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United States Fire Administration

Urban Search and Rescue in Brownsville, Texas, Following a Commercial Building Collapse

Federal Emergency Management Agency
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Office of Firefighter Health and Safety

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Urban Search and Rescue Program

As a result of a number of of major emergencies including structural collapse both here and abroad over the last decade, the concept of urban search and rescue (USAR) has become increasingly recognized as an important element in integrated emergency response. These incidents include catastrophic earthquakes in California, the Philippines and Soviet Armenia and structural collapses in Brownsville, Texas, and New York City. Following Hurricane Hugo the California earthquake in 1989, both of which served to draw attention to the need for improved search and rescue capabilities and resources, the Federal Emergency Management Agency (FEMA) undertook a major initiative to establish a National Urban Search and Rescue System.

The initial goal of the FEMA program has been to establish 25 qualified USAR task forces placed strategically throughout the nation. These task forces provide the ability to respond to major incidents within a few hours of activation and offer a full range of capabilities in incident management; search; rescue; specialty medical care for entrapped patients; and technical disciplines including structural engineering, heavy equipment operation, hazardous materials and communications.

In addition, an Advisory Committee on the National USAR System has been formed consisting of federal government experts, state and local officials, and the private sector to guide further development of the System and to serve as a forum for discussing issues and exchanging information related to urban search and rescue.

To complement the efforts of the Federal Emergency Management Agency in Urban Search and Rescue, the United States Fire Administration (USFA) has also initiated research and development and information dissemination efforts on USAR. Study reports are being produced for USFA under its "Investigation of Urban Search and Rescue Incidents" program that will broaden the base of information available about USAR tactics, management and technology, and contribute to reducing the number and severity of casualties by highlighting the lessons learned, both the successes and the failures, from such operations in the past. The investigation reports, such as this one, provide detailed information about the magnitude and nature of the incidents themselves; how the response to the incidents was carried out and managed and the impact of these incidents on emergency responders and the emergency response systems in the community. The United States Fire Administration greatly appreciates the cooperation and information it is receiving from the fire service, county and state officials, and other emergency responders as this research progresses.

Additional copies of this report can be ordered from the Federal Emergency Management Agency/United States Fire Administration. For more information about USFA's program, write United States Fire Administration, 16825 South Seton Avenue, Emmitsburg, Maryland 21727.

Any opinions, findings, conclusions or recommendations expressed in this publication do not necessarily reflect the views of the Federal Emergency Management Agency.

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Urban Search and Rescue in Brownsville, Texas, Following a Commercial Building Collapse July 7, 1988

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OVERVIEW

In the middle of Thursday afternoon, July 7, 1988, heavy thunderstorms caused a flooding condition on the roof of a 3-story commercial dry goods store, La Tienda Amigo, in Brownsville, Texas. The weight of the water collapsed the roof in a pancake style blowing out the front wall and collapsing the side walls on top of the debris. Responding fire, police, and emergency service workers began a cooperative effort to assist the injured and remove all trapped victims. After three days of continuous rescue effort, the count reached 14 dead and 47 injured. Victims were inside the commercial dry goods store, under a sidewalk awning, and in a parked car in front of the store. Working in 90° temperatures, rescue workers suffered heat exhaustion and dehydration.

ACKNOWLEDGEMENTS

The Federal Emergency Management Agency, United States Fire Administration gratefully acknowledges the contributions of Fire Chief Johnny Economedes of the Edinburg Fire Department who generously shared his video-tapes, slide photos, and recollections. In addition, detailed information and helpful ideas were provided by Fire Chief Desi Najara, Police Chief Victor Rodriguez, EMS Director Carry1 Vasquez, and the Reverend Thomas Pincelli, all of Brownsville, Texas. A special thanks to Bobbi Balli, Director of the Department of Public Works and an American Red Cross volunteer, for supplying additional information and the answers to various questions during the research.

DEFINITIONS

Pancake Collapse **--** The collapse of one floor down upon the floor below in a flat, pancake fashion. This type of collapse often forms voids

Curtain-Wall Collapse -- The collapse of an exterior masonry wall that causes it to drop as if it were a curtain cut loose at the top?

Curtain Wall -- An exterior nonloadbearing wall, usually more than one story high, supported by the structural frame, which protects the building interior from weather, noise, or fire?

Void Space -- A hollow space within a structure that offers an area of safety. The void may be formed by a wall, furniture, building component, or some other substantial object.

Tunneling -- The process of building a makeshift tunnel in order to reach victims. The tunneling process frequently makes use of void spaces as access to the victims.

Shoring -- The use of structural members, beams, columns, or specialized equipment and tools to support the construction of a tunnel or trench, as well as for collapse stabilization.

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[1] Vincent Dunn. *collapse of Burning Buildings: A Guide to Fireground Safety, New York: Fire* Engineering, 1988, p. 14.

[2] Ibid. p. 13

[3] Ralph W. Burkin and Robert G. Purington. *Fire Terms: A Guide to Their Meaning and Use. Quincy,* MA: National Fire Protection Association, 1980.

Live Load -- The weight of movable material or objects within or on a building. Stock, furniture, equipment, snow, ice, rainwater, and people are considered live load.

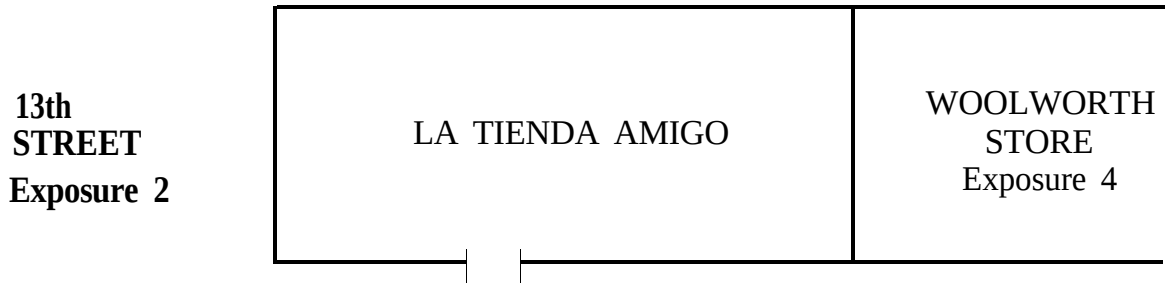
Dead Load -- The weight of material used in construction of the building. Doors, walls, chimneys, etc. are part of the dead load of the building.

Breaching -- The process of breaking through a wall or floor in, or&r to reach a victim on the other side. In the Brownsville collapse, two walls had to be breached.

THE BUILDING

The building was a 3-story commercial structure occupied as a dry goods' store and known as "La Tienda Amigo." It was built in 1968 on a concrete slab with walls of cinder block and brick. The floors and roof were supported by open web steel truss construction. The facade of the store on the first floor was plate glass in aluminum frames. The building covered an area of 75'x 120' on the comer of Elizabeth and 13th Street in Brownsville's downtown shopping district. (See Appendix A for a map of Brownsville showing the location of La Tienda Amigo.) It was originally built as a one-story structure with additional floors being added at a later date. The surrounding property was: a street on exposure 1 and 2, a rear alley containing overhead electric lines and transformers on exposure 3, and a Woolworth's store on exposure 4.

Exposure 3 Rear Alley



Exposure 1 Elizabeth Street

The first floor was used for sales in an open bin type display arrangement and the upper two floors contained stock. At the time of the collapse approximately 11 or 12 employees were on the first floor of the store. The upper two floors were not occupied. Because of the sudden rain, the exact number of customers on the first floor of the building was unknown. Occupants of the store claimed that there were no indications of danger prior to the collapse. The owner, Bernard Levin, indicated to the media that lights flickered before the collapse.

The street in front of the store began flooding due to the sudden downpour. Vehicles were pulling over and parking in order to avoid the floods. At about this time, telephone service in Brownsville was interrupted for about three hours due to the weather.

THE WEATHER

The weather in Brownsville after the collapse and on the next three days was:

Day temperature: 95°F Sunny

Night temperature: 75°F

THE COLLAPSE

A sudden thunderstorm accompanied by lightning began around 2 p.m. on the afternoon of July 7. The weather bureau reported that two inches of rain fell within 30 minutes. The heavy downpour caused many shoppers to seek cover under the awning of “La Tienda Amigo.” At approximately 2:15 p.m., the roof of the store collapsed in pancake fashion onto the second floor and the second floor fell into the first floor. The force of the collapse blew out the front wall and awning trapping those shoppers who sought protection under it. The side bearing walls collapsed inward onto the debris from the roof. A portion of the rear wall also collapsed leaving a one story wall remaining. Some debris from the collapse fell into 13th Street killing two passengers sitting in a vehicle parked directly in front of the store.

A photographer, Anthony Padilla, of the *Brownsville Herald was* taking photos of the rain and shoppers as the wall fell. He stated that “the front wall appeared to be moving toward him and then collapsed."[4]

Before the arrival of any emergency service personnel the conditions were as follows:

1. Those civilians only knocked down or superficially buried by the collapse were able to get up and move away from the building.

2. Unknown citizens aided those in need of assistance and in some cases helped them across the street to safety.

[4] Personal interview with Anthony Padilla at the *Brownsville Herald*, Brownsville, Texas, March 10,1992.

3. Unknown citizens began digging to get at people buried deeper but visible from the surface. Their efforts were successful and the victims were removed to safety.

4. Passing motorists stopped their vehicles and began assisting. This condition prevented emergency apparatus from getting close to the scene.

5 The first call to the EMS gave the name of a different store not in the immediate vicinity. The caller stated that a man suffered a leg injury.
Later calls corrected the address and gave a roof collapse as the problem. However, the magnitude of the situation was unknown to the first responding units.

THE COLLAPSE RESCUE PLAN

The collapse rescue plan (CRP) at this operation was in effect within 20 minutes of the collapse. A command and media center was staffed by Mayor Ygancio Garza, the City Manager, the Finance and Purchasing Directors, Fire, ‘Police, EMS, and Public Works.

Fire Chief Abelardo Sanchez directed mutual aid Chief Johnny Economedes of Edinburg Fire Department to coordinate the rescue operation. Chief Economedes put the collapse plan into effect in order to maximize the survival of those still trapped. There was no way to know the exact number of victims in the rubble.

The five step CRP is summarized as follows:

1. ***Survey the collapse site*** -- The first part of the survey should be a safety survey. Examine the site for emergent hazards that would further endanger the rescuers, e.g., gas leaks, unstable structures or structural members. Control or remove these dangers before committing rescue personnel. The second part of the survey should identify the areas of known and probable victims. Void spaces created during the collapse enabled rescuers to crawl 'in and establish voice and physical contact with victims.

2. ***Rescue victims visible on the surface*** -- Successful victim removal begins immediately after the collapse. Some may be able to free themselves, others will need assistance to get to safety.

3. ***Explore voids*** -- Void spaces created by tables, furniture, walls, and other objects frequently contain victims. In the case of the pancake collapse, voids will still be created and rescuers must explore these areas.

4. ***Selected debris removal*** -- When the location of victims is known through voice contact or from the eyewitness accounts of other survivors, care in removing selected debris must begin. In many cases, hand removal will be utilized so as not to cause further collapse or injury to the victims.

5. ***General debris removal*** -- After all known victims are removed, a general debris removal can begin. Heavy equipment such as cranes, backhoes, front end loaders, and dump trucks may be used. Even at this stage, spotters must be ever observant for possible victims in the structure.

For more information about the Collapse Rescue Plan, see Vincent Dunn, *collapse of Burning Buildings: A Guide to Fireground Safety, New* York: Fire Engineering, 1988, and Frank Borden, "Urban Search and Rescue," *American Fire Journal,* September 1992.

ADDITIONAL CONSIDERATIONS

The security of the collapse area is initially difficult to obtain. The outpouring of assistance by passersby and on and off duty emergency service workers creates an uncoordinated rescue plan. As soon as possible, site security and maintenance must be established by police and other law enforcement agencies.

A general outline is as follows:

1. ***ColIapse Zone*** -- The area where only those directly involved in the debris removal and rescue operation should be working. Identification, hard hats, gloves, laundry baskets, hand tools, and other equipment may be required prior to entering the collapse zone.

2. ***Limited Access Zone*** -- The area where support personnel assisting those working in the collapse zone can perform their required tasks without getting in the way of rescue workers in the collapse zone.

3. ***Support Staging Area*** -- Those rescue workers getting ready to change positions with rescue workers in the collapse zone or limited access zone can maintain a position in the support staging area. The area should be large enough to permit vehicles supplying fuel and food to the rescue workers.

4 . ***Media Area*** -- An area away from the collapse and staging areas that can be used for news briefings and remote broadcasts. Telephone access is extremely helpful for the working press.

5 . ***Police-Fire Lines*** -- An area far removed from the rescue workers that can be established to keep citizens away from the work in progress.

THE OPERATION

The initial call for this incident was reported to be an injured man at the Amigo Mall. A second call reported a roof collapse and a corrected location. First responding EMS, fire, and police units were met by an awesome sight: a three story commercial structure collapsed during a heavy thunderstorm. Victims on the surface were being assisted by other shoppers and passersby.

First responding units requested additional assistance. The City of Brownsville had three ALS ambulances available and requested mutual aid from surrounding communities. Initially, radio and telephone failure made communications impossible with Brownsville. However, EMTs relayed their requests to a dispatcher 25 miles away in Harlingen, Texas. ALS ambulances came from Harlingen, Port Isabel (17 miles away), and Los Fresnos (10 miles).

Upon arrival, the EMTs immediately set up a triage area near the collapse site. Later in the day, a vacant store was opened and used as a triage and mini-emergency room. A nearby convention center served as a temporary morgue. Physicians at the scene constantly monitored the rescue workers for signs of exhaustion and dehydration. Local clergy were available at the collapse area, triage, and temporary morgue to assist victims and family.

The two local area hospitals were overwhelmed with victims. There were 14 fatalities, 47 civilian casualties with injuries ranging in severity, as well as rescue workers who suffered heat exhaustion, dehydration, and minor cuts and bruises. The mini-emergency room in the vacant store handled the minor cases

The fire department dispatched two engines, one ladder truck, and an assistant chief on the initial call. A call for all fire department units was requested as well as mutual aid from surrounding communities. Mutual aid companies covered vacant Brownsville stations.

The Brownsville Fire Department has a total of nine engines and one ladder truck. It is staffed by 100 officers and firefighters. A call went out for all off duty members to report for duty. The department operated according to the disaster plan and the task of search and rescue began. The Brownsville Fire Department section of the plan appears in Appendix B. The department was on the scene of the collapse for three days. No member of the fire service was seriously injured during the long operation.

The police department initially dispatched one patrol car to the scene. The first arriving officer radioed for assistance. Initially traffic and flooding in the immediate area of the collapse was a problem. The Brownsville police department received assistance from the Texas Department of Public Safety, the Border Patrol, U.S. Marshals, and U.S. Customs. A media post was established by the department and operated efficiently throughout the incident. Media from around the United States and Mexico set up equipment and broadcast live from the collapse scene.. The police kept the media informed of events and progress of the rescue effort.

A number of special problems arose. Radio communication failed at the outset of the incident; this difficulty was overcome through the use of cellular

phones Traffic jams were caused by unmanned emergency vehicles. Unmanned civilian vehicles in no parking zones and restricted parking areas hampered initial operations. Also, more heavy duty vehicles than necessary were permitted into the collapse area. Access to the International Bridge to Matamoras, Mexico, was limited to emergency vehicles only.

As local and mutual aid units began arriving and reporting in to the command post, a disaster plan written in 1987 was put into effect. Assignments were delegated to the various units and a systematic deployment of resources commenced.

An ample supply of heavy duty equipment was utilized; cranes, backhoes, front-end loaders, a portable conveyor, tow trucks, and dump trucks were essential in this operation. Despite the large number of heavy duty vehicles and sophisticated rescue equipment assembled at the collapse scene, the most frequently used search and removal method was hand digging utilizing plastic laundry baskets to carry debris to a front-end loader. The initial use of heavy duty equipment was not advised due to the danger to victims if further collapse occured.

The emergency vehicles used and a list of the other agencies and companies involved in the incident are presented in Appendix C. The total response is not known because there was such an outpouring of assistance to the scene.

Specialists from the construction industry and rescue companies using oxy-acetylene cutting equipment, air hammers, circular saws, Sawzalls, hydraulic jacks, and mauls began the task of reducing the size of large pieces of concrete, wood, and steel. Calls were made to local suppliers for circular saw abrasive blades and Allen wrenches (which were needed to remove the circular saw

blades). A hose line was stretched into position during cutting operations to deal with small fires involving clothing mixed in with the debris.

Notifications were made for the electric and gas service to the building to be shut off. The absence of a basement eliminated some problems in search and rescue. It was initially reported that a transformer had exploded in the rear alley. However, the transformers were found intact.

The rescue workers used almost every available rescue tool during the incident. Devices such as infrared cameras, sensitive microphones, seismic equipment, and bullhorns were employed. See Appendix D for primary tools and equipment used and the agencies that supplied them. Air shoring devices were not used because it was thought sharp objects might pierce the air bags, though this in retrospect is considered an overly cautious approach. The United States Border Patrol came in with dogs specially trained to locate people. Rescuers tunneled, breached walls, dug, and lifted heavy concrete and steel sections in order to reach victims.

Because of the long duration of the incident, crew rotation was a major concern. Many rescuers would not stop. The physical condition of the workers was constantly monitored by attending physicians and EMTs. Crews were rotated at set intervals depending on the weather and type of work. Extreme humidity and high temperatures complicated the rescue effort. A rest area was set up nearby with cots and food.

During the long ordeal, Father Thomas Pincelli, a priest of the Brownsville Diocese, entered the collapse accompanied by an EMT. Father Pincelli stated that he crawled in on the debris from the third floor and down into the second floor. From this position he was able to talk with the victims trapped in the pancaked first floor. According to Father Pincelli, “getting their attention over the

screams and pleas was primary. After I told them who I was and that help was on the way, they calmed down. We reassured them of the rescue effort going on above them. I gave one woman a rosary that was given to me before I entered, and the woman seemed to gain control of herself."

The cooperative effort and hard work of all the firefighters, police officers, emergency medical service workers, physicians, private contractors, and ordinary citizens from the United States and across the border in Mexico enabled this unusual incident to come to a successful conclusion.

On Sunday, July 10, 1988, a memorial service was held at the site. This closure service enabled family members and rescuers to grieve their loss of family and friends It was a way of bringing the tragedy to an end. The magnitude of the incident and the number of rescuers and days endured with victim retrieval and debris removal was more than many of the workers had ever seen. We sometimes forget that emergency service workers are human, and even though they appear to be strong, some may need assistance in dealing with a major tragedy. A memorial service brings it to an end in a dignified way.

LESSONS LEARNED

Planning

1. ***Meetings with all agencies involved in providing assistance to the emergency service are necessary.*** The time to develop a plan is not at the emergency. In Brownsville, continual review and revisions of the Disaster Plan provide the foundation for local emergency management. Interagency training for hurricanes,

[5] Telephone interview with Father Thomas Pmcelli, St. Francis Xavier, La Feria, Texas, March 24,1992.

floods, fires, and other incidents should maintain the same basic format for command and control.

2 ***Identify all specialized equipment and operators.*** The various situations requiring action by the emergency service mandate that resource lists of special equipment and competent operators to run them be developed and maintained. Resource lists might start with the most basic items, as illustrated in Appendix E, and include tools and other technological items such as those in Appendix C and also heavy equipment, their sources, and operators. The travel time for heavy equipment to arrive at the scene must be taken into consideration by the Incident Commander.

3 . ***Complication factors in the community.*** Many areas have unique situations that may complicate an emergency situation. Items such as excessive noise, water, vibration, congestion, access, or availability of personnel or equipment should be considered. The close proximity of the International Bridge to Mexico presented traffic control problems for the police. Approximately 40,000 people cross the bridge daily. Also considered a complication factor is language. In Brownsville, a majority of rescue workers are bilingual in English and Spanish. The ability to communicate with victims and families eliminated many problems.

Training

4. ***A key to the successful conclusion of an emergency situation is training.*** This training must not only focus on the role of the individual units, but on the interagency cooperation that must exist at the local, state, and federal level. The role of the Incident Commander and the Incident Command System should be inc!uded in all training programs. A training program should not focus on only one particular type of emergency, but must be flexible enough to be applicable to

a broad number of situations that every community could face at any time. In Brownsville, hurricanes, hazardous materials incidents, air crashes, fires, and floods are always possibilities Multi-agency training will enable emergency workers to become familiar with the local disaster plan. The more realistic the training, the greater the learning experience. Role-playing with local groups such as Scout Troops and others can add some realism to the training.

LESSONS REINFORCED

1. ***Institute a command system.*** The ICS should be implemented as soon as the first unit arrives on the scene. The first officer in command is designated the Incident Commander. As an emergency situation escalates or de-escalates, the system can be changed.

2. ***Implement a collapse plan*** The collapse plan differs from other situations in the victim and debris removal.

3. ***Establish communications.*** Many areas of the country rely on one or two methods of communicating emergency calls. Frequently, major disasters render one or all of these systems inoperative. Proper planning will identify primary methods of communication available to emergency service workers. These include mobile radio, cellular phone, citizen band radio, marine radio, local phone service, fire alarm boxes, police call boxes, and other systems available in a community.

4. ***Shut off all utilities.*** Gas, electric, water, and telephone if necessary must be quickly shut off. The reasons are obvious and necessary in order to maximize survivability of the victims and minimize the risk to the rescuers.

5. ***Place hoselines.*** A charged hoseline must be immediately in place to protect the victims and rescuers In Brownsville, the hoseline extinguished small fires resulting from cutting operations near flammable material entwined in the collapse debris.

6. ***Check exposures.*** Check exposures are frequently described as:

Exposure I -- The area directly in front of the main entrance or area.
Exposure 2 -- The area to the left,
Exposure 3 -- The area to the rear.
Exposure 4 -- The area to the right.

A complete search of the interior and exterior of exposures is necessary. The force of an explosion or collapse frequently dislodges objects and equipment in adjacent structures injuring occupants. The condition of exposures may cause the operational area of the incident to be expanded and affect the deployment of resources.

7. ***Have the building department engineers and the builder at the scene.*** Valuable information will be available to the Incident Commander with their assistance. If building plans and pre-fire plans are available, they should be brought to the scene.

8. ***Obtain infbrmation from survivors about location and victims.*** Many times victim location can be identified from survivors. This is valuable input to add to other size-up information such as the occupancey, time of day, etc. This saves time in rescue operations and in selective debris removal.

9. ***All locations must be checked.*** A thorough search should begin. as soon as possible. The rotation of crews in the search may be beneficial in not overlooking any area. The rotation of crews for safety considerations is widely understood, having fresh crews searching the scene is an important, additional benefit.

10. ***Place an emergency service worker in charge of heavy equipment.*** This is a safety feature during emergency operations. In some cases, the heavy equipment operator may not be familiar with the deliberate, cautious operation required at search and rescue incidents and will move too quickly for safety.

11. ***A safety officer must be present.*** The Incident Commander should designate a chief officer to monitor the emergency scene for conditions or situations that may endanger victims or rescue workers. More than one safety officer may be needed depending on the magnitude or complexity of the incident.

12. ***Set up human chains.*** In some situations the only way to remove debris is passing it hand to hand. In Brownsville, the use of hand tools, plastic laundry baskets, and many volunteers enabled the operation to come to a successful conclusion. However, at no time should citizen volunteers be placed in a position of danger. Local jurisdictions should consider developing standard operating procedures regarding the use, control, and safety of civilian volunteers.

13. ***Protect volunteers.*** Some volunteers would not stop working and placed themselves in danger. Control of volunteers was established early and safety procedures implemented.

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Additional Readings

Garza-Trego, Hector, and Lawrence Watson. "The Day Brownsville Collapsed." *Emergency*, October 1988.

Otter, D. "Brownsville Building Collapse Triggers Heavy Response." *JEMS*, September 1988.

"Rescue Workers Remove Last Victims of Department Store Roof Collapse." *Emergency Preparedness News*, July 11,1988.

"SBCCI Engineers Investigate Collapse of Brownsville, Texas Department Store." *Southern Building*, September/October 1988.

"Store Roof Collapses During Storm in Texas, Killing Eight." *New York Times*, National Edition, July 8, 1988.

Appendices

A. Map of Brownsville Showing Location of La Tienda Amigo Dry Goods Store

B. Brownsville Fire Department's Section of the Disaster Plan

C. Emergency Service Vehicles Used in the Collapse Rescue Plan and Other Agencies and Companies Involved in the Incident

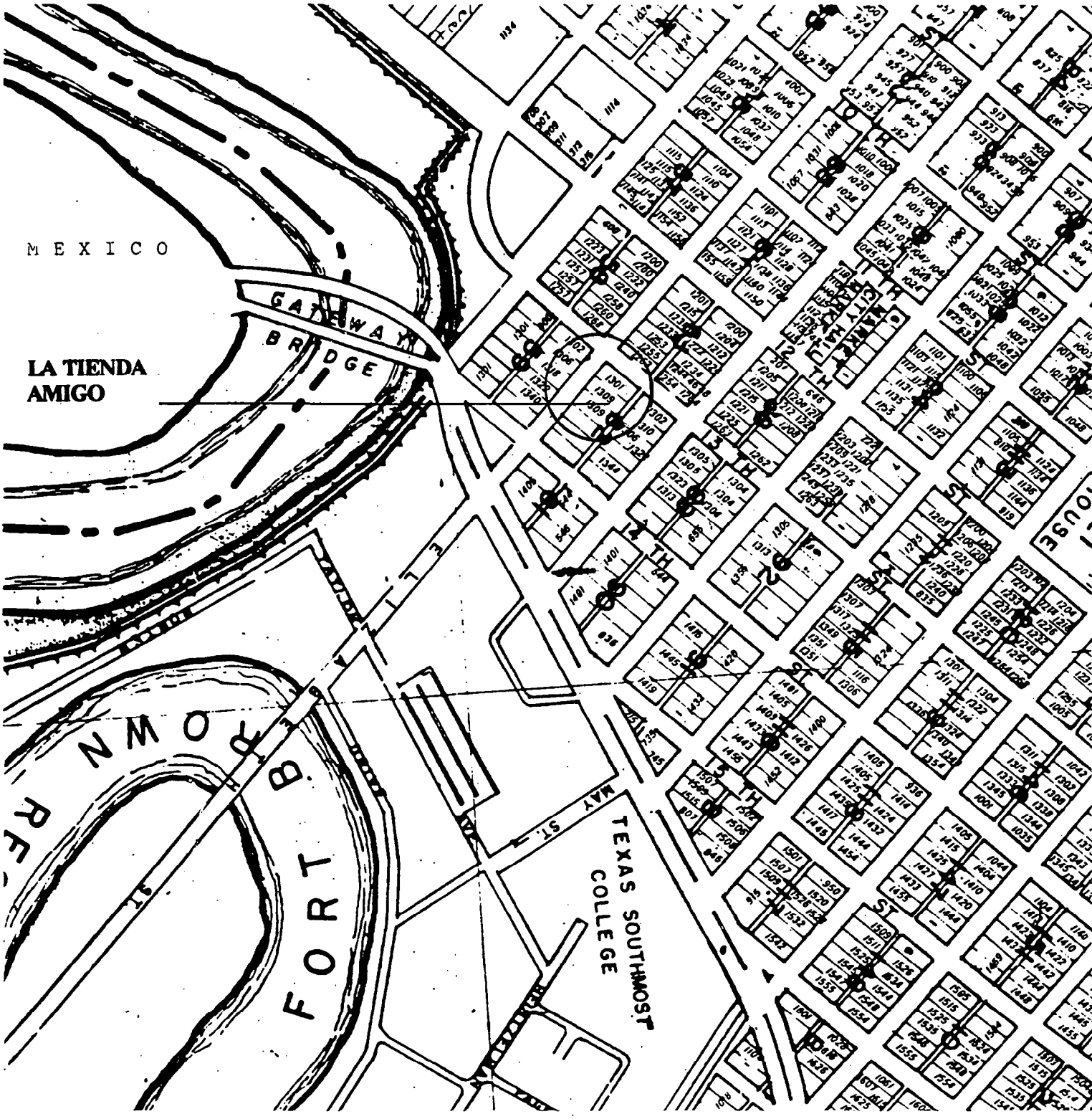
D. Technological and Other Equipment

E. Essential Equipment List

F. Photographs

Appendix A

Map of Brownsville Showing Location of La Tienda Amigo Dry Goods Store


MEXICO
GATEWAY
BRIDGE
LA TIENDA
AMIGO
FORT
TOWN
TEXAS SOUTHMOST
COLLEGE
MAY ST.
CITY MARKET
15

Appendix B

BrownsvilIe Fire Department's Section of the Disaster Plan

ANNEX F

FIRE AND RESCUE

I. AUTHORITY

See Basic Plan

II. PURPOSE

The purpose of this annex is to provide the City of Brownsville with a firefighting plan to meet the demands of a disaster situation. In addition to firefighting, responsibilities in rescue, warning, and radiological protection operations are addressed.

III. SITUATION AND ASSUMPTIONS

A. Situation

Fire prevention and control are daily problems faced by fire services personnel. These problems become more significant during emergency situations. Several hazards present difficulties with regard to fire protection including conflagrations, grass fires, nuclear attack, and hazardous materials accidents. Severe structural damage from these hazards could result in people being trapped in damaged and collapsed structures, missing persons and the dead.

B. Assumptions

Existing fire personnel and equipment will be able to handle most emergency situations through the use of existing mutual aid agreements. When additional support is required, assistance can be obtained from state and federal agencies. A trained, equipped, organized rescue service will provide the capability to conduct search and rescue operations.

IV. CONCEPT OF OPERATIONS

A. General

The responsibilities of fire services in disaster situations are basically the same as in daily operations. Their primary responsiblity is fire control. They are also involved on a regular basis with rescue operations, hazardous materials, and support for radiological protection activities.

B. Phases of Management

1. Mitigation

   a. Enforce fire codes

b. Provide public fire safety information programs

2. Preparedness

a. Maintain equipment

b. Train fire personnel

c. Develop communication procedures

d. Train rescue squads and EMTs on a regular basis

e. Test, maintain and repair equipment on a scheduled basis

f. Revise and update response plans at regular intervals

3. Response

a Contain, control and extinguish fires

b. Initiate rescue missions as necessary

c. Operate local warning system (See Annex A)

d. Perform radiological protection measures as necessary (See Annex D)

e. Control hazardous materials incidents within capability - request assistance as needed (See Annex Q)

4. Recovery

a. Perform inspection of restored or reconstructed buildings

b. Perform or assist in decontamination and cleanup

c. Recommend condemnation of unsafe buildings

V. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

A. General

The organizational arrangements followed on a day-to-day basis will also be adhered to during an emergency.

B. Task Assignments

1. Brownsville Fire Department

a. Coordinate all fire services activities within the city

b. Fire Control

c. Fire Prevention

d. Assist in warning and operation of warning sirens (See Annex A)

e. Support for shelter/mass care operations (See Annex C)

f. Support for radiological protection (See Annex D)

g. Assist evacuation (See Annex E)

h. Control of hazardous materials (See Annex Q)

i. Fire code enforcement

j. Preparation of appropriate mutual aid agreements

k. Support for other public safety operations

l. Rescue operations

2. Texas Forest Service

a. Primary responsibility for forest fires

b. Support for local fire control operations

3. U. S. Forest Service

Support for local fire control operations

4. Military Support

Support for local fire control operations

VI. DIRECTION AND CONTROL

Routine operations will be handled by standard procedures. During major emergency or disaster situations, which require Brownsville EOC activation, the Chief Fire Officer will be responsible for coordinating all emergency fire service operations within the jurisdiction from the EOC. An on-scene command post(s) may be established at the site(s) of a disaster situation in conjunction with other responding agencies, such as law enforcement, and the senior fire person on-scene will be in charge of fire suppression activities and report to the Chief Fire Officer in the EOC. The Chief Fire Officer will establish and maintain communications with the on-scene command post and direct emergency operations from the EOC in coordination with other responding agency representatives at the EOC. If local capabilities are exceeded, the Chief Fire Officer will request outside assistance from the person in overall charge of the EOC. Outside assistance will be provided from mutual aid agreements, state or federal sources.

VII. INCREASED READINESS ACTIONS

Described below are the various actions that will be accomplished under varying readiness conditions (4,3,2 and 1). Although "Condition 4" essentially equates to a normal peacetime situation or seasonal atmospheric phenomena, it should be noted that certain significant readiness actions must still be accomplished on a regular, periodic, basis. This will promote a smooth transition to increased levels of readiness (with "Condition 1" being the highest) should an emergency arise.

Condition 4:

1. Review and update fire and rescue plans, SOP's and procedures
2. Review mutual aid agreements
3. Accomplish inspections of shelter/emergency lodging facilities for fire safety
4. Review assignment of personnel
5. Conduct tests and training exercises

Condition 3:

6. Check readiness of all fire-rescue equipment
7. Correct deficiencies in equipment and/or facilities

a. Prepare for possible shortage of water, electricity, chemicals, etc.

9. Alert key personnel

Condition 2:

10. Alert personnel of possible emergency duty
11. Place off-duty personnel on stand-by
12. Establish liaison with EOC
13. Coordinate with Human Services to determine locations of special needs groups (handicapped, elderly, transients) that may need special consideration during fire service operations

Condition 1:

14. Mobilize all fire and rescue personnel
15. Request mutual aid support, if necessary

16. Direct relocation of selected equipment to pre-designated locations as appropriate

VIII. CONTINUITY OF GOVERNMENT

Lines of succession:

Primary: Fire Chief

Alternate: First Assistant Fire Chief

IX. ADMINISTRATION AND SUPPORT

A. Communications

The fire communications network is shown in Appendix 1. The Fire Service will operate a base station in the EOC communications center during response operations. An internal recall roster will be maintained.

B. Resources

A listing of available fire department resources is found in Appendix 2.

X. ANNEX DEVELOPMENT AND MAINTENANCE

The Fire Chief will coordinate the planning of all fire services related to emergency management operations and ensure the maintenance of this annex. Each agency will develop SOPS which include procedures for the accomplishment of fire service related tasks.

XI. REFERENCES

A. Federal Emergency Management Agency (FEMA), 1981. Guide for Increasing' Local Government Civil Defense Readiness During Periods of International Crisis, CPG 1-7.

B. FEMA, 1982. FEMA Attack Environmental Manual, Chapter 3; What the Planner Needs to Know About Ignition and Spread, CPG 2-lA3.

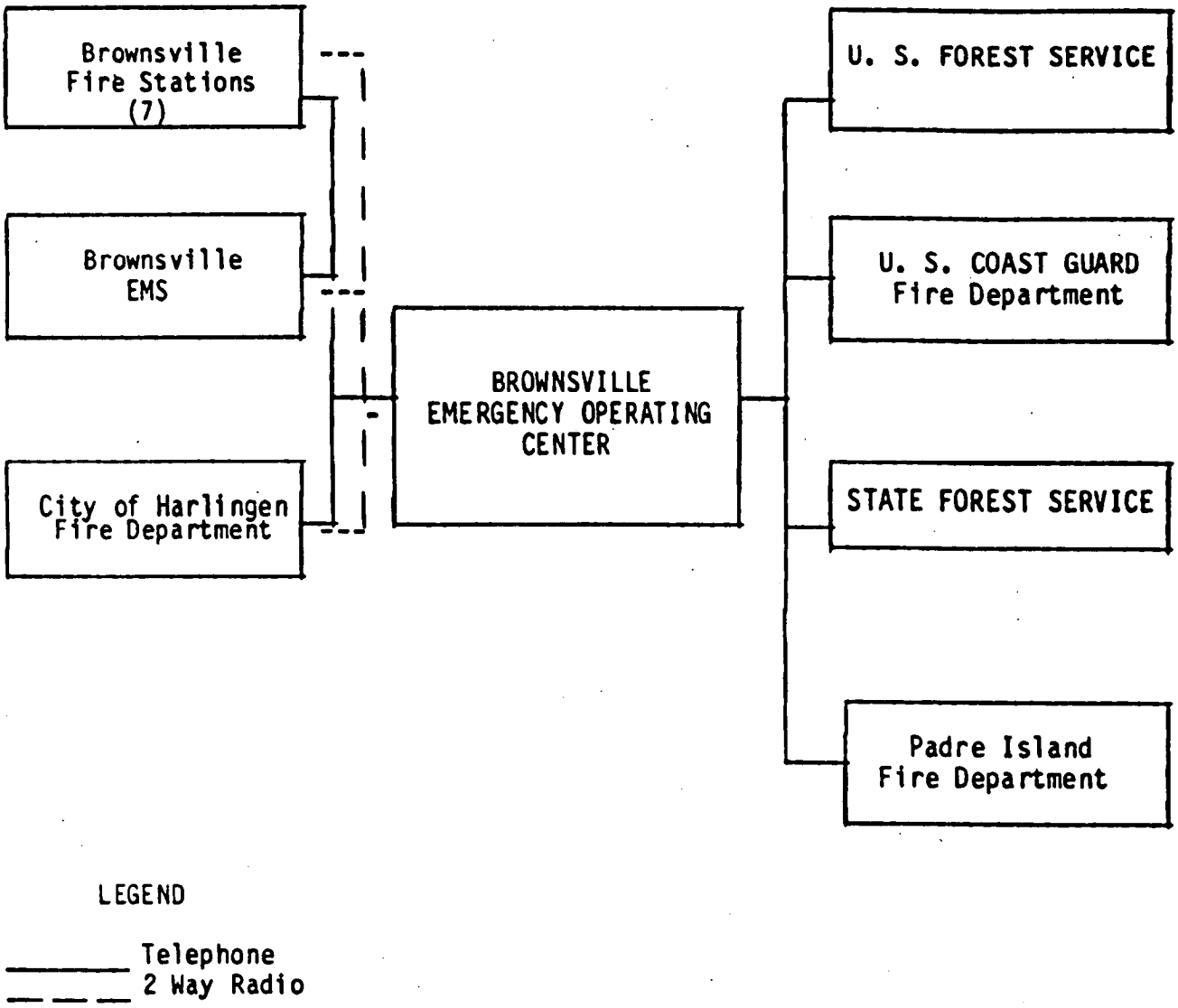
C. FEMA, 1981. Support Assistants for Fire Emergencies, SM-9.2 A.

D. FEMA, 1981. Support Assistants for Fire Emergencies, SM-9.2 B.

E. FEMA, 1980. Fire Suppression Assistance Handbook, DR & R-4.

APPENDIX 1 TO ANNEX F

FIRE SERVICE COMMUNICATIONS NETWORK



APPENDIX 2 TO ANNEX F
FIRE RESOURCES

1. Deluge Sets - 6
   a. Maximum GPM - 2000 GPM .
2. Pumpers - 9 - 1,500 GPM
3. Ladder Trucks (Quint)
   a. Number - 1
   b. Maximum reaching - 100' capacity
4. Special Extinguishing Agents
   a. Light Water Foam
      Amount 580 gals of 6 to 1 foam
5. Toxic Gas Indicator
   a. Type - 1
6. Protective Gear
   a. Air Packs
      (1) Type - Scott Air Packs
      (2) Number - 18
   b. Length of Oxygen - 30 min. per tank availability
7. Heavy Duty Rescue Equipment
   a. Jaws of Life - 1 Jack - 2 - Tons
8. Water Carrying - 6,000 gals total Capabilities
9. Man Power - 106 Firemen
10. Rescue Boat - 1
11. Rescue Unit/Command Center 917
    Haz-Mat Chemical Suits - 4
    Level A
12. CFR Unit.- 1

Appendix C

Emergency Service Vehicles Used in the Collapse Rescue Plan and Other Agencies and Companies Involved in the Incident

Emergency Service Vehicles Used

Fire Engines	Nine local and 10 mutual aid departments
Ladder Trucks	One local quint
Heavy Rescue Vehicle	Two mutual aid departments
Utility	Mutual aid vehicles
Fuel Truck	One available through DPW
Food Wagon	Two American Red Cross, Salvation Army
Communications Van	Part of a heavy rescue vehicle
Field Headquarters	Established near collapse site
Air Supply Vehicle	Part of a heavy rescue vehicle
Ambulances	Two local and 8 mutual aid ambulances
Helicopters	One from a private source
Police Vans	Local and state vehicles available

Other Agencies and Companies Involved in the Incident

U.S. Border Patrol	Trained dogs
U.S. Customs	Police functions
US. Navy	Sensitive microphones
us. Dept. of state (Bureau of Mines)	Seismic equipment
U.S. Marshals	Police functions
Texas Dept. of Safety	Police functions
Telephone Company	Portable pay phones
Local hospitals	Medical services
Local funeral homes	Body bags
Helo Inc.	Helicopter

Appendix D

Technological and Other Equipment

Technological and Other Equipment				
Item	Fire	Police	EMS	DPW
Surveyor's Transit	-	-	-	-
Infrared Video Camera	Y	-	-	-
Sensitive Microphones	Y	-	-	-
Bullhorn	Y	Y	-	-
Air Bags	NU	-	-	-
Air Compressor	Y	-	-	Y
Cellar Pump	-	-	-	NU
Keyhole Saw	Y	-	-	-
Chain Saw	Y	-	-	Y
Come Along	-	-	-	Y
Cutters	Y	-	-	Y
Ejector Smoke	Y	-	-	-
Electric Generator	Y	-	-	Y
Public Address	Y	Y	Y	-
Explosimeter	-	-	-	-
Fans	Y	-	-	-
Hydraulic Jacks	Y	-	-	Y
Jack Hammer	Y	-	-	Y
Portable Lighting	Y	-	-	Y
Welding/Cutting Torch	Y	-	-	Y
Wheelbarrows	Y	-	-	Y
Mauls	Y	-	-	Y
Shovels	Y	-	-	Y
Crow Bars	Y	-	-	-
Car Floor Jack	Y	-	-	-
Wood Shoring	Y	-	-	-

Y = Used

NU = Not Used

Appendix E

Essential Equipment List

Essential Equipment List				
Item	**FD**	**PD**	**EMS**	**DPW**
Hard hats				
Workmen gloves				
Latex gloves				
Face masks				
Jump suits				
Identification bands				
Stokes baskets				
Rope				
Flashlights				
Victim tracking tags				
Body bags				
First aid kits				
Resuscitator				
Floodlights				

Appendix F

Photographs

(Photo provided by the Edinburg, Texas, Fire Department)

The collapsed 13th Street wall (exposure 4) that had to be broken into small pieces for victim location and removal.

(Photo provided by the Edinburg, Texas, Fire Department)

A view of the 13th Street wall (exposure 4) looking toward the rear of the building.

(Photo provided by the Edinburg, Texas, Fire Department)

A backhoe used to cart away debris from the front wall.

(Photo provided by the Edinburg, Texas, Fire Department)

Rescue workers talking to a victim in a pancaked section of the collapse.

(Photo provided by the Edinburg, Texas, Fire Department)

Operations continued into the night. Floodlights were set up to assist in the rescue.

(Photo provided by the Edinburg, Texas, Fire Department)

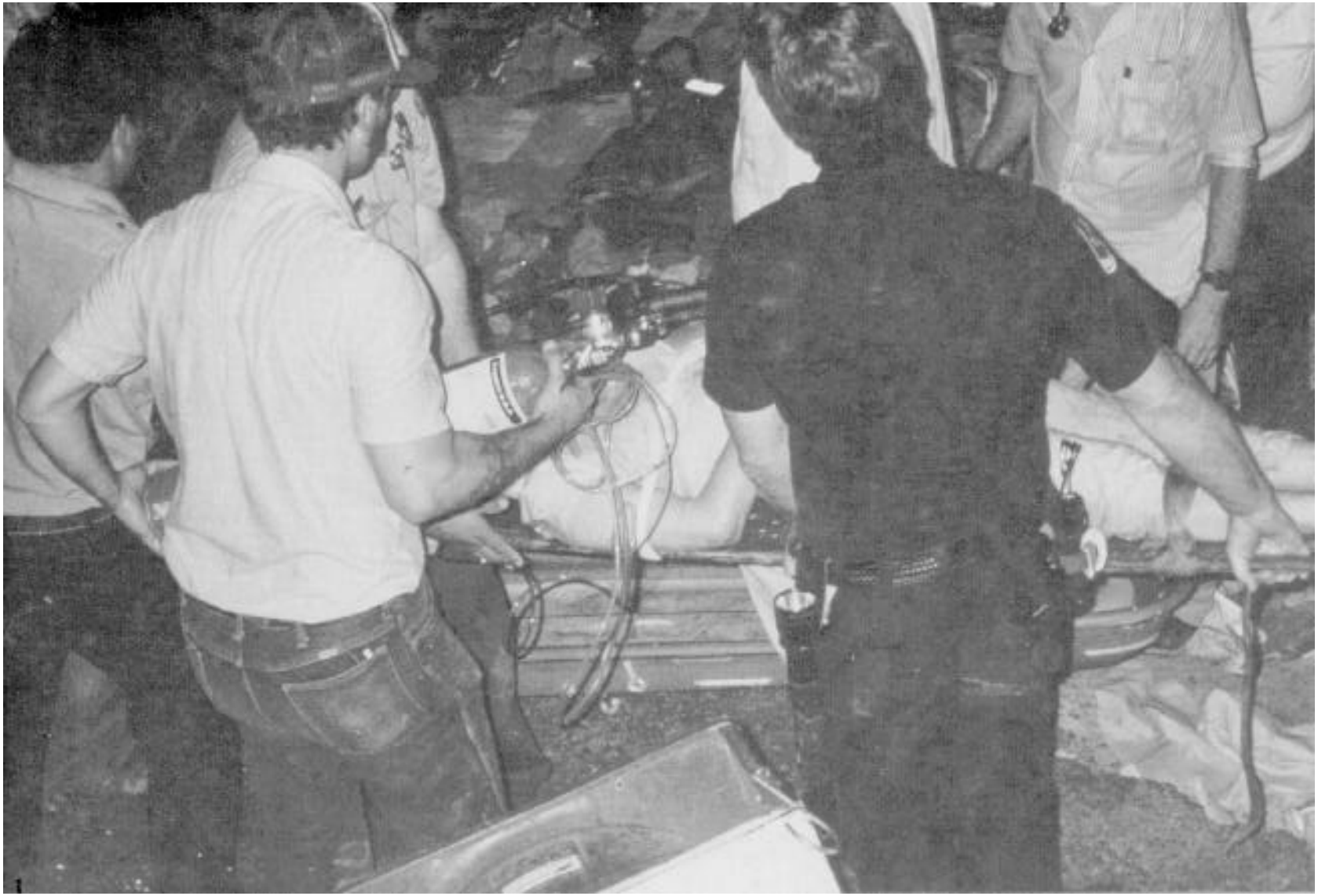
Small baskets were used in hand digging operations.

(Photo provided by the Edinburg, Texas, Fire Department)

Rescue workers were protected from the hot sun and intense heat with an open tent.

(Photo provided by the Edinburg, Texas, Fire Department)

A hand line is operated during cutting operations at the rescue site.



(Photo provided by the Edinburg, Texas, Fire Department)

One of the victims of the collapse being removed in a stokes basket.

(Photo provided by the Edinburg, Texas, Fire Department)

A second victim being removed from the rubble.

(Photo provided by the Edinburg, Texas, Fire Department)

A triage and mini-emergency room set up in a vacant store across from the collapse.