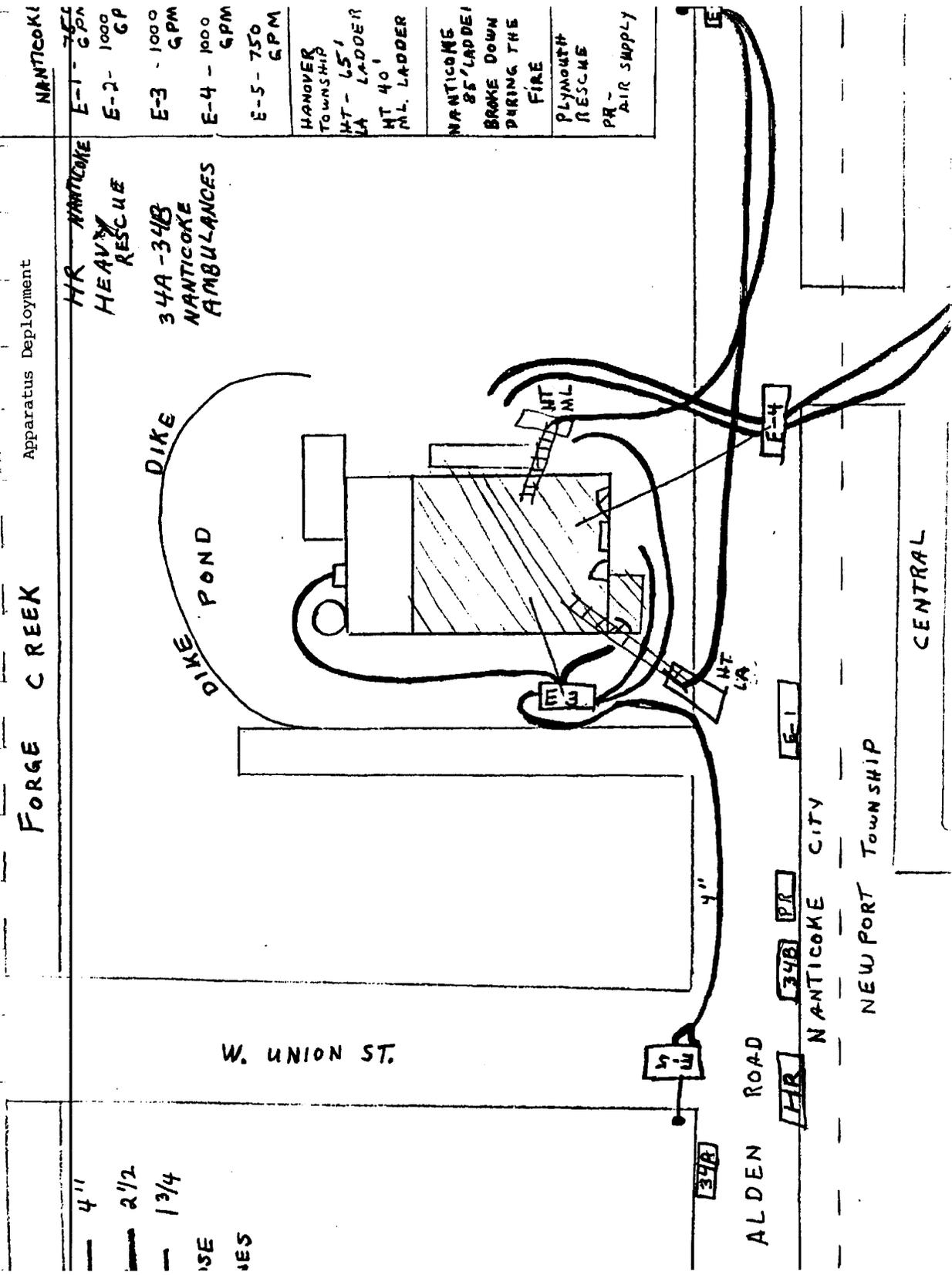
The Nanticoke Fire Department, like many volunteer departments, is in need of more protective equipment for its firefighters. This fact was obvious during the Spencer fire as 110 firefighters had to share 20 air packs. The firefighters worked in shifts, providing relief in turn to the firefighters at the front line of the fire. Fire Chief Don Casey attributes the 22 incidents of respiratory problems, burning eyes, and related discomforts experienced by firefighters to their lack of sufficient protective gear. There also was one case of a minor injury and one firefighter suffered from exhaustion.

4. Better State and Federal Real Time Environmental Testing and Response Needed

An on-going frustration during the fire and its aftermath was lack of prompt air and water quality readings. Emergency plans and drills would benefit if the "outside" agencies responsible for environmental quality information would participate in the practices. These agencies need to be sure they are prepared to respond with personnel and equipment.



WILKES BARRE



PHOTOGRAPHS

Evacuation of Nanticoke, Pennsylvania Due to Metal Processing Plant Fire

Jack Kelley of the *Citizen's Voice*, Wilkes-Barre, provided the following photographs to the U.S. Fire Administration as a courtesy for this report. The photographers were Jack Kelley and Rich Walton of the *Citizen's Voice* and free-lance photographers Mark Moran and Jim Egliskis.

Photo	Description
1	Firefighters on aerial work to protect west side of building.
2	Roof has collapsed as fire continues to burn.
3	Luzerne County Emergency Management Agency Executive Director Jim Siracuse (right) with staff members Kevin O'Brien and Jim Ruth respond quickly to Nanticoke's requests for assistance.
4	County EMA Police Coordinators Ron Smith and Bill Barrett make transportation plans and discuss traffic control requirements.
5	Some of the more than 100 ambulances that converged at Nanticoke Fire Headquarters to evacuate 250 hospital and nursing home patients.
6	Ambulance volunteers quickly transfer a patient to a nearby medical facility.
7	Nanticoke Fire Chief Don Casey (right) confers with Mayor Haydock (on phone) about status of fire control and evacuation.
8	Red Cross volunteer (right) reassures evacuees at public shelter.
9	Some of the 1,500 evacuees provided temporary lodging at Hanover Area High School.
10	Evacuees pass the time with coffee and news updates on transistor radios.
11	Pennsylvania Governor Robert Casey (center, seated) receives briefing at the County EOC. Other officials present are County Commissioners Trinisewski, Phillips, and Crossin; State Senator Musto; and Congressman Kanjorski.
12	By dawn the fire was under control. Firefighters remain on scene to check spot fires.
13	Regional EPA employees arrive to take air and water samples.
14	Regional EPA employees scrub down after checking toxicity levels.
15	Diking at rear and sides of building helped contain runoff from fire operations.
16	Only the company's sign remains untouched by the fire.
17	Temporary office set up at the west side of the building.

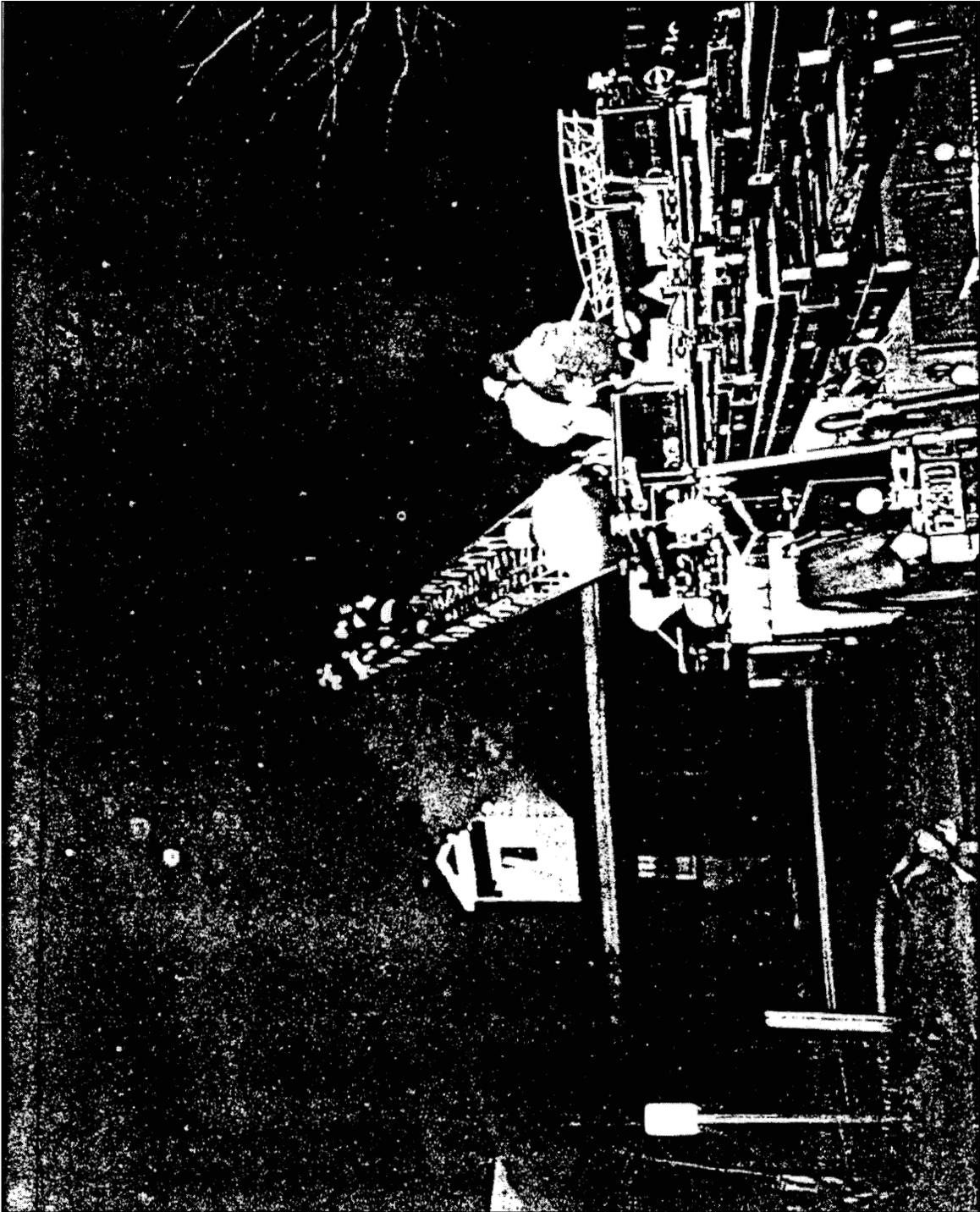


Photo 1. Firefighters on aerial work to protect west side of building.

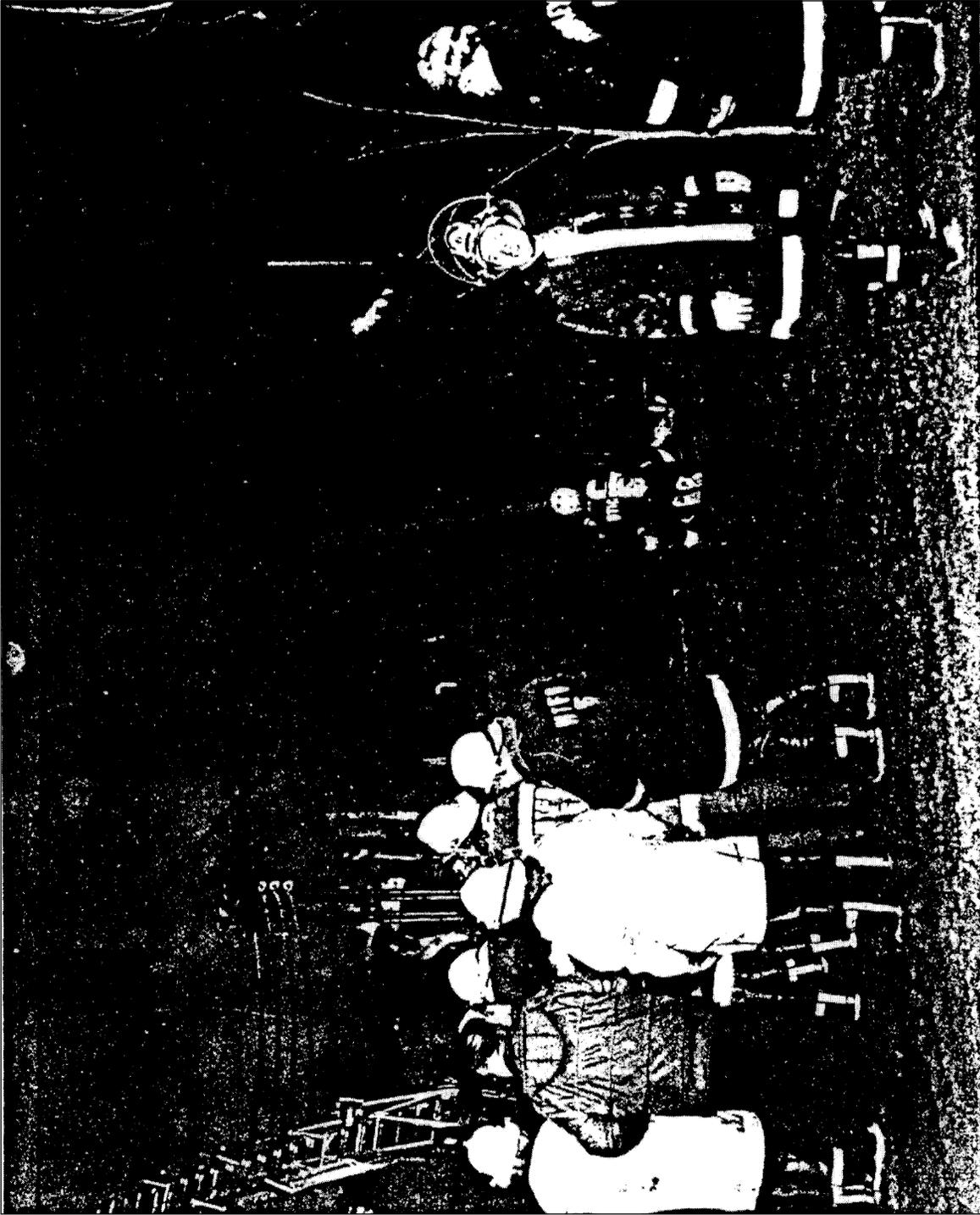


Photo 2. Roof has collapsed as fire continues to burn.



Photo 3. Luzerne County Emergency Management Agency Executive Director Jim Siracuse (right) with staff members Kevin O'Brien and Jim Ruth respond quickly to Nanticoke's requests for assistance.



Photo 4. County EMA Police Coordinators Ron Smith and Bill Barrett make transportation plans and discuss traffic control requirements.

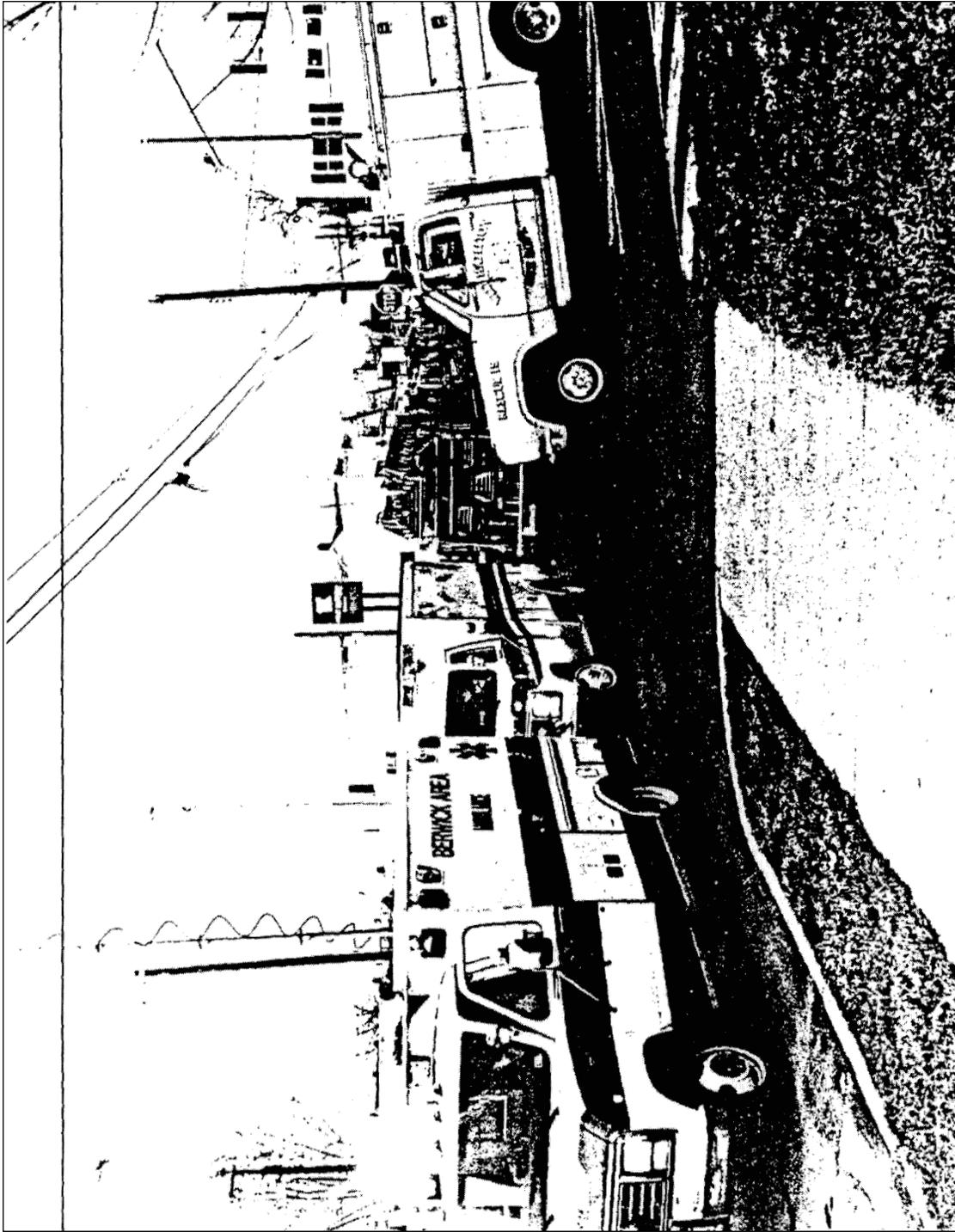


Photo 5. Some of the more than 100 ambulances that converged at Nanticoke Fire Headquarters to evacuate 250 hospital and nursing home patients

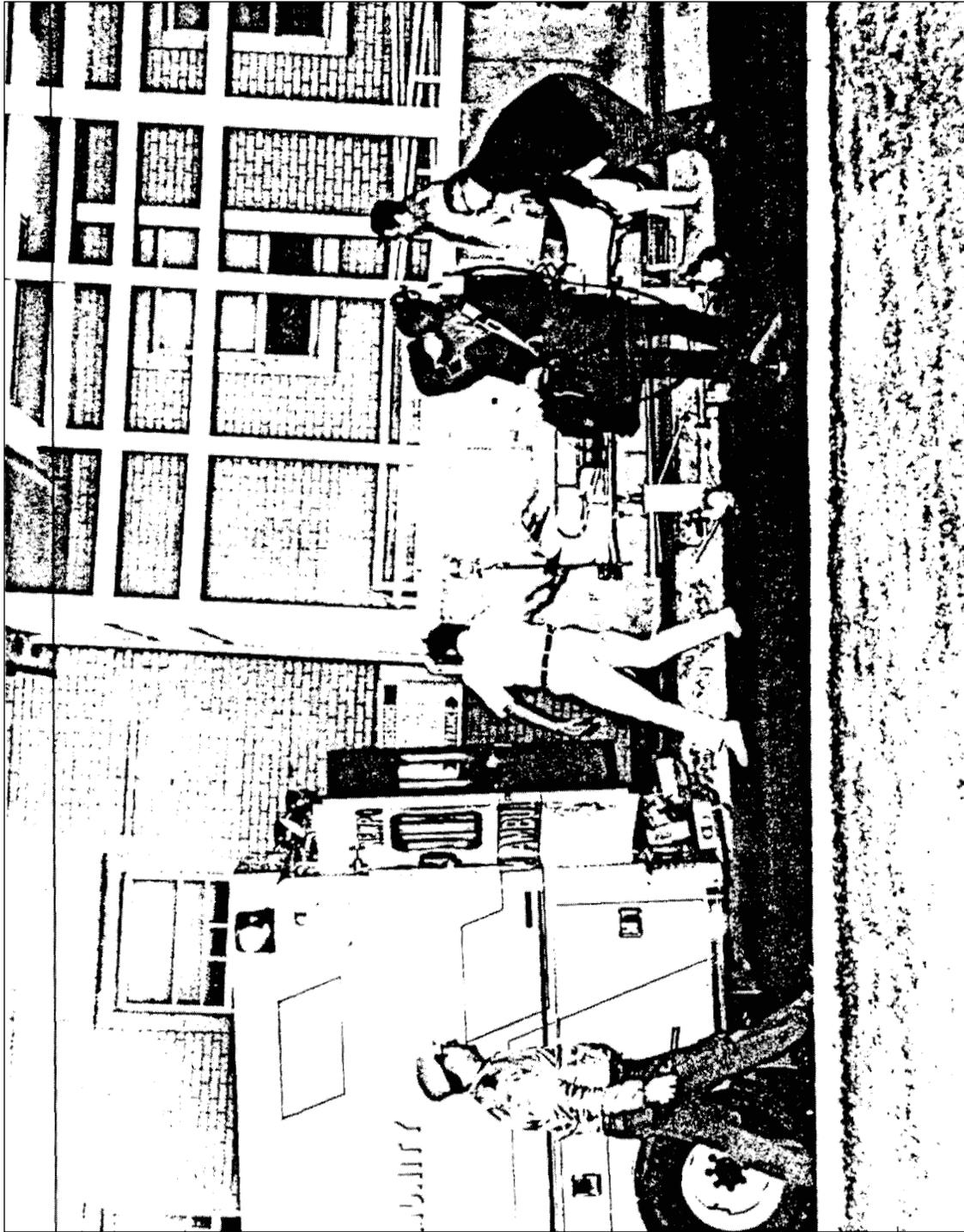


Photo 6. Ambulance volunteers quickly transfer a patient to a nearby medical facility.



Photo 7. Nanticoke Fire Chief Don Casey (right) confers with Mayor Haydock (on phone) about status of fire control and evacuation.



Photo 8. Red Cross volunteer (right) reassures evacuees at public shelter.



Photo 9. Some of the 1,500 evacuees provided temporary lodging at Hanover Area High School.



Photo 10. Evacuees pass the time with coffee and news updates on transistor radios.



Photo 11. Pennsylvania Governor Robert Casey (center, seated) receives briefing at the County EOC. Other officials present are County Commissioners Trinisewski, Phillips, and Crossin; State Senator Musto; and Congressman Kanjorski.

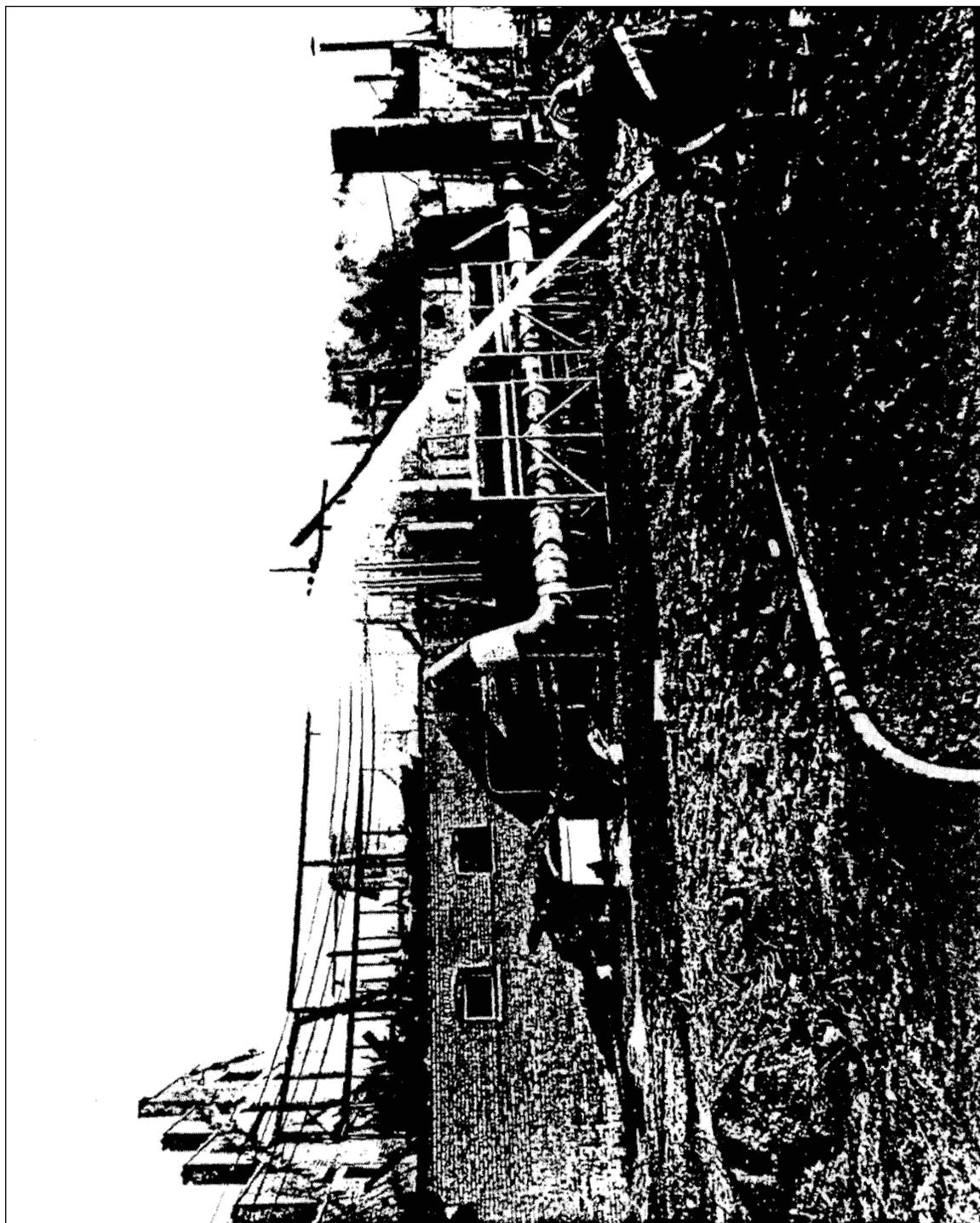


Photo 12. By dawn the fire was under control. Firefighters remain on scene to check spot fires.



Photo 13. Regional EPA employees arrive to take air and water samples.

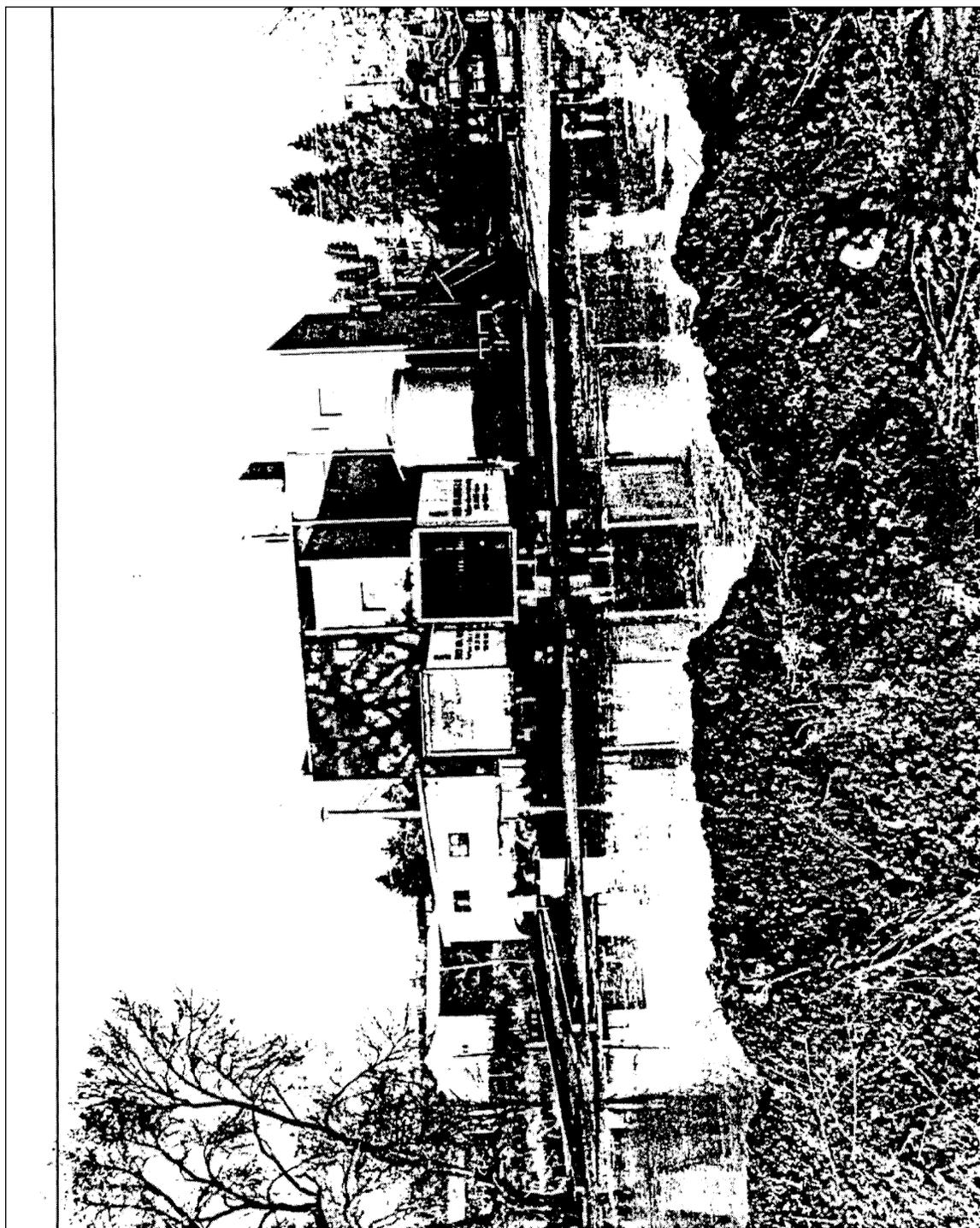


Photo 14. Regional EPA employees scrub down after checking toxicity levels.



Photo 15. Diking at rear and sides of building helped contain runoff from fire operations.

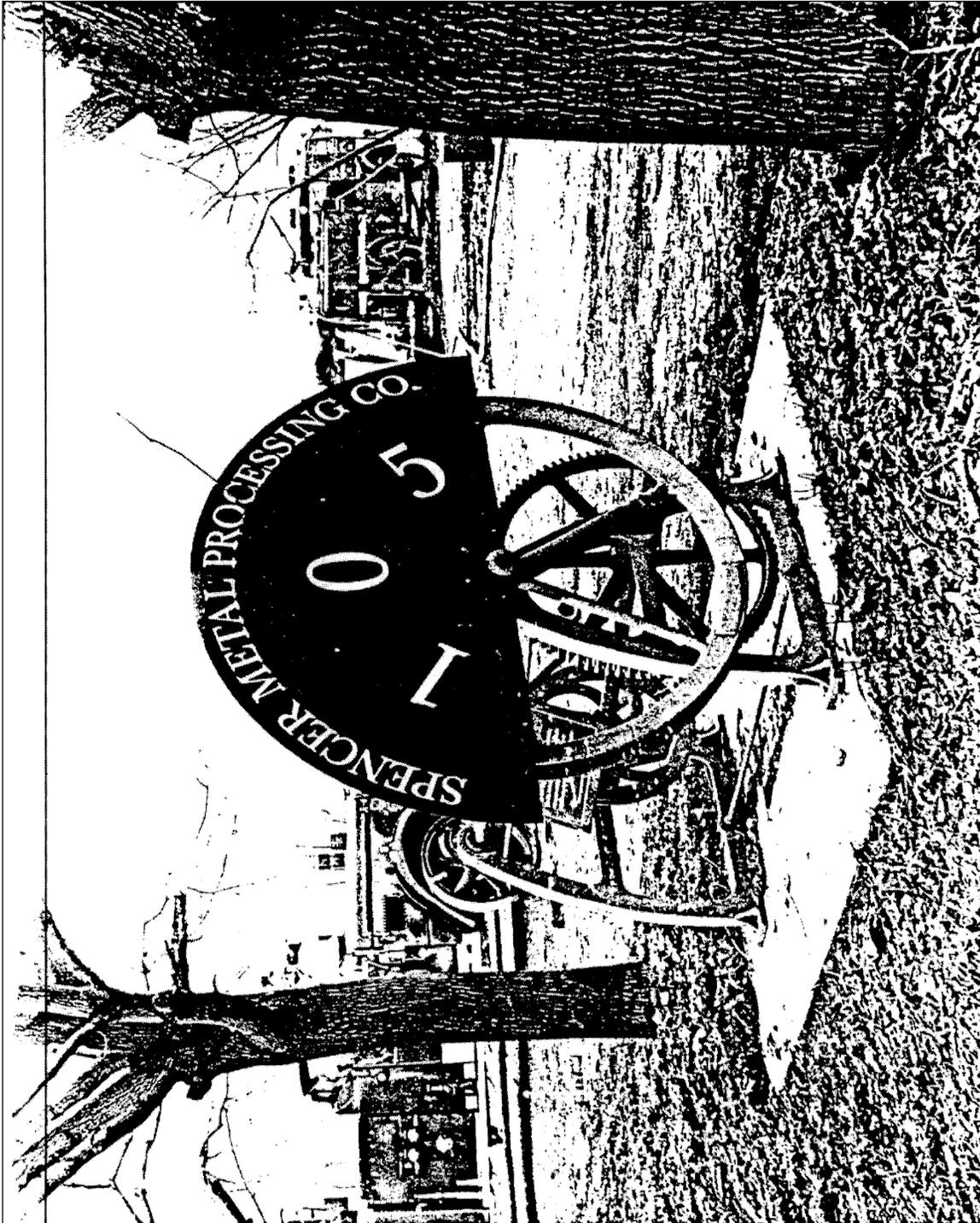


Photo 16. Only the company's sign remains untouched by the fire.

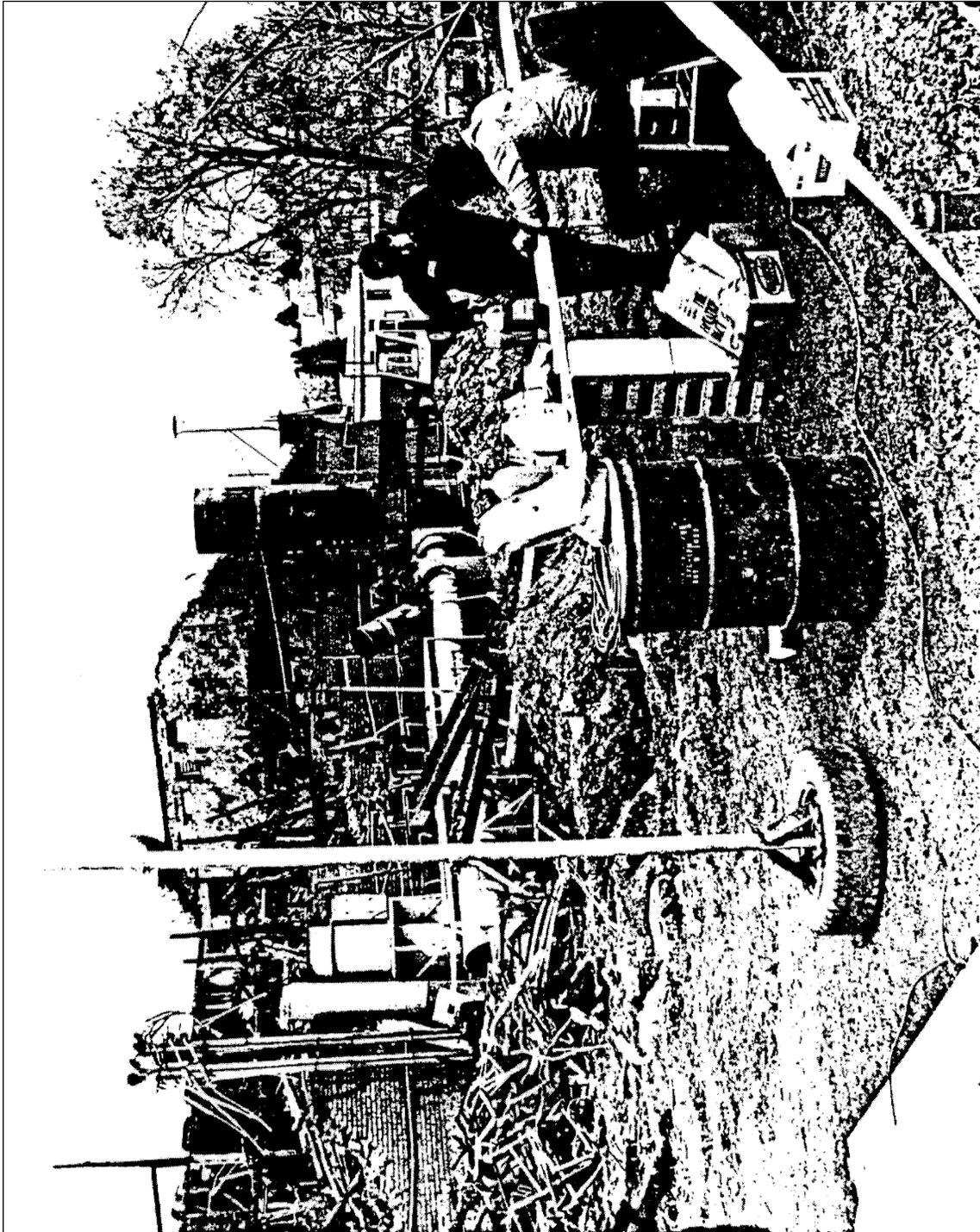


Photo 17. Temporary office set up at the west side of the building.