Anaheim Toxic Chemical Incident

June 22 - 26, 1985

Prepared by:

Orange County Fire Department

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Larry J. Holms, Director of Fire Services

Orange County Board of Supervisors

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SECTION I: EXECUTIVE SUMMARY OF ANAHEIM TOXIC CHEMICAL INCIDENT

SUMMARY OF
INCIDENT AND FINDINGS

At 10:45 p.m. on June 22, 1985, the Anaheim Fire Department responded to a structure fire in an agricultural chemicals warehouse occupied by the Larry Fricker Company. Within minutes, the Anaheim Fire Department requested assistance from the Orange County Fire Department under the provision of the Master Mutual Aid Agreement. By the time the fire was extinguished four days later, toxic smoke had required the evacuation of 10,000 people. A major commitment of firefighting resources was required from Anaheim, the County of Orange, and many other cities, with participation by Federal, State, and County government agencies.

The Anaheim fire represents one of the most serious hazardous materials incidents to date, and its suppression has been studied carefully. As this report demonstrates, fire agencies and local government conducted a well orchestrated hazardous materials response effort, and one which can serve as a model throughout the Nation. The many participating agencies worked as a single unit, validating the effectiveness of the fire mutual aid system and the "Hazardous Materials Incident Response Plan."

Yet, even a well executed operation offers opportunities to learn and improve. The findings of this report include these facts:

1. No uniform hazardous materials disclosure ordinance exists for Orange County. At the Fricker facility, the type and quantity of materials was unknown to first responders. The complete inventory wasn't identified for ten days. The potential exists for even more severe incidents in other areas of Orange County. (A model Disclosure Ordinance will be submitted for Board review within the next few weeks.)

2. A full-time, separately funded Hazardous Materials Response Team within the Orange County Fire Department would enhance response, inspection, and training activities. A study should be conducted to determine the necessity and feasibility of such a team.

3. Linking the hazardous materials data systems of all agencies is necessary. ORCO Fire's system should also be integrated with the Department's proposed Computer Aided Dispatch system. Emergency response directories should be expanded to include hazardous materials response supplies and equipment.

4. Agreements for service should be formalized with selected technical professionals (toxicologists, chemists, other experts) to insure availability during emergencies, and to

augment existing expertise within County government. Working with HCA and the Department's Fire Prevention Section, these experts would assist with training in the areas of code enforcement and changes in the chemical industries field. The Fire Department should work with Personnel to explore this suggestion further.

5. Automatic detection and extinguishing systems were not required at the Fricker facility, but such equipment may have mitigated the incident's magnitude. The Uniform Building Code or other pertinent codes would have to be amended in order to require that buildings storing, handling, or processing a significant amount of hazardous materials be equipped with automatic fire extinguishing systems.

6. Acquisition of communications equipment for wearers of encapsulated suits is critical to the safety of Hazardous Materials Response Teams. Availablity of funding for the equipment is being explored through the State of California Toxic Superfund.

7. An information center must be established promptly at major incidents to coordinate communications with affected individuals and media.

8. Evacuation and re-entry of residents in three municipalities required extensive coordination. Difficulties arose due to lack of protective clothing and equipment for law enforcement and other officials, omission of provisions to evacuate pets, and lack of printed information for residents. Research should be conducted to see if a central store of protective equipment can be established for use by response teams, law enforcement, health, and other officials during major emergencies. Coordination is needed between the Fire Department's Emergency Management Division and HCA to develop guidelines and brochures with details about evacuation, re-entry and handling of pets.

9. A change from State to Federal incident financial responsibility caused a delay in clean-up operations. In addition to revising this procedure, the current project to update the "County of Orange Hazardous Materials Incident Response Plan" should be completed.

10. Exploration of permanent joint funding among Orange County fire agencies is needed for hazardous materials response teams.

The above findings suggest several issues with financial impact. Feasibility and potential sources of funding are beyond the current scope of this report. Yet, to insure the citizens of Orange County the most effective hazardous materials response available, these findings merit careful consideration.

RESPONSE TO BOARD OF SUPERVISORS' QUESTIONS REGARDING
THE JUNE 22-26, 1985 ANAHEIM TOXIC CHEMICAL INCIDENT

More detailed information to the brief responses to most of the Board questions can be found in the referenced section of the final report.

Question: **Presume that we will be critiquing this incident so that we can improve our response if this should occur in other parts of the community. Critique should address: what occurred, why it occurred, and was it necessary to evacuate such a large area?**

Response: Many of the recommendations in the final report result from two critiques. The coordinated Hazardous Materials Response Teams from Anaheim, Huntington Beach and County Fire held a critique on July 7, 1985, and Orange County Fire Department Incident Staff held a critique on July 24, 1985. (Reference: Section 3, Addendum 1.)

A fire occurred in the office portion of an agricultural chemical distribution building and spread to the finished product storage area, where burning chemicals produced toxic vapors. (Reference: Section 2, Fire Ignition and Development.)

The cause of the fire is listed as incendiary. The building was not equipped with built-in fire detection or extinguishing devices; none are required. (Reference: Section 2, Fire Ignition and Development; Building Information.)

It was necessary to evacuate a large area because of the type and quantity of chemicals, weather conditions, and downwind samplings. (Reference: Section 2, Evacuations Chronology.)

Question: **Does Anaheim have a hazardous material inventory system?**

Response: No. (Reference: Section 2, Code Enforcement/Pertinent Codes)

Question: **Why wasn't it known that certain hazardous materials were in the building?**

Response: Anaheim does not have a disclosure ordinance. (Reference: Section 2, Time Required for Chemicals Identification Chart.)

Question: **Note the cities that do have a hazardous materials inventory system similar to ours. Encourage cities to develop a uniform system.**

Response: The City of Irvine has a disclosure ordinance in effect. The City of Orange is in the process of adopting a disclosure ordinance. The City of Santa Ana has an inventory system similar to the County. (Reference: Section 2, Code Enforcement/Pertinent Codes.) Both the Fire Department and CAO/Hazardous Materials Program Office are working with Orange County cities and private industry toward the development of a model Disclosure Ordinance. (Reference: Section 3, Addendum 1.)

Question: **Address how advanced knowledge would have resulted in more effective firefighting.**

Response: Although no severe injuries to first responders occurred, the initial fire attack could have caused such injuries. Prior advance knowledge would have allowed first responders to start alternate methods of suppression immediately and to request Hazardous Materials Response Teams. (Reference: Section 2, Fire Attack.)

Question: **Perhaps the Hazardous Materials Program Office should be documenting this information throughout the County, as well as response time.**

Response: This question was referred to the CAO/Hazardous Materials Program Office.

Question: **Is there any significant impact on vegetation growth?**

Response: There is no evidence to date. (Reference: Section 2, Fire Loss.)

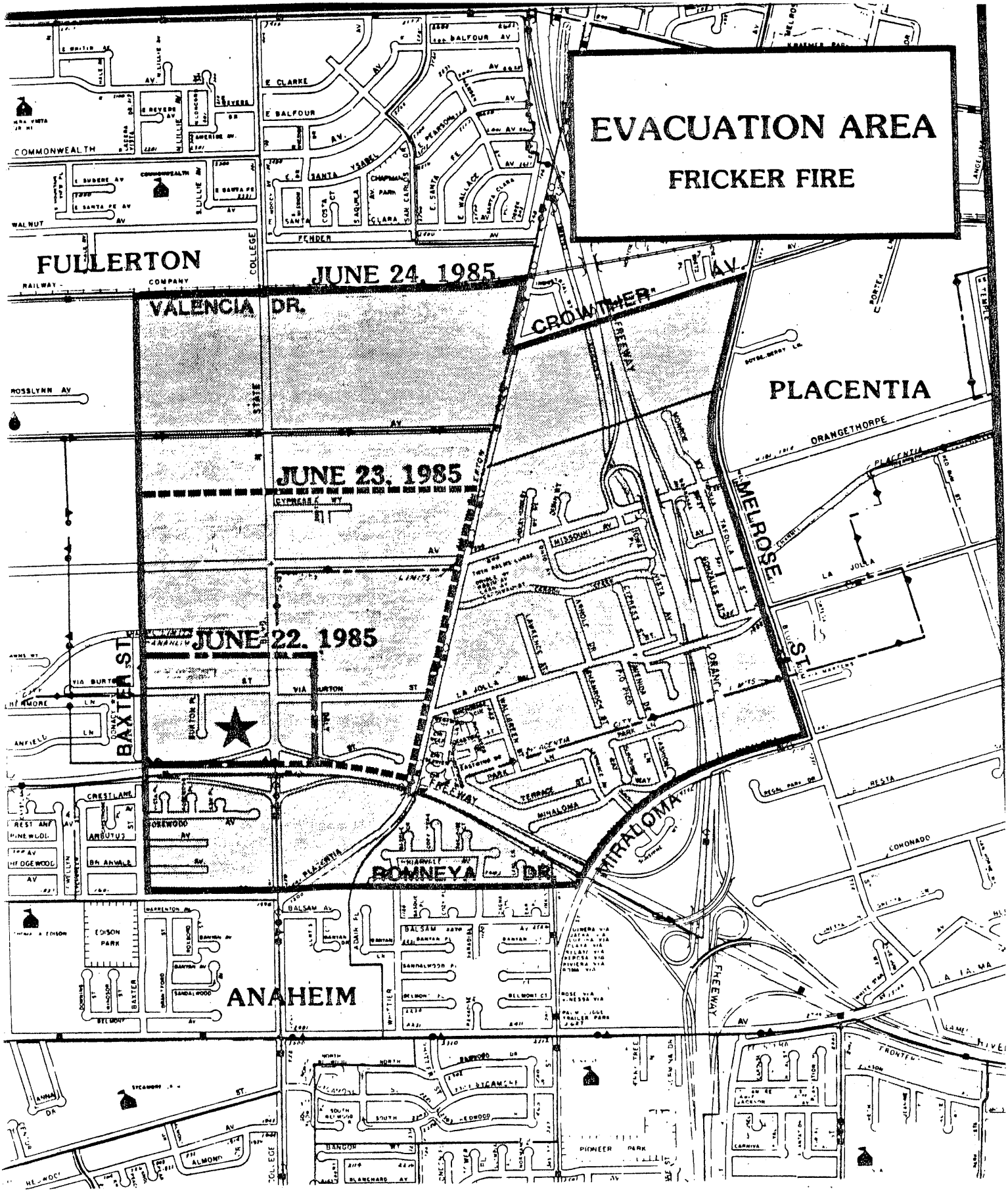
Question: **The report should consider the evacuation of pets.**

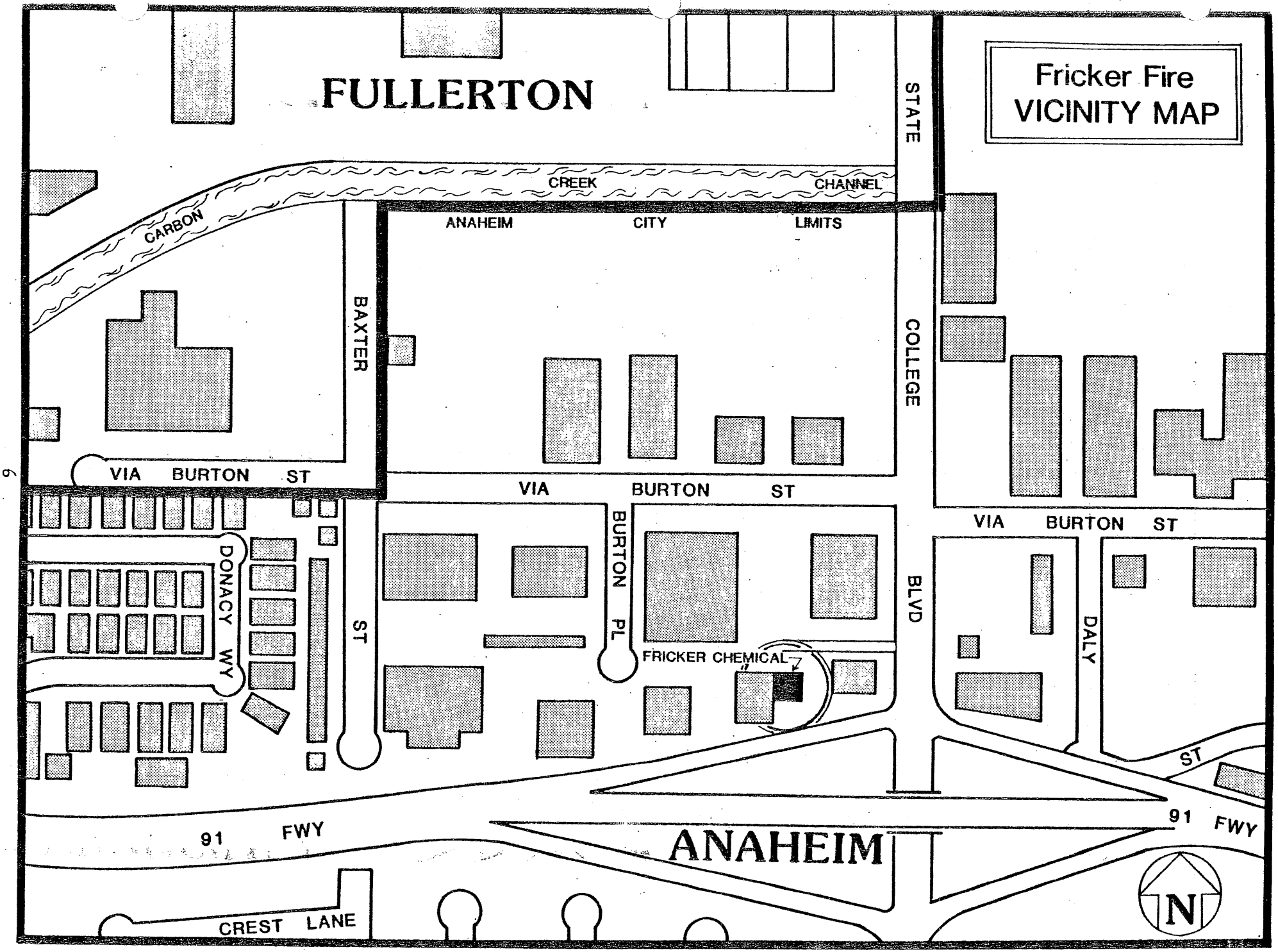
Response: This issue was thoroughly addressed in the critiques and in the final report. (Reference: Section 2, Evacuation of Pets; Section 3, Addendum 1.)

Question: **Good documentation on what occurred is expected.**

Response: The majority of the report was prepared from the notes of the incident made by the Fire Department's Public Information Office and Hazardous Materials Response Team, other incident records, and the two critiques of the incident.

SECTION 2: DETAILED ANALYSIS OF ANAHEIM TOXIC CHEMICAL INCIDENT


EVACUATION AREA
FRICKER FIRE
JUNE 24, 1985
JUNE 23, 1985
JUNE 22, 1985
FULLERTON
PLACENTIA
ANAHEIM
VALENCIA DR.
CROWTHER
ROMNEYA DR.
MIRALOMA
MELROSE
BAXTER ST
ORANGETHORPE
LA JOLLA
COMMONWEALTH
WALNUT
ROSSLYNN AV
FREEWAY
N


Fricker Fire
VICINITY MAP
FULLERTON
STATE
CREEK
CHANNEL
CARBON
ANAHEIM CITY LIMITS
BAXTER
COLLEGE
VIA BURTON ST
VIA BURTON ST
VIA BURTON ST
DONACY WY
ST
BURTON PL
FRICKER CHEMICAL
BLVD
DALY
ST
91 FWY
91 FWY
ANAHEIM
CREST LANE
N
PLACENTIA - OFF MAP

FIRE IGNITION AND DEVELOPMENT

The fire, which was incendiary in origin, began in the the office area and spread to a chemical storage room where rapid acceleration of the fire occurred. Chemical containers were damaged causing contents to be released. The heat from combustion and the mixing of chemicals created chemical reactions. Smoke and vapors from the chemical reactions began to form a toxic cloud.

The fire gained enough momentum to cause ignition of vapors along the ceiling throughout the length of the building. At this time, the roof over the office and chemical storage areas failed, allowing more oxygen to fuel combustion. The tops of high piled stock containing other chemicals and fertilizers ignited. It was evident chemicals were involved due to visible green flames and smoke which appeared in brown, green, yellow, purple and black.

FIRE ATTACK

The first arriving officer on Anaheim Engine 5 reported "a working fire in a moderate sized building." An aggressive attack was initiated immediately. The building was searched and determined to be unoccupied. It was believed that the occupancy was a construction materials warehouse; however, secondary size-up revealed that the occupancy was an agricultural chemicals warehouse.

At that point, the officer halted the fire attack and ordered crews away from the building. Standard procedure in pesticide fires is to allow the fire to burn freely, thereby consuming the chemicals. The presence of poison gases, liquified propane, and explosive compounds was not yet known. The decision to halt an aggressive fire attack was made to prevent serious firefighter injuries. Otherwise, firefighters would have entered the building unequipped with the proper protective clothing.

Hazardous Materials Response Teams and a second alarm were requested. As the event progressed, a toxicologist was consulted. The toxicologist determined that should the free burning of pesticides cease, and the fire be reduced to a smoldering condition, even more toxic components would be produced. The resultant smoke would pose a high mortality threat to people and animals. In fact, the fire did reduce to a smoldering state. In response, firefighters immediately attempted to suppress the fire using high expansion foam. This technique was only partially successful because not all deep seated fires,

within chemical materials, could be reached with extinguishing agents. Unknown at the time, water reactive chemicals were also present and were activated into more toxic compounds by the foam application. The foam did, however, temporarily slow vapor production, allowing time for evacuation.

Throughout the course of the incident, numerous chemical reactions caused fires to rekindle. Smoldering fires continued to burn towards nearby compounds that were potentially explosive. Extinguishment efforts were interrupted while fire department Haz-Mat teams stabilized spilled chemicals and removed threatened storage containers. Firefighters were frequently immersed in chemicals as reactions caused workers to be showered with contaminants. At one point, Haz-Mat personnel worked in a knee-deep toxic sludge of pesticides which resembled swirls of spilled paints, while wearing the highest level of chemical protective clothing. Poisons, liquified petroleum, and explosive compounds were successfully removed from the building. Final containment was achieved by removing or moving more than ten (10) tons of chemicals and other materials.

EVACUATIONS CHRONOLOGY

(See Map, Page 5)

June 22, 1985

2312 hours — Twenty-seven (27) minutes after notification, it was determined that a two square block area would be evacuated. This area of evacuation was down wind and affected only industrial property in Anaheim.

June 23, 1985

1000 hours — A dead bird (cockateel) was found down wind. Low winds held most of the heavy contamination to the site. Three teams in the field began assessing the extent of the down wind movement of the vapor cloud. As a result a voluntary evacuation was initiated up to 1/2 mile down wind. The area of evacuation was bounded by an area parallel to Cypress Way to the north, Placentia to the east, an area adjacent to but north of the 91 Freeway to the south, and Baxter to the west.

June 23, 1985 (cont.)

1345 hours — The Anaheim City Manager declared a local State of Emergency based on additional information provided by technical staff. At this point, the voluntary evacuation became a mandatory one.

June 24, 1985

1300 hours — Winds increased; toxic readings were determined to exist 1/2 mile from the incident site. There were numerous reports of civilian discomfort in the area. Attempts to contain vapors were unsuccessful; some attempts to extinguish or neutralize the fire produced additional vapors. Due to a prediction of increased winds, an evacuation area of approximately one (1) square mile was ordered. The evacuation now affected industrial and residential properties located in Anaheim, Fullerton, and Placentia with a population of 8,000-10,000 people. This new evacuation area was bounded by Valencia/Crowther on the north, Melrose to the east, Romneya/Mira Loma to the south, and Baxter to the west.

June 25, 1985

2000 hours — The remaining fire was extinguished with the evacuation area reduced to a two block area.

June 26, 1985 — Due to off-site clean up and monitoring, the evacuation area was reduced to three (3) buildings at the incident site.

In each determination to expand or reduce the size of the evacuation area, several factors were considered. These included (but were not limited to):

- Wind speed and down wind toxic vapor dispersion,
- Inversion layer and atmospheric mixing, and
- Chemical components within the vapor cloud.

Accurate analysis of the vapor cloud was not possible in the early stages of the incident. The fire departments, as well as other responding agencies (AQMD and HCA), lacked the sophisticated monitoring equipment required to assess cloud toxicity and content. As a result Haz-Mat personnel, the toxicologist, and chemists based their assessment on what known chemicals were actually burning. (See: Time Required for Chemicals Identification Chart, page 13.) Accurate hourly weather forecasts were received from

the National Weather Service allowing Incident Commanders to predict the vapor cloud movement. These predictions resulted in the timely removal of potentially affected populations prior to actual exposure. Many of the civilians who were injured chose not to leave the evacuation areas. No known exposure injuries occurred outside of the evacuation boundaries.

EVACUATION CENTERS

The American Red Cross set up and managed emergency evacuation centers at area schools. These included: Sycamore School (later moved to Katella High School), Katella High School, Esperanza High School, and South Junior High School. The Orange County Transit District (OCTD) provided transportation to and from the evacuation centers.

EVACUATION OF PETS

One attempt was made to retrieve pets from evacuated areas. This operation was halted due to the potentially hazardous exposure of animal control officers and a lack of chemical protective wear and breathing apparatus. Other trained personnel with the appropriate equipment were not available for this function as they were already assigned to other aspects of incident response.

INJURIES AND EXPOSURES

While 8,000-10,000 citizens were placed at risk or were potentially exposed to hazardous materials during this incident, timely evacuations prevented mass injuries. Area hospitals reported treating 80 civilians who claimed injury, allegedly as a result of the Fricker incident. Thirteen (13) injuries were definitely due to chemical exposure.

One hundred-twenty (120) Orange County Fire personnel were potentially exposed to hazardous materials. Incident personnel and Haz-Mat teams required complete decontamination and medical surveillance. Actual injuries consisted of three (3) Haz-Mat personnel: two from Anaheim, one who was treated for heat stress and one for chemical exposure, and one from ORCO who was treated for chemical exposure.

FIRE LOSS

In addition to the damage at the Fricker facility, business losses suffered because of the chemical fire and resulting evacuation are still being tabulated. Through August 31, 1985,

the City of Anaheim has received reports from fourteen (14) businesses and the City of Placentia has received reports from fifty-two (52) businesses, with a reported economic loss totaling in excess of $416,000.00. In the City of Fullerton, approximately two hundred fifty (250) additional industries and businesses were within the affected area. This potentially could result in a substantially higher total economic loss. The City of Fullerton is in the process of assessing industry and business losses at this time. Additionally, government costs for Orange County, the three affected cities, and the specialized agencies who participated in this incident should be considered. There was no recognized impact on vegetative growth.

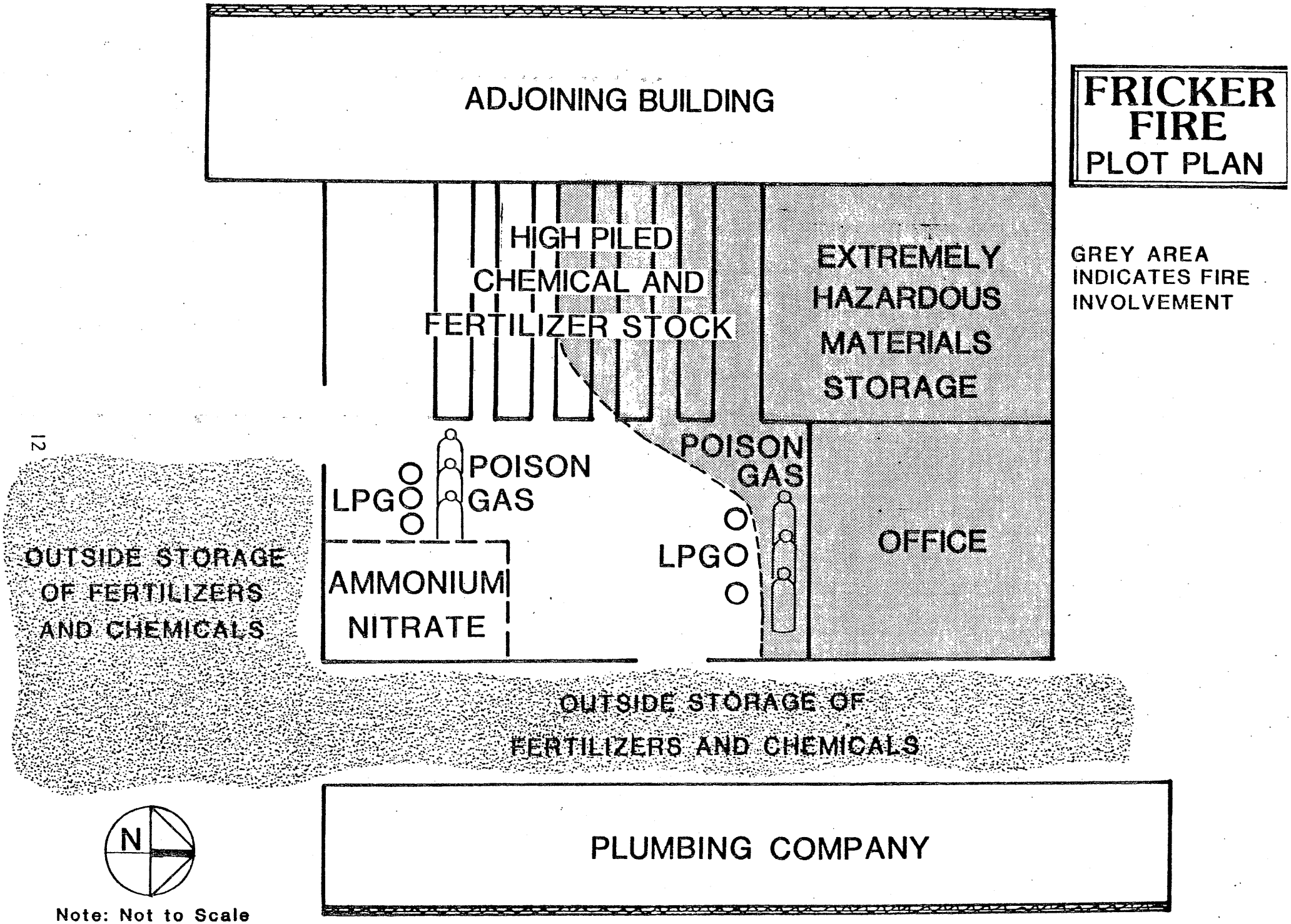
State and Federal disaster aid has been requested through the State Office of Emergency Services; this application was coordinated by the Emergency Management Divison (EMD). The probable source of assistance will be Small Business Administration (SBA) loans. At this time, there does not appear to be a mechanism to recover the unexpected and unbudgeted government costs expended in this incident.

BUILDING INFORMATION

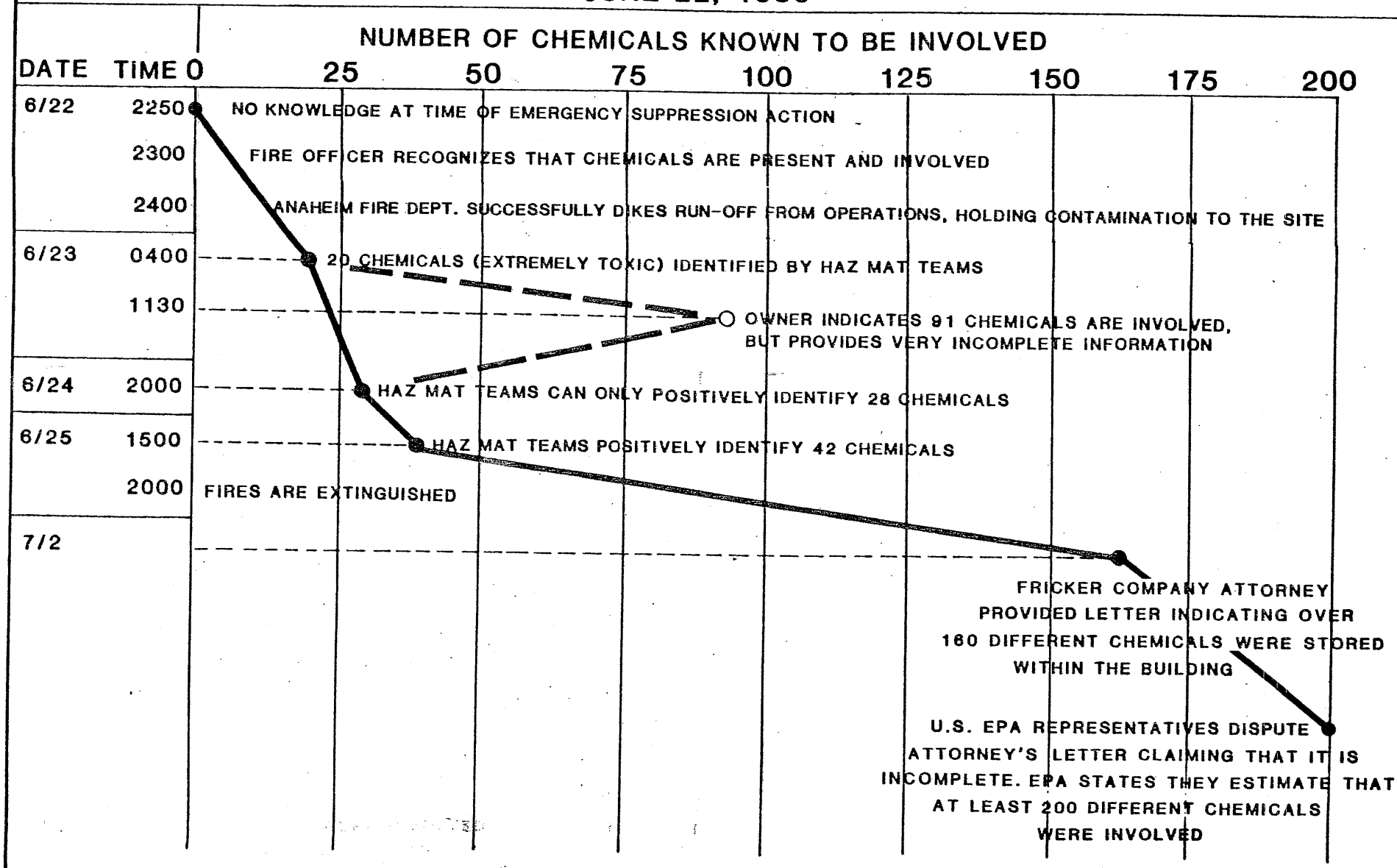
The Larry Fricker Company building that was involved in fire was 100' long by 50' wide, a total of 5,000 square feet. The structure had walls composed of concrete cinder block, concrete floors, roof supports of unprotected steel I beams with corrugated metal roof sheeting. The building contained no built-in fire protection systems such as fire sprinklers or alarms. Fire loading could be described as moderate to heavy. Significant bulk and palletized storage was placed throughout the exterior and interior of the facilities.

CHEMICAL STORAGE

Detailed information on quantities and the nature of the hazardous materials within the building were not available at the time of the incident. A complete inventory was not available until ten days later. Between 160 and 200 separate commodities were stored within and adjacent to the fire site. While the majority of stock consisted of fertilizers, a large volume of agricultural pesticides was also stored within this occupancy. Many of the pesticides were considered moderately to extremely toxic if inhaled, through skin contact, or under fire conditions. Some poison gases stored on the property can be considered "immediately dangerous to life and health." Fertilizers and chemicals were stored in a haphazard fashion. Palletized stock was stacked to a height in excess of 15', with narrow aisle separations, which significantly hampered emergency operations.


ADJOINING BUILDING
FRICKER FIRE PLOT PLAN
HIGH PILED CHEMICAL AND FERTILIZER STOCK
EXTREMELY HAZARDOUS MATERIALS STORAGE
GREY AREA INDICATES FIRE INVOLVEMENT
POISON GAS
LPG
POISON GAS
OFFICE
OUTSIDE STORAGE OF FERTILIZERS AND CHEMICALS
AMMONIUM NITRATE
LPG
OUTSIDE STORAGE OF FERTILIZERS AND CHEMICALS
PLUMBING COMPANY
N
Note: Not to Scale

TIME REQUIRED FOR CHEMICALS IDENTIFICATION
AT
ANAHEIM TOXIC CHEMICAL FIRE
JUNE 22, 1985



PRIOR INCIDENTS

The Larry Fricker Company is not unknown to the Orange County Fire Department. Two prior incidents occurred when the Larry Fricker Company was located at 12971 Newport Boulevard in the City of Tustin. On August 9, 1981, 4,000 gallons of phosphoric acid leaked from an above ground tank. This resulted in the evacuation of a 1/2 mile area which affected approximately 2,000 people. In this incident, incomplete information was provided by the owner relating to chemical materials involved at the site.

On November 8, 1983, Orange County Fire Department responded to a spill of corrosive and extremely poisonous chemicals at an abandoned Larry Fricker Company building, at the same address as the 1981 incident. Thirty containers were found to be leaking chemicals. (The company had moved to the Anaheim incident site.) No injuries or evacuations resulted from this incident; however, clean up operations required approximately one week.

PUBLIC FIRE PROTECTION

The fire service resources of the City of Anaheim include: 10 stations, 12 engines, 4 trucks, numerous support equipment, with a daily staffing strength of 65 personnel. The City of Anaheim participates in mutual aid agreements with all fire agencies within Orange County. At the time of this incident, seventeen (17) Anaheim Fire personnel were in their final week of Hazardous Materials Response Team training. As a result of this, they recognized the situation's hazards and potential, and immediately requested hazardous materials response teams and other appropriate assistance. It should be noted that the Anaheim Haz-Mat Team was created to complement those in existence at County Fire and the City of Huntington Beach.

CODE ENFORCEMENT/PERTINENT CODES

A survey was conducted to determine hazardous materials data collection activities of the sixteen (16) fire departments in Orange County which provide fire suppression and fire inspection services. The Uniform Fire Code (1979 or 1982) has been adopted and is enforced by all fire agencies. The survey indicated that all agencies conduct fire inspections utilizing both fire prevention and fire suppression personnel.

The City of Irvine is the only city in Orange County that has a Hazardous Materials Disclosure Ordinance in effect. There is, however, considerable pressure from city councils and city managers to have their fire departments submit such an ordinance for adoption.

The accessibility of haz-mat information for emergency personnel varies considerably among fire agencies. Most conduct and maintain pre-plans of specific target hazards. These pre-plans focus on the physical layout of the property (site plan), and as such, are not always able to accurately reflect the quantities and nature of inventories on a current basis.

Hazardous material data obtained through fire inspection programs are maintained manually in the majority of jurisdictions. The fire departments of the cities of Orange and Santa Ana, as well as Orange County, have automated the hazardous materials data portion of these files. The City of Orange utilizes printouts. Santa Ana and Orange County have 24-hour access via computer systems in place. The Orange County Fire Department also uses printouts as backup.

Should a disclosure ordinance be implemented, it appears that initially the majority of agencies will operate with manual systems and convert to automated data processing over time.

Data processing appears to be the only viable approach to handle the volume of information and ensure immediate availability for emergency personnel, particularly in large fire departments, such as Orange County and Santa Ana. Manual systems could be implemented and may function adequately for smaller departments.

EMERGENCY MANAGEMENT DIVISION (EMD) PARTICIPATION

On Sunday, June 23, 1985, at the request of the Orange County Fire Department, the Emergency Management Division (EMD) reported to the incident scene to assist the City of Anaheim. Paul Hess, EMD Manager, filled in for Robert Berg, Emergency Services Coordinator for the City of Anaheim, who was out of town at the advent of this incident. Mr. Hess assisted Anaheim in writing and preparing a Proclamation of Declared Emergency and notified the State Office of Emergency Services (OES) of the proclamation. EMD coordinated the activation of the Emergency Operations Center (EOC) upon concurrence of representatives of the affected cities and fire management on June 24, 1985. From approximately 5:00 p.m., June 24, until 8:00 p.m., June 26, the EOC handled 24,000 calls from evacuated citizens, the general public, as well as visual and

print media. Ten turret phones were staffed for a 52-hour period with paid and volunteer staff. Those manning the EOC included: Orange County Fire Department personnel and Explorers, Anaheim Convention Center personnel, Anaheim Police Explorers, employees from the Anaheim Parks and Recreation Department, and a volunteer radio group. During EOC activities, a representative from either the County Fire Department or the County's Public Information Office was in attendance.

SECTION 3: ADDENDA

ADDENDUM I

FINDINGS AND RECOMMENDATIONS OF CRITIQUES

Many of the recommendations in the final report are a result of two critiques. The coordinated Hazardous Materials Response Teams from Anaheim, Huntington Beach and Orange County Fire held a critique on July 7, 1985. The Orange County Fire Department Incident Staff held a critique on July 24, 1985. The detailed findings and recommendations that resulted from these post incident analysis follow (pages 17 through 27).

FIRE PREVENTION ANALYSIS

The lack of concise information on chemicals stored within the building during the fire created excessive risks for both the public and responders.

All Fricker Company business records were reported to be destroyed in the fire. Detailed chemical information would have allowed incident responders to more accurately predict toxicity, reactions, dangers to personnel, and other factors. In the absence of such information, fire haz-mat team personnel were required to work next to unknown reactions and potentially dangerous products. Only experienced judgement could be used to determine public protective measures and emergency tactics. Accurate information on what chemicals were involved in the Anaheim fire was not available until 10 days after the incident occurred.

By comparison, ORCO Fire personnel who responded to the Anaheim Fire were sent to another pesticide fire in the City of Thermal later that week. Complete chemical information was provided voluntarily, in advance of the fire, to local authorities by the building owner. This allowed decisions and response to be more accelerated than at the Anaheim incident. Information that took more than 3 days to retrieve, at high risk, in Anaheim was immediately available at the time of the Thermal emergency.

Other facilities exist within Orange County that, if involved in fire, potentially pose equal or greater hazards than the Larry Fricker Company.

Other facilities that pose similar threats, if not currently identified, should be pre-identified. Pre-planning should be performed on these occupancies with emphasis on fire inspection activities.

Rapid expansion and development of hazardous materials related industries within Orange County has outpaced significant efforts by fire departments to manage hazardous materials.

Even though Orange County has one of the most progressive hazardous materials permit and inspection programs in the Nation, expanded technical training for fire department personnel relating to fire prevention for hazardous materials is necessary. A chemist, or similarly trained professional, is needed to assist with and support fire department programs relating to hazardous materials.

Many containers of chemicals and fertilizers were inadequately labeled as to their chemical composition.

A review, during routine fire or health inspections, should emphasize proper packaging and labeling of materials.

FIRE PREVENTION RECOMMENDATIONS

Develop and adopt a model haz-mat disclosure ordinance.

Encourage the network of haz-mat information systems to ensure the availability of critical data for emergency responders from all agencies.

Continue to develop the ORCO Fire and Environmental Health Haz-Mat Data Collection Systems.

Network these haz-mat inventory systems into the proposed ORCO Fire Department Computer Aided Dispatch (CAD) System.

Continue to identify and pre-plan emergency response for facilities posing hazardous material threats with emphasis on fire prevention activities.

Consider the addition of technically trained personnel to the fire department for the purposes of assisting with existing hazardous materials fire prevention programs.

Continue the hazardous materials permit system currently operating under the authority of the Uniform Fire Code.

OPERATIONAL ANALYSIS

The actions of the first arriving fire unit, and in particular the unit's company officer, was instrumental in limiting risks to both emergency workers and the public.

The unit's personnel were in training to become haz-mat team members at the time of the incident. Their immediate recognition of minimally marked hazards limited firefighter and police exposures, surely preventing serious injury. Their requesting haz-mat teams and ordering of evacuations initiated an appropriate chain of events necessary to protect the public.

Policies of State and Federal response agencies and clean up contractors prohibit their activities in active structure fires.

Local fire and health authorities, as well as haz-mat personnel, were required to solely perform all tactical activities at the fire site for 69 hours, until all fires and fire potential were controlled. Federal response agencies did provide technical and financial support during fire control efforts. Federal agencies assumed primary responsibilities once the fires were out.

Communications between hazardous materials teams during high risk operations was not possible due to a lack of necessary equipment.

While communication devices are available for use inside chemical protective wear, no haz-mat team in Orange County possesses this equipment because of limited funds. The lack of communications increased the risk to emergency workers operating in toxic environments and directly contributed to two (of three) injuries to haz-mat personnel. While working in limited protective wear, one member was chemically exposed when he could not hear shouts from other workers "not to enter" an area. A second member suffered heat exhaustion while wearing protective equipment; his physical condition could have been monitored more effectively with appropriate communications. A fourth individual became lost while wearing protective clothing not equipped with communications devices.

Monitoring equipment that would have given accurate data on the toxic cloud was not available.

Neither fire nor HCA hazardous materials responders have been equipped with highly sophisticated gas analytical equipment due to limited funding. Some fire haz-mat teams do not possess even basic atmospheric monitoring equipment.

Local response equipment inventory was unable to meet demands during the critical first days of the incident.

Only limited reserves of expendable hazardous materials response equipment were available at the time of the incident due to a lack of funds. All expendable equipment was completely depleted by fire haz-mat teams in the first 24 hours. Police officers were required to perform evacuations and maintain road blocks without any chemical protection equipment.

Not enough trained hazardous materials personnel were available to maintain staffing needs.

Even though Orange County is one of the most prepared in the Nation, in terms of equipment and trained personnel, not enough fully trained personnel were available to maintain operations.

Some incident responders with little experience in hazardous materials situations had difficulty comprehending the scope of hazards in this emergency.

A lack of initial recognition of incident potential by a few fire commanders coupled with the lack of information caused delays in logistical support, notifications, and some tactical operations. These individuals believed that the incident could be concluded in an unrealistically short term.

A loss of continuity and coordination occurred when the command post was moved, due to the increased toxicity, at a critical time during operations. This resulted in a temporary loss of some support activities.

Members of the hazardous waste unit of the Orange County Health Care Agency performed particularly well during the incident.

Members of this unit closely coordinated their efforts with fire commanders and haz-mat units. They committed a large staff to perform environmental hazard assessment and monitoring, and supported other emergency efforts in an exemplary manner.

The U.S. Coast Guard/Pacific Strike Team and Crosby and Overton, Inc. provided services beyond routine expectations to the benefit of the citizens of Orange County.

In the absence of complete approval or funding, personnel from both the Coast Guard and Crosby & Overton, Inc. donated substantial advice, service and equipment to fire haz-mat personnel. In the absence of this aid, fire teams may have been placed in an inoperable position or may not have been able to operate as safely.

Members of the Orange County, Huntington Beach, and Anaheim Fire Department Hazardous Materials Response Teams performed extremely well during this incident.

Local government has emphasized the development of what has become a nationally recognized hazardous materials response capability in Orange County. The situation posed by the Anaheim incident was one of the most dangerous incidents faced by hazardous materials units in the United States in the last year. No significant injuries were incurred by haz-mat personnel. While working in mentally stressful and physically threatening environments, long work shifts were required. Orange County haz-mat teams were forced to use extraordinary tactics in extreme hazards to gain control of this incident.

OPERATIONAL RECOMMENDATIONS

Recommend acquisition of communication equipment for the three haz-mat teams.

Recommend equipping fire haz-mat teams with basic monitoring equipment and HCA hazardous waste team with more sophisticated monitoring and sampling equipment.

Recommended that a cache of reserve equipment be developed and maintained for exclusive use of fire haz-mat teams, HCA Hazardous Waste Unit, and others - under special conditions.

Recommend continued expansion of the number of trained personnel to perform fire hazardous materials response team functions, fire team support operations, and environmental health and hazardous waste work.

Additional hazardous materials training is recommended for all levels of employees of both police and fire departments. Training should include: recognition, tactical skills, evacuation planning and techniques, and management skills.

MANAGEMENT ANALYSIS

Future significant hazardous materials incidents will require earlier implementation of documentation, cost control, and support operations.

The Anaheim incident was found to be similar to a major brush fire in fiscal impact and support requirements. Significant fiscal and support work was not initiated until 36-hours into the incident. This resulted in delayed support, running out of key supplies and equipment, and the loss of some data.

Greater emphasis to access available State and/or Federal emergency funding for hazardous materials incidents is needed to reduce or recover local costs.

Access to State and Federal funds was accomplished at the Anaheim incident, which substantially reduced local response costs. However, this was accomplished by informal means that may or may not be available at future emergencies.

The Orange County Fire Department needs to establish a separately manned and independent Hazardous Materials Response Team.

Current manning is achieved through dual use of an engine company, which prohibits exclusive commitment to preparation and response to hazardous materials incidents. By separately manning a haz-mat unit, enhanced training for hazardous materials emergencies could occur and the team could participate in related fire inspections of hazardous materials related facilities. Additionally, creation of a separate haz-mat team would re-instate full-time service of a regular engine company while creating greater emphasis on hazardous materials response activities.

The transition from local and State emergency funding to Federal funding caused a loss of momentum and services at a critical time.

A contractor, to perform clean up operations, was acquired within hours of the incident's start by HCA. This contractor was funded by State Toxic Superfunds. When federal funds were later acquired, the Federal Authority cancelled continuing performance by the clean up contractor as he was not approved by prior contract to perform federal work. This caused a 12-hour lag in contractor provided services.

Utilization of central contact points for both decision makers and public information should be stressed.

Use of "Emergency Operations Centers" (EOC) by affected cities allowed immediate communications from incident command staff with political and public safety decision makers. City EOC's, such as Placentia's, allowed factual and immediate dissemination of information to citizens and relieved emergency workers of this task.

The use of "press conferences" worked extremely well to disseminate current and factual information.

Press conferences introduced emergency command technical decision makers to the public (press). Incident decision makers' time was more effectively used with a press conference, rather than many independent interviews. Public confidence and access to information was improved by this method.

Differing decisions on evacuation by adjacent municipalities caused public confusion.

While Anaheim and Fullerton chose immediate mandatory evacuation, Placentia chose to wait for additional technical information. This is not an unusual situation for this type of emergency. Detailed information on public threats from vapor clouds was not available. Projections of public health threats was made based on best available information by the decision team.

Placentia had the largest population to move (approximately 7,000). Later, the city did enforce a mandatory evacuation after additional consultation with the decision team.

Formalization of relationships with professional technical specialists is needed.

Currently, only informal relationships exist with technical advisors. Technical specialists proved to be an essential component of the command staff at this incident.

The availability at the command post of a senior health care agency decision manager is desired during major hazardous materials emergencies.

Early decision making was difficult in the absence of a senior health official. A senior official's presence at the command post is desired to make immediate recommendations on matters of public health and safety.

Police and fire commanders need to improve their command interface for major incidents.

Police and fire commanders could reduce delays in action and share information in a more efficient manner if command posts could be established in one facility. Direct communications between police and fire decision makers on a constant basis is desirable, and should be emphasized.

The Orange County Fire Chief's Association's new "Hazardous Materials Response System Master Plan" was tested and performed well.

The plan sets standards for field practices, site analysis, and common terminology. The plan allowed for smooth tactical and command operations at this incident. The three haz-mat teams (County, Anaheim, Huntington Beach) functioned as one cohesive unit, as if all haz-mat personnel were employed by the same agency.

Revision and updating of the "County of Orange Hazardous Materials Incident Response Plan" is needed.

The current plan is outdated, and does not reflect the state of hazardous materials response or recent legislation. Current expectations on agency capabilities are inconsistent with what can actually be provided. Examples include: the Fire Departments' addition of haz-mat teams within the last two years, and the AQMD is unable to provide emergency air monitoring (as previously indicated). The plan revision should cause this document to closely parallel other disaster preparedness plans.

A Revision of notification procedures of secondary local response agencies is recommended.

The current system requires Orange County Communications to notify all secondary response agencies. The caller must specifically request which agencies are to be notified. Not all secondary responders are accessible 24 hours per day, nor are all agencies well known. Some agencies may not be notified due to an omission by a field commander who is concentrating more on emergency management.

Emergency resource directories need to be expanded to include specialized hazardous materials equipment, and other related emergency needs.

Currently, only limited types of equipment availability have been pre-identified. Major acquisition of heavy equipment, suits, gloves, respirators, absorbants, and other stock was necessary for this incident.

Information packets for distribution to civilians are needed for use during evacuation and re-entry procedures.

Information packets for distribution to the public should be developed and should detail procedures for evacuation. This should include: information phone numbers, location of evacuation centers, provisions for pets, methods of travel available, and other pertinent information.

Better information upon re-entry to evacuated areas needs to be available to civilians prior to re-entry. This should include: cleaning procedures, handling of food substances, care of pets, landscape treatments, lingering or long-term health threats and other appropriate information

MANAGEMENT RECOMMENDATIONS

Continued training should be provided to fire supervisors and managers in recognition of "when" and "how" to implement logistics, support, and command operations for hazardous materials emergencies. The use of the incident command system should be stressed.

Recommend EMD and HCA identify funds that are available for emergency response, including funds for equipment, clean up, salaries, evacuations, business losses, and other expenditures.

Recommend that an agency be identified which will attempt to secure outside funds immediately whenever a significant hazardous materials emergency occurs.

Recommend establishment of a separate hazardous materials response team within the Orange County Fire Department.

Recommend EMD and HCA jointly contact the U.S. Environmental Protection Agency, U.S. Coast Guard, and State Department of Health Services to seek methods to avoid the withdrawal of services by contract vendors when we progress from one jurisdiction (State) to another (Federal) at future hazardous materials emergencies.

Recommend the initiation of central calling points earlier into major incidents for the purposes of dissemination of public information. Publicize the calling points through major media, as soon as available.

Strong emphasis for a coordinated decision by all involved agencies is necessary to maintain public confidence and provide for safety. Every effort should be made to gain an appropriate consensus, particularly when large evacuations are considered.

Recommend that Fire and HCA formalize a program for the use of technical professionals.

- Criteria for performance and professional capability of technical specialists are needed and should jointly be established by HCA and Fire.

- A limited number of highly qualified toxicologists, chemists and other specialists should be pre-identified. These professionals would augment other specialists already within County government for the management of sophisticated emergencies.

- The County should enter into limited agreement with specialists to secure their availability for response, post-incident medical screening, and risk management.

- The County should issue some form of identification to non-government specialists, as necessary, to provide access to public controlled areas.

Recommend that key secondary response agencies such as Environmental Health provide 24-hour availability and quick response. Recommend the availability of a management level decision maker for major emergency response.

Recommend continued and accelerated efforts to update the "County of Orange Hazardous Materials Incident Response Plan."

- Expand the existing plan to more accurately define agency incident responsibilites.

- Better define emergency incident commander's responsibilities and authority, especially regarding evacuations.

- Identify roles of coordinating agencies such as EMD and the Hazardous Waste Management Office.

Some notifications were initially missed during the Anaheim incident. A system should be proposed by which a reporting party would notify Control I of a situation, the Control I dispatcher would interpret which agencies should be notified (similar to existing State and Federal systems). This would ensure that all required agencies would be notified, and would remove "a memory burden" from an on-scene incident commander. Control I would then advise a field commander of which agencies are enroute, and what their time of arrival will be.

Recommend that the Fire Department expand current response directories to include hazardous materials emergency needs. Local jurisdictions should be encouraged to also develop local directories.

Recommend that EMD and HCA jointly review and update existing information packets for evacuation and re-entry procedures. Recommend that EMD and HCA coordinate the delivery of this information to evacuated populations during emergencies.

ADDENDUM 2
CHRONOLOGY OF EVENTS

June 22, 1985

2245 hours	Alarm received: structure fire in an industrial building. Anaheim Fire Department responded with 3 engines, 1 truck, and 1 Battalion Chief
2250 hours	On-scene working fire, interior of building, no pre-plans available - crew not familiar with building.
	Crew attempted exterior attack to knock down fire on north side of building.
	Sign on door indicated pesticides inside. Water made fire spatter and turn to gas. Looked inside N/W window, saw multi-color smoke. Material burning with colored flames.
	Extinguished heavy fire by exterior attack. Crews backed off.
2254 hours	Second alarm requested.
2302 hours	ORCO Fire Haz-Mat 28 requested. Anaheim begins diking area to contain materials.
2312 hours	ORCO Fire Haz-Mat 28 requested additional equipment: Huntington Beach Haz-Mat, ORCO Fire Truck 34 and Battalion 2 respond.
	Two block area, downwind evacuated - industrial area.

June 23, 1985

0015 hours	All personnel directed to wear breathing apparatus within two blocks of the fire. A white cloud was beginning to move in a northwestern direction.
0022 hours	Request for Dr. Edelman (toxicologist) to respond. Notified that fire was in agricultural chemical warehouse.
0124 hours	First reports received of civilian injuries. Symptons included nausea and headaches.
0126 hours	Appropriate State agencies notified through OES hotline.
0140 hours	U.S. Environmental Protection Agency and other Federal agencies notified through national response control. EPA technical advisors enroute from Long Beach.
0221 hours	ORCO Fire Hi-Ex 27, E-27 dispatched. Intent to use foam to control fire.
0257 hours	U.S. Coast Guard notified.
0300 hours	Haz-Mat teams entered the building to begin material identification. Owner's son provided very vague inventory information.
	CHEM TREC, a national service of Manufacturing Chemists Association, contacted for information.

June 23, 1985 (cont.)

0316 hours	Numerous reports of civilian difficulty breathing off site.
0400 hours	Approximately 20 materials known in building. All involved found to be extremely toxic.
	Foam operation successful in knocking down fire; however, created new chemical reactions.
0513 hours	Chemist from Crosby/Overton arrived. (Mr. Larry Boyle)
0700 hours	Building owner arrived.
0816 hours	Air Quality Management District personnel enroute.
	Moved command area for first time due to a wind shift.
	Decontaminate 60 fire/police responders.
	Water application enhanced vapor production.
	Green substance coming from inside building noticed outside.
	3 to 4 tons ammonium nitrate inside; potential explosion hazard.
	Large pesticide containers found.
0830 hours	Chemicals being identified as high hazards (poison gases, explosive compounds, etc.)
	Many products still unidentified. Smoldering.
	ORCO Fire Haz-Mat 28 in building for long term.
	Identified needs for command staff (support).
	Evacuation expanded; tightened perimeter controls.
	Attempt to extinguish new fires to restrict production of vapor cloud.
	Command maintained by Anaheim; deputy IC appointed from OCFD.
	ORCO Fire Haz-Mat 28 providing technical advice and other services.
	Continued health/environmental assessment.
	HCA Secured state Super Fund money.
1000 hours	Dead bird found down wind - 1/2 mile down wind evacuation ordered. 2,000 people affected.
	Low winds held most contamination to site.
	Two fire department and one HCA assessment teams began survey of toxic cloud's travel.

June 23, 1985 (cont.)

1130 hours	Fish/Game on-scene.
	Owner states 91 chemicals were in warehouse, but provides very incomplete information.
1345 hours	Evacuation mandatory due to high operational risk.
1500 hours	Operations under way to successfully remove LPG and poison gas cylinders.
1730 hours	Cylinder operation completed.
1800 hours	Rekindle of fire in pesticide storage area.
	One Fire Captain exposed to hazardous materials when he fell into 8" pool of chemicals during suppression operations.
2000 hours	Secured operations for night. Personnel exhausted; no equipment available; all hazardous material supplies expended.
	Three hazardous material personnel remained on-site to monitor; suppressed two flare ups; decontaminated equipment.

June 24, 1985

0220 hours	91 Freeway closed from 57 Freeway to Raymond.
0600 hours	Crosby & Overton, Inc. used State Toxic Superfunds to purchase $20,000 in equipment to resupply haz-mat teams.
0603 hours	91 Freeway reopened.
1000 hours	ORCO EMA tests determined no off-site contamination in storm drains.
	Begin work; new materials identified. Had to manage these before extinguishing fire.
1200 hours	Incident costs increasing. Request U.S. EPA to fund and provide, technical expertise.
	Large amount of vapors in area.
1230 hours	57 Freeway closed between 91 Freeway and Imperial Highway.
1300 hours	Winds increased. Toxic threshold determined 1/2 mile away from incident.
	8,000 to 10,000 people evacuated. Evacuation called due to prediction of increased winds.
	Numerous reports of civilian discomfort.
	Lack of equipment and personnel.

June 24, 1985 (cont.)

1300 hours	Attempt to contain vapors unsuccessful; attempts caused additional vapors.
	Orange County Fire Public Information Officer (PIO) arrived on-scene; met with Paul Hess, EMD, to discuss current situation.
	No central information center had been established for either media or public.
	Discussed the opening of Orange County's EOC.
	Met with Anaheim City PIO to discuss plan of action.
	Requested a second Orange County Fire Department PIO at the scene.
1400 hours	Information center and EOC being established.
1730 hours	Federal Superfunds of $100,000 authorized.
	Crosby/Overton cancelled, not on contract with the Federal EPA.
	EPA contractor would not be on scene for 12 hours.
	Joint command of Anaheim Fire Department and U.S. EPA initiated. They jointly approved Fire Haz-Mat Team operations to confine the fire. Thirty personnel were used. Operations required 5 dump trucks, 2 fork lifts, 2 backhose, 1 Bob Cat tractor.
	Plan to remove 10-15 tons of palatized material from the building.
	Placed 6 tons sand in building to stop fire spread. Four tons of Amonium Nitrate were removed successfully. Operation normally would be performed by a contractor, but in their absence, was conducted by Fire Haz-Mat Teams.
	Orange County Health Department provided environmental monitoring.
1800 hours	News conference held; would continue to have two conferences each day for remainder of incident.
	U. S. EPA representative on scene.
2030 hours	Fire spread stopped. Potential for explosion removed.
	Lab in L.A. contracted to process air test samples.
	U.S. Coast Guard/Pacific Strike Team arrives.
2100 hours	EMA/Coast Guard assumes analysis operations.
2240 hours	57 Freeway reopened.

June 25, 1985

0700 hours	EPA to assess with fire department; to plan what to do with remaining fire.
	4 to 5 hour plan to remove/stabilize chemicals developed.
	5 hours later, would not be able to extinguish fire this day.
	The most sophisticated analysis at scene would not identify all materials, samples sent to contract lab. Additional chemicals found, not on inventory, which had to be managed before fire could be contained. Set back entire operation.
1500 hours	Two or three piles extinguished using water/sand slurry mix. Personnel exposed knee deep in toxic materials during extinguishment.
	Unable to get complete information on all chemicals.
2000 hours	Flooded area of third pile with water to extinguish remaining fire, violent reactions were experienced.
	All haz-mat equipment contaminated, teams out of service.
	Winds scheduled to change later in evening. Possible Santa Ana conditions to begin.
	Evacuation reduced to two block area.

June 26, 1985

0600 hours	EPA assumed site control and incident command.
	EPA and fire department reassess building.
0930 hours	Lt.-Governor McCarthy on-site, given tour.
	42 products positively identified.
1100 hours	Captain Rohde and Dr. Edelman flew to Thermal (pesticide warehouse fire).
1400 hours	Haz-Mat completed demobilization; in service.
1600 hours	Closure reduced to 3 buildings.

ADDENDUM 3

RESOURCES COMMITTED TO THE ANAHEIM INCIDENT

Orange County Fire Department		40 personnel 6 engines 1 truck 1 Haz-Mat Team 11 staff positions Emergency Management Division
Anaheim Fire Department		36 personnel
Other fire agencies		27 total personnel
Agencies involved:	Fire Departments	Anaheim Fullerton Garden Grove Huntington Beach Orange Orange County Santa Ana Stanton
	Local Police Agencies	Anaheim Fullerton Placentia County Sheriff
	Other County Agencies	American Red Cross Animal Control Environmental Management Agency Agricultural Commissioner Health Care Agency Orange County Transit District

RESOURCES COMMITTED TO THE ANAHEIM INCIDENT

	State Agencies	Department of Agriculture
		Air Quality Management District
		California Highway Patrol
		Department of Transportation
		Office of Emergency Services
		Fish and Game
		Department of Health Services
	Federal Agencies	Environmental Protection Agency
		National Weather Service
		U.S. Coast Guard/Pacific Strike Team
Contractors:		Crosby & Overton, Inc.
		I.T. Corporation
Height of Incident		Approximately 200 personnel

While mentioned in the body of this report, as well as the Chronology of Events, the P.I.O. of the County of Orange was inadvertently omitted from the "Resources Committed" listing on page 33, "Other County Agencies". Noted after printing and Board submission.

- Orange County Fire Department

ADDENDUM 4
BUSINESS REPORTING ECONOMIC LOSS
FRICKER CHEMICAL FIRE EVACUATION
CITY OF ANAHEIM
June 22-25, 1985

BUSINESS	ADDRESS	EMPLMT	LOSS
Ace Old Furniture Co.	2030 E. Orangethorpe	41	$42,025.00
American Diversified Silver	1431 N. Daly St.	4	2,000.00
American Fleet Parts, Inc.	1543 N. Placentia Ave.	26	N/A
Auto Radiator Service	1505 State College	N/A	1,025.00
Carpet Bazaar	2200 E. Orangethorpe Ave	9	10,000.00
Champions Choice, Inc.	1910 E. Via Burton St.	6	11,400.00
Coast Chemical, Inc.	2309 Via Burton St.	7	12,361.00
Facilities Engineering	2100 Via Burton St.	9	12,000.00
I.A.L. Corp.	1440 Daly St.	25	21,450.00
J.D.M. Machine, Inc.	2278 Via Burton St.	11	12,212.00
King Bearing Inc.	2301 Via Burton St.	17	32,580.00
Spiveco, Inc.	1700 Via Burton St.	51	87,000.00
Swanson-Erie Corp.	2100 Via Burton St.	36	8,000.00
Val Trefz Printing	1461 N. Daly St.	5	N/A
			$252,053.00

BUSINESS REPORTING ECONOMIC LOSS
FRICKER CHEMICAL FIRE EVACUATION
CITY OF PLACENTIA
June 24-25, 1985

BUSINESS	ADDRESS	EMPLMT	LOSS
Allen M. Soliman - Exxon	241 W. Orangethorpe	2	$ 614.00
Al's Texaco Service	805 W. Orangethorpe	3	1,395.34
A-L-L Magnetics Div.	930 S. Placentia, Suite C	1	780.00
Beneficial Sheet Metal	704 Monroe Way	2	512.00
Blue Chip Tool & Die	1010 B So. Melrose St.	3	1,050.00
C. W. Racing	731 S. Melrose	13	4,000.00
California Looseleaf Pro	1037-B Melrose	16	10,964.48
Cal. Consol. Frt. Systems	930 S. Placentia, #E	8	2,700.00
Cempi Industries, Inc.	715 Hundley Way	39	12,000.00
Combs Industries, Inc.	725 Dunn Way	5	3,000.00
Creative Auto Interiors	930 S. Placentia Ave. "H"	2	2,000.00
C-Ball, Inc.	459 Industrial Way	6	1,925.00
Datalease Systems	1061 S. Melrose	35	5,600.00
Design Dispatch	460 Industrial Way	4	3,500.00
Designer Gallery, Ltd.	735 W. Orangethorpe	32	2,041.00
Designer Upholstery	1037-A South Melrose	9	3,000.00
Energy-Sav Products	1007-B S. Melrose	7	7,500.00
F & J Machine	453 Industrial Way	2	960.00
Ford Maufacturing Co.	750 Monroe Way	25	830.00
Galemot Publishing	740 Monroe Way	6	890.30
Gencon Plastics, Inc.	704 Dunn Way	14	6,500.00
Holdtron West Corp.	701 Monroe Way	3	500.00
Hunco Development, Inc.	930 S. Placentia Ave, Suite A	6	6,290.00
Johnson's Photography	734 W. La Jolla, Suite 121	4	695.00
Kent Ambler	1025 #D Melrose	1	240.00
L & B Machining & Mfg.	751 Monroe Way	14	3,820.32
Liles Camper Mfg. Co., Inc.	727 W. La Jolla	3	1,100.00
M & W Typographers	733 Dunn Way	13	3,352.00
Maaco Auto Painting	730 Hundley Way	9	10,000.00
Michael A. Cox	801 W. Crowther Ave.	1	640.00
Newop Machine Works Corp	1013-B Melrose Ave, So.	16	6,950.00
North Star Satellite Sys	721 Dunn Way	2	5,035.04

BUSINESS REPORTING ECONOMIC LOSS
FRICKER CHEMICAL FIRE EVACUATION
CITY OF PLACENTIA
June 24-25, 1985

BUSINESS	ADDRESS	EMPLMT	LOSS
Pacific Transformer	705 Monroe Way	19	1,625.00
Pat's Plastering Equip.	919 Lawrence St.	4	6,791.75
Pee Wee Market	703 W. La Jolla	2	2,000.00
Peles Welding	940 S. Placentia Ave. #V	1	500.00
Peter's Precision	1025 Melrose, Unit B	6	745.00
Petrusse-Norris Painting	940 S. Placentia Ave, #J	7	2,472.00
Precision Typesetting	710 Monroe Way	1	2,080.00
Ralph Pennella Chevron	313 W. Orangethorpe	9	2,000.00
Roadway Auto Body	1031 "A" S. Melrose	3	1,200.00
S G Engineering	940 S. Placentia, Unit B-1	1	1,500.00
S & W Engineering Prod.	731 Monroe Way	5	1,418.15
Schumacher	777 W. Crowther	1	400.00
The Furniture Company	1049 "B" S. Melrose	14	4,855.00
The Ungame Company	761 Monroe Way	15	8,992.00
Triple A Graphics	735 Dunn Way	8	3,750.00
U-Haul	860 S. Placentia Ave.	7	5,685.00
Webers Thrift Store	625 Orangethorpe	4	1,285.00
Westman Aircraft Spares	930 S. Placentia Ave "D"	2	300.00
Westminster Clock Co.	1001 S. Melrose, Unit C	2	3,800.00
W.G. Durant Corp.	466 Industrial Way	48	2,500.00
		465	$164,283.58