



Task Force Operations: An Overview

BY RAY DOWNEY



"Ants on the hill." Rescuers work on the 30-foot-high level of debris. (Photo courtesy of Oklahoma City Fire Department.)

Approximately five years after its inception, the urban search and rescue component of the federal government's national disaster response system was put to its greatest test—the Alfred P. Murrah Building Bombing in Oklahoma City on April 19, 1995.

Within an hour of the bombing, daytime television brought to viewers across the country the images of this precedent-setting terrorist act. My first impression on viewing the disaster on a TV at City of New York (NY) Fire Department Headquarters was that this incident had all the signs of the World Trade Center incident. Assessing the damages I saw on TV brought back many memories of the World Trade Center and the damage that could be viewed only by those inside the building.

My initial impression was that the Murrah Building had more floors damaged but less of an area affected. My initial impression quickly changed when I arrived at the incident site on the evening of the day of the blast. What could not be seen from the outside of the building or on TV was the massive destruction of the building's interior.

City of New York Fire Commissioner Howard Safir had asked me to accompany him to a press conference the mayor was holding at city hall. Responding to the media's request, the mayor was discussing

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Nine floors collapsed in pancake fashion in this, "the Bowl" area. Firefighters actually could count the layers of each floor in some locations. (Photo courtesy of Oklahoma City Fire Department.)

the Oklahoma City Bombing and how he offered assistance to the governor of Oklahoma. The 1993 World Trade Center Bombing had given us some valuable experience that might be of assistance to Oklahoma City. As one of New York City's USAR Task Force leaders, I was standing by to answer questions on the federal government's National Disaster Response System. As the press conference concluded, my beeper went off. FEMA Headquarters was assembling an incident support team (IST) for immediate dispatch to Oklahoma City.

ARRIVAL IN OKLAHOMA CITY

I met the rest of the team for our first meeting with the Oklahoma City Fire Department (OCFD), which took place in front of the bombed-out Murrah Building. This was the beginning of the most difficult search, rescue, and recovery operation ever undertaken by the USAR Task Forces. We discussed the current situation, resources, and an operational plan that included the

task forces.

At this and every other incident to which we respond, the primary function of the task forces is to provide support to the commu-



Cutting operation on a fallen slab. All operations were performed within the strictest margins of personnel safety possible.

nity or jurisdiction. At natural disasters, we support the local incident commander. The IC's orders and directions flow down the chain of command to the task force leaders. Eleven task forces responded to Oklahoma City during the course of the incident.

At the first IST meeting, each team member was given an assignment. I was the operations chief. Coordinating task force operations with the OCFD became easier when I was directed to work with Chief Mike Shannon, OCFD rescue operations chief. He had been working at the site since the beginning and had accumulated an in-depth knowledge of the building, which proved extremely helpful during the operation.

The first team to be activated, from Arizona, arrived late in the evening and set up operations a few blocks from the incident site. Additional task forces were activated, and their imminent arrival helped the IST develop a work schedule and plan operational assignments. We prioritized sections of the building collapse, established long- and short-range search goals, developed alternate plans, addressed safety issues, and so on. Since we were in rescue mode, we had to limit downtime as much as possible.

A 15-year-old girl, Brandi Liggon, had been brought out of the building alive after being trapped for more than 13 hours. This encouraged the rescuers. With this information and the knowledge that additional task forces were on their way, we decided to use all of the Arizona Task Force personnel in a full-scale "blitz," using the entire 56-member team in the search and rescue operation (as opposed to the normal 12-hour-on/12-hour-off work schedule customary for each half of a task force) in hopes of finding live victims as quickly as possible. The Sacramento (CA)



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Firefighters operated search cameras in small void openings to identify victims.

Task Force also arrived the evening of the first day and was involved in the blitz. The blitz lasted for approximately 24 hours.

Operational procedures for scheduling and rotating forces had to be designed and adjusted to meet the requirements of the incident. Adjustments were made more than once to ensure the most effective work schedule and operational plan. During the early stages of the operation, three full task forces were used around the clock. Two started at 0800 hours and a third at 1300 hours; they were relieved at 2000 hours and 0100 hours, respectively. The destruction, because of the size of the area involved, provided ample work during each work cycle for the 160 FEMA Task Force members and members of the OCFD. As the operation progressed over 16 days and work areas became smaller, fewer task forces were needed.

Daily briefings were held before each scheduled work cycle and included the IST, OCFD, task force leaders, and agencies such as the FBI and U.S. Army Corp of Engineers. An incident action plan was developed for each work period. It defined the specific work assignments, updated information and intelligence, and reviewed the safety procedures and guidelines to be followed by all rescuers. The briefings played an important role throughout the incident.

ALL COMPONENTS ON THE JOB

The massive destruction of the building required the full utilization of all four components of the task force structure—search, rescue, medical, and technical.

- Within the search component, canines and handlers were very effective in identifying victim locations. Many dogs and handlers

had previously attended USAR training courses for search and rescue tactics. Technical search specialists using electronic acoustic/seismic listening devices and video search cameras worked with the canines and handlers. Once the canine alerted, a small opening was made in the debris for the device. The search camera was a very effective tool for pinpointing trapped victims.

- Medical personnel included doctors and paramedics, who treated rescuers for injuries and stood by to treat live victims. Ensuring the health of rescuers is an important role of the medical team.

- Our heavy equipment and rigging specialists worked with private heavy equipment operators. Good teamwork provided for the safe and effective operation of this equipment.

- Hazardous-materials specialists conducted site surveys, identifying potential hazardous issues and mitigating as necessary. An asbestos scare during the early stages of the operation was quickly

One area that required constant attention was monitoring for possible carbon monoxide buildup from the numerous generators and power tools being used at the site.

cleared up by the building owner and maintenance personnel. One area that required constant attention was monitoring for possible carbon monoxide buildup from the numerous generators and power tools being used at the site.

- Good communications were critical. The task force communications specialists faced numerous challenges, mainly due to the amount of different equipment being used and radio traffic at the site. Specialists for each task force were able to overcome the obstacles and supply their teams with the necessary resources and capabilities.

- The task force structure specialist is a key element in the organizational structure. The remaining damaged structure was a constant reminder to our engineers of the severity of the blast and its effect on the stability of the building. The structure specialist helps ensure the safety of the rescuers—always a prime concern.

- Extensive logistical support was available during the operation. A number of contractors supplied heavy equipment (including cranes, trackhoes, bulldozers, small payloaders, dump trucks, etc.), building and shoring materials, and expertise. Vendors were available to supply/resupply many of the task forces' needs. Tools/equipment, blades, bits, and other tool parts had to be repaired or replaced. Breaking, drilling, and breaching concrete had a severe impact on the tools. Fortunately, each task force, which has its own tools/equipment cache, provided backup as needed.

- The rescue specialist's job was to safely remove debris and search for live victims—we were in rescue mode. While power tools were required at this incident, much of the debris removal involved heavy manual labor—much of the debris was carried out by hand, by five-gallon buckets, and by wheelbarrows. Debris-removal chains were formed. The rescuers moved debris to sheets, where FBI and ATF agents combed each piece for its evidentiary value. Debris was removed in a systematic fashion. It was removed

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VEHICLE EXHAUST VENTILATION APPARATUS



(Top) Rescue workers ascend the demolished structure in a man-basket to remove "widow makers"—chunks of concrete suspended from rebar. (Middle) Night work was challenging due to limited lighting and erratic weather conditions. (Bottom) Numerous canines were employed in the search. Due to the frequency with which they alerted to dead bodies, they became depressed. Firefighters substituted as live "victims" in the pile to cheer up and motivate the dogs.

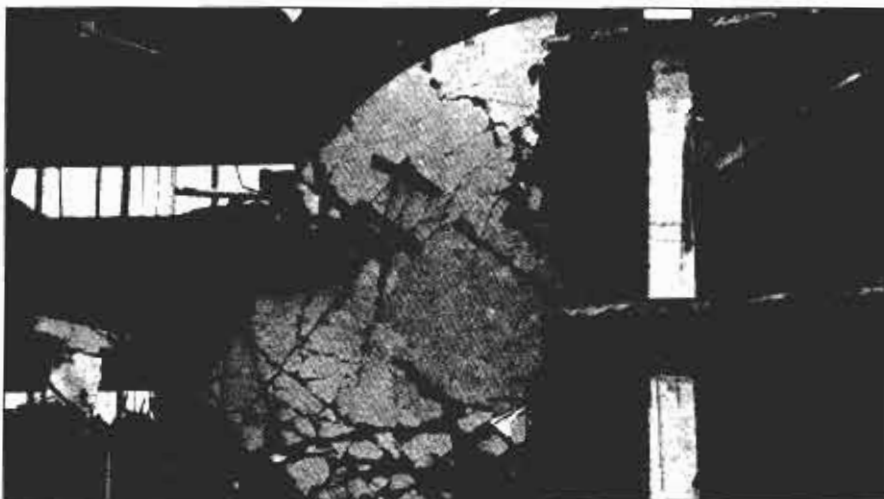
carefully with expectations of finding voids and access openings that would lead to possible live victims. (In the store collapse in Seoul, Korea, a young woman was found alive after 16 days of entrapment.) In addition to working in the Murrah Building, task forces performed searches and removed debris in other affected buildings. Four victims were extricated from the Athenian Building, directly across from the Murrah Building. They were crushed in the extensive collapse of that building. Although the rescuers performed this difficult work admirably, all the victims removed after the first day had perished as a result of the blast.

INCIDENT ACTION PLAN

The incident action plan (IAP) identified the work areas for the task forces. Simultaneous operations were conducted in the front and rear of the building. "Front Ops" (designated radio terminology) task forces worked "the Pile," a mountain of collapsed debris more than 150 feet long, more than 25 feet wide, and in some places as much as 30 feet high. The Pile was the aftermath of the complete collapse of nine floors. It was immediately obvious that this front section of the building had sustained a pancake collapse—we could actually count the layers. Voids in these areas would be scarce, decreasing the chances for victim survivability. We also knew that penetrating floor after floor in a pancake collapse of a reinforced concrete building would be physically demanding, technically difficult, and time-consuming.

"Rear Ops" task forces worked the area known as "the Pit." The Pit, approximately 40 by 35 feet in area, encompassed the center-rear portion of the collapse. Here, the first and second floors had collapsed into a large pile of debris but with numerous possible void spaces. It received its name because being directly behind the 30-foot front pile gave it the appearance in some areas of being subterranean. Many fatalities were located in this area.

The last victim found alive in the Murrah Building was in the area known as "the Cave," located at the southernmost edge of the Pit. The Cave was representative of the type of void area in which collapse victims usually are found alive. It can best be described as a completely covered void area with a cave-like opening. This type of collapse configuration sometimes must be created by the rescue team in situations when victims are located but cannot be extricated for hours because, in most instances, concrete might have to be lifted, cut into sections, or breached.



The infamous Mather Slab tied back to the building. It was one of the last sections of the building to fall after the implosion. (Photo courtesy of Oklahoma City Fire Department.)

Front and rear operations were well-coordinated to prevent mishaps. Debris removal was performed with the expectation of finding live victims in the rubble pile. Hundreds

of tons of debris were removed and searched by law enforcement agencies. Classified documents, evidence, weapons, and ammunition were in the rubble. Hundreds

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of tons of debris were removed and searched by law enforcement agencies. Classified documents, evidence, weapons, and ammunition were in the rubble. A number of the 18 different agencies with offices in the building were associated with law enforcement—for example, the Drug Enforcement Administration; the Bureau of Alcohol, Tobacco and Firearms; and the Secret Service. Briefings by these agencies helped the task forces acquire a general understanding of the sensitive nature of these issues. The three “Cs”—communication, coordination, and cooperation—were the keys that provided that important link between the rescuers and the affected agencies.

SAFETY AND HEALTH

Rescue specialists worked around the clock, digging through and removing the debris by hand; using power tools such as jackhammers or other concrete-cutting tools to break up larger sections of concrete; shoring and cribbing structural elements; tunneling through voids to search; searching and clearing upper floors; and performing other strenuous tasks. Night work was

extremely challenging. Limited lighting and weather conditions during the night added to the difficulties. Work stoppages for the task forces occurred often enough to



A trackhoe clears out “the Bowl” area (late in the incident). Note that the two columns to the right of the Bowl (F20 and F22) were left with no lateral support—the support had to come from prefabricated horizontal pipe shoring and steel banding. (Photo courtesy of Oklahoma City Fire Department.)

installing shoring or bracing to stabilize the building (all heavy, prefab shoring was performed by contractors under the supervision of engineers), when hazards were being removed from above the location of rescue workers, during severe weather conditions, or when heavy equipment was in use.

Beautiful sunny days were followed by cold blustery nights. The weather continually changed. High winds, heavy rains, hail storms, and lightning would necessitate shutting down operations for the rescuers’ safety. The danger of falling and flying debris was a continual threat during the unusual weather. The original construction of the building had two sides that were completely glass. (The resulting glass damage had severe implications, especially for the canine population. Many of the dogs’ paws received lacerations. Unsolicited booties arrived by the cartonload. Conditions were corrected as much as possible to limit injuries to the dogs.)

During the course of the incident, there was some shifting of remaining floors and debris, caused by debris removal. There also was some slight deflection and movement of the building as the result of winds and temperature. A near-miss occurred when a piece of concrete fell from an upper floor and grazed the helmet of a rescuer. Stability of the collapsed structure and falling debris hazards naturally were primary concerns and addressed throughout the incident.

- Standardized emergency evacuation signals were established and used to notify rescue workers when it became necessary to



Every scrap of material was combed over by federal law enforcement agents. (Photo courtesy of Oklahoma City Fire Department.)

evacuate the building.

- Structural engineers and rescue officers monitored the stability of various sections of the collapse—including the Mother Slab—with a surveyor's transit. The Mother Slab, a large section of concrete that had been part of the roof, sat precariously between the ninth and eighth floors over the Bowl area, where workers were often working. The slab eventually was secured by steel cables and securely fastened to the south stairwell walls, constructed of poured-in-place concrete. This was probably the most controversial issue during the operation. Fortunately, the slab maintained its position throughout the operation and was one of the last sections of the building to fall in the implosion.

Columns were constantly monitored with Smart Levels[®]. Horizontal column bracing was measured frequently for any sign of movement. "Widow makers" were removed during operations. Whenever possible, debris removal from upper floors accomplished by a temporary elevator basket ("man basket") was undertaken. Members used high-angle rope techniques to access smaller slabs and drill core holes from which they could be secured to stable parts of the structure. For all upper-floor work, the number of personnel was kept to a minimum.

- Plastic safety fencing was placed on the outer edge of all remaining floor slabs to prevent injury or accidental displacement of building materials or furnishings, which, if allowed to fall, could have had disastrous results, especially for those working below.

A flexible operational plan, as well as tight organizational safety protocols and team safety/accountability procedures, was necessary for rescue worker safety.

Each task force is responsible for its own

SHORT TERM FORECAST NATIONAL WEATHER SERVICE OKLAHOMA CITY OK 515 PM CDT TUE APR 25 1995

NOW

MOSTLY CLEAR SKIES WILL CONTINUE ACROSS CENTRAL PORTIONS OF THE STATE THROUGH 7 PM. WINDS WILL BE FROM THE SOUTH TO SOUTHWEST AT 15 TO 25 MPH...WITH GUSTS UP TO 30 MPH. TEMPERATURES WILL RANGE FROM 67 TO 72 DEGREES THROUGH 7 PM.

SPECIAL SUMMARY/FORECAST FOR OKLAHOMA CITY SEARCH/RESCUE OPERATIONS

WEATHER AT 500 CDT

SKY.....MOSTLY SUNNY
TEMPERATURE.....70 DEGREES
HUMIDITY.....44 PERCENT
WIND.....SOUTH AT 18 MPH

FORECAST

1700 TO 2300...PARTLY CLOUDY SKIES WILL CONTINUE THROUGH 2300. SOUTH TO SOUTHWESTERLY WINDS AT 15 TO 25 MPH WITH SOME GUSTS NEAR 30 MPH WILL CONTINUE THROUGH 2300. TEMPERATURES NEAR 70 DEGREES AT 1700 WILL SLOWLY FALL TO NEAR 60 DEGREES BY 2300. RELATIVE HUMIDITIES WILL REMAIN IN THE 45 TO 55 PERCENT RANGE THROUGH 2100...THEN WILL SLOWLY CLIMB INTO THE 60 TO 70 PERCENT RANGE BY 2300.

2300 TO 0500...SCATTERED MID AND HIGH CLOUDS WILL CONTINUE TO MOVE ACROSS THE AREA THROUGH 0500. WINDS WILL BE FROM THE SOUTH TO SOUTHWEST AT 10 TO 20 MPH WITH SOME GUSTS TO 25 MPH. TEMPERATURES NEAR 60 DEGREES AT 2300 WILL BEGIN TO FALL INTO THE MID 50S BY 0500. RELATIVE HUMIDITIES WILL SLOWLY CLIMB INTO THE 75 TO 85 PERCENT RANGE BY 0500.

TONIGHT...FAIR. LOW IN THE MID 50S. SOUTH WIND TO 10 TO 20 MPH.

WEDNESDAY...PARTLY CLOUDY WITH A 30 PERCENT CHANCE OF AFTERNOON SHOWERS AND THUNDERSTORMS. WINDY WITH A HIGH IN THE LOWER 70S. SOUTH WIND 15 TO 25 MPH AND GUSTY SHIFTING TO NORTH DURING THE AFTERNOON.

WEDNESDAY NIGHT...MOSTLY CLOUDY WITH A 20 PERCENT CHANCE OF SHOWERS AND THUNDERSTORMS IN THE EVENING. LOW IN THE MID 40S.

SYNOPSIS...LOW PRESSURE DEVELOPING OVER THE HIGH PLAINS OF COLORADO AND NEW MEXICO WILL CONTINUE TO BRING MODERATE TO STRONG SOUTH WINDS TO THE AREA THROUGH THE EVENING. THE NEXT CHANCE FOR SHOWERS AND THUNDERSTORMS WILL BE TOMORROW AS A COLD FRONT SWEEPS ACROSS THE AREA WITH GUSTY NORTH WINDS BEHIND THE FRONT.

NEXT SCHEDULED UPDATE AT 2100 CDT.

"internal" personnel accountability system, and the systems vary among task forces, be they status board, bar coding, and so on. Overall accountability for the incident rests with the rescue operations chief and down through the ICS to sector chiefs, etc.; however, individual accountability rests with the task force leaders.

Safety messages were included in each IAP. These plans were distributed at the twice-a-day briefings. Operating guidelines established by FEMA require rescuers to be

properly protected during operations. Task force members are equipped with hard hats, safety glasses, hearing protection, appropriate work gloves, steel-toed safety shoes, respirators, and protective clothing. Because of the unusual weather conditions during the incident, FEMA procured heavier insulated clothing for the task forces. The unusually large amount of broken concrete, steel rods, piping, metal ductwork, and general debris took a severe toll on rescuers' work boots, and FEMA then provided safe-

TASK FORCE LOG

FRIDAY, APRIL 21, 1995

1725

Task Force Leaders Briefing.
Check for fatigue.

Rotate the teams.

Discussion on which buildings should be searched.

OK City Fire determines what buildings will be searched, not FEMA.

Medical Team addressed the issues of rehydration for those who are doing strenuous work.

Team members will be rotated through rehab. Members should take advantage of this situation to replace fluids & rest.

Primary Logistics Member will be on-site with equipment. Secondary Logistics Specialist will be remaining back at the base.

Trying to obtain another van.

Rescue team manager must have tools immediately available.

New radio channels issued:

Channel #1 will be point-to-point (direct).

Channel #s 2-5 will be available for tactical point-to-point.

Channel #7 will use a repeater to contact the base.

Rescue Squad Officers will determine prior to leaving what equipment they will need and have it loaded on to a van.

1740

Begin loading van and trucks.

1805

Task Force leaves Base of Operations (C/C) for site.

1820

On-site Roll Call and Briefing.

We have a dedicated vehicle and driver.

Medical team can be called at logistics.

Wash hands frequently.

Working long hours planning for R&R.

1845

Begin working at site.

1915

Second briefing.

Safety message: Be alert in & out of collapse zone.

High winds.

One team on pile.

There is a confirmed DEA agent in the rubble. We will concentrate our efforts on this agent.

1930

Briefed by Ray Downey.

1945

Team #1 will go on pile.

2100

Task Force Operation report completed.

Team #1 on pile.

Team #3 in Basement.

Teams #2 & 4 will be in the Old Court House conducting a secondary search.

2110

Team #1 finds DEA agent in the rubble.

Winds in the area are increasing.

Safety Officer will make an assessment.

2140

Weapons also recovered and turned over to DEA.

2225

Member injured leg in the Journal Records Building.

2230

Removed 1 DEA agent from the pile.

2245

At rehab, and member is being treated.

2315

Member is returned to the convention center.

2325

Rain beginning; wind is picking up, & temperature is dropping.

2335

Retrieving tools from the pile.

2345

HEAVY HAIL STORMS.

2350

Team #1 is in basement of the main building.

Rack shoring is completed by Team #2.

Teams 3 & 4 complete search of press building going to R&R.

SATURDAY, APRIL 22, 1995

0030

Pick up lumber for shoring.

0130

Two teams working on second floor.

One is conducting void searches.

One is conducting floor searches.

0200

All members have been removed from building while Structural Engineers reassess structure; members on R&R.

0225

Teams reenter building.

0240

Found victim in rear of second floor; begin extrication.

0325

Above body removed.

0335

Body count now at 69.

0340

Request by haz-mat specialist for MSDSs on insecticide/disinfectant being sprayed.

0400

Found another victim, female, in rear of second floor; DOA.

0420

Weather reports indicate rain and T-storms with heavy winds approaching. Logistics personnel erected temporary shelter to protect equipment cache at the collapse site.

Winds expected to be 20 to 30 mph.

0430

Rescue Team 2 reports that they have found a total of three bodies in various voids, still not removed (front rubble pile).

0500

As per Task Force Leader, all operations have ceased due to severe weather conditions.

0700

Task Force relieved.

0800

Team returned to base of operations.

0900

Task Force advised to get some rest. However, they will remain on standby as a backup for other task forces. Personnel are to remain fit for duty and in contact with the base of operations at all times.

SUMMARY:

Need shelter for on-site equipment.

Weather is a factor.

New radio frequency is working much better.

Wear appropriate rain gear.

ty shoes. Securing personal protective equipment not stocked in the task force cache fell to the logistics section of the IST. These needs, as well as replacement parts for equipment and tools and other essential materials, were filled by the logistics sector exceptionally well.

Early in the operation, the Centers for Disease Control was asked to visit the site to assess the biological and chemical hazards and make recommendations concerning personal protective equipment and related safety issues. (See sidebar "Centers for Disease Control and Prevention Recommendations" on page 90.)

The small number of injuries to the rescue workers is testimony to the safety measures followed. This was mainly due to the dedication of workers and supervisors.

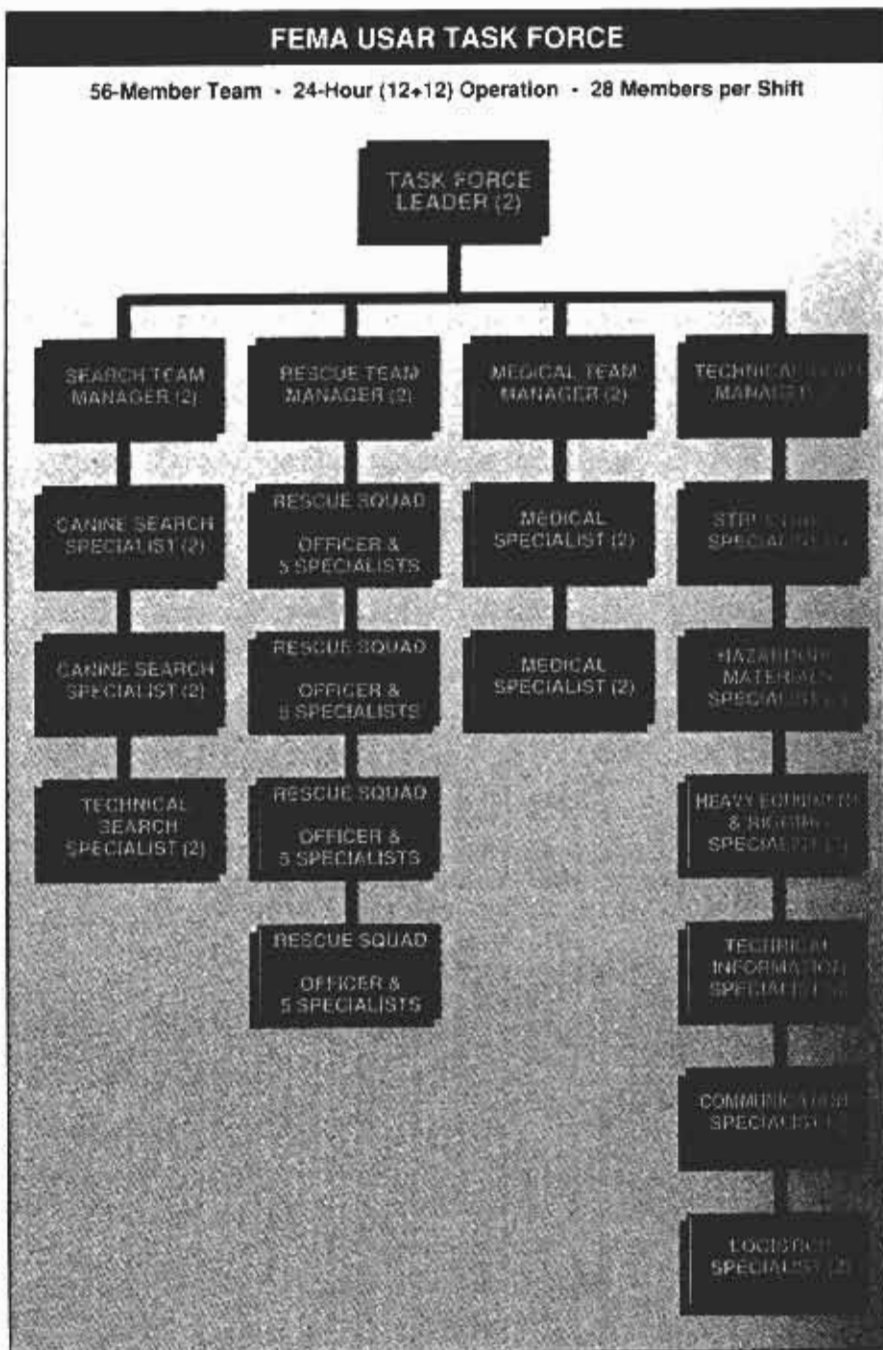
VICTIM LOCATION SYSTEM

At the time of assessment, a distinct marking system was used to denote search status and findings. The system for identifying possible victim locations became easier when the D-MORT team provided building plans and last known locations of occupants. This information, intelligence and information-gathering data obtained from law enforcement agencies and survivors, and a list of missing persons helped us identify the areas in which victims unaccounted for were likely to be located. We used this information to plot the suspected locations of the victims and assigned teams to these specific areas. For example, a squad would be assigned to work the "east front between Columns 26 and 28." The column number (obtained from the building plans) was spray painted on each column. This action proved extremely helpful when referring to specific areas; being able to use the same reference points improved accuracy and accelerated the pace. As the operation progressed, the accuracy of locating and identifying victims increased remarkably.

* * *

Coordination and teamwork during the operation were exceptional. The 16-day operation involved more than 700 FEMA personnel and as many as 1,000 OCFD personnel. We all worked well together because we had the same goals: to search for and rescue any possible live victims and remove deceased victims with the dignity they and their families deserved.

The IST proved very effective in this operation. Much credit goes to Deputy Chief Mark Ghilarducci of the California Office of Emergency Services, who, as the IST leader,



superbly directed the entire FEMA Urban Search and Rescue component.

The citizens of Oklahoma City played an important role. The task forces, with the exception of the first two (Arizona and Sacramento), were based at the Myriad Convention Center. The center was staffed by volunteers from Oklahoma, who provided meals 24 hours a day, laundry service, a mini-shopping market, haircutting—you name it. We wanted for nothing. The people of Oklahoma provided the "intangibles" for rescuers away from home—their warmth and continued moral support will be remembered forever. Just the chit-chat between rescuers and volunteers during the free time

helped maintain rescuers' spirits. In addition, the Red Cross and other volunteers provided food, refreshments, clothing, and other items at locations near the building site.

The task forces were rotated back home after about one week. Many of the team members wanted to stay until the job was finished. For a number of good reasons, however, rotation was necessary. As the operation decreased in size, logically the need for USAR resources diminished. A technical team from the Orange County (CA) Task Force remained on the scene with the Oklahoma City Fire Department until the rescue and recovery operation was officially concluded at 12:06 a.m. on May 5, 1995. ■