

EXECUTIVE SUMMARY

The TriData Corporation, assisted by the International Association of Fire Chiefs, proposes to manage and carry out the critical "Investigation of Major Fires" project and to see that the investigation reports are improved and get more widely used. Our team is uniquely well-qualified for the following reasons:

- TriData has a handpicked team of seven highly experienced fire investigators. Included are:

- Tom Copeland - Nashville, Tenn.
- Richard Custer - Worcester, Mass.
- David Demers - Boston, Mass.
- Ron Kirby - Alexandria, Va.
- Jerry Lambert - Dallas, Tex.
- Tom McNerney - Seattle, Wash.
- Gordon Routley - Phoenix, Ariz.

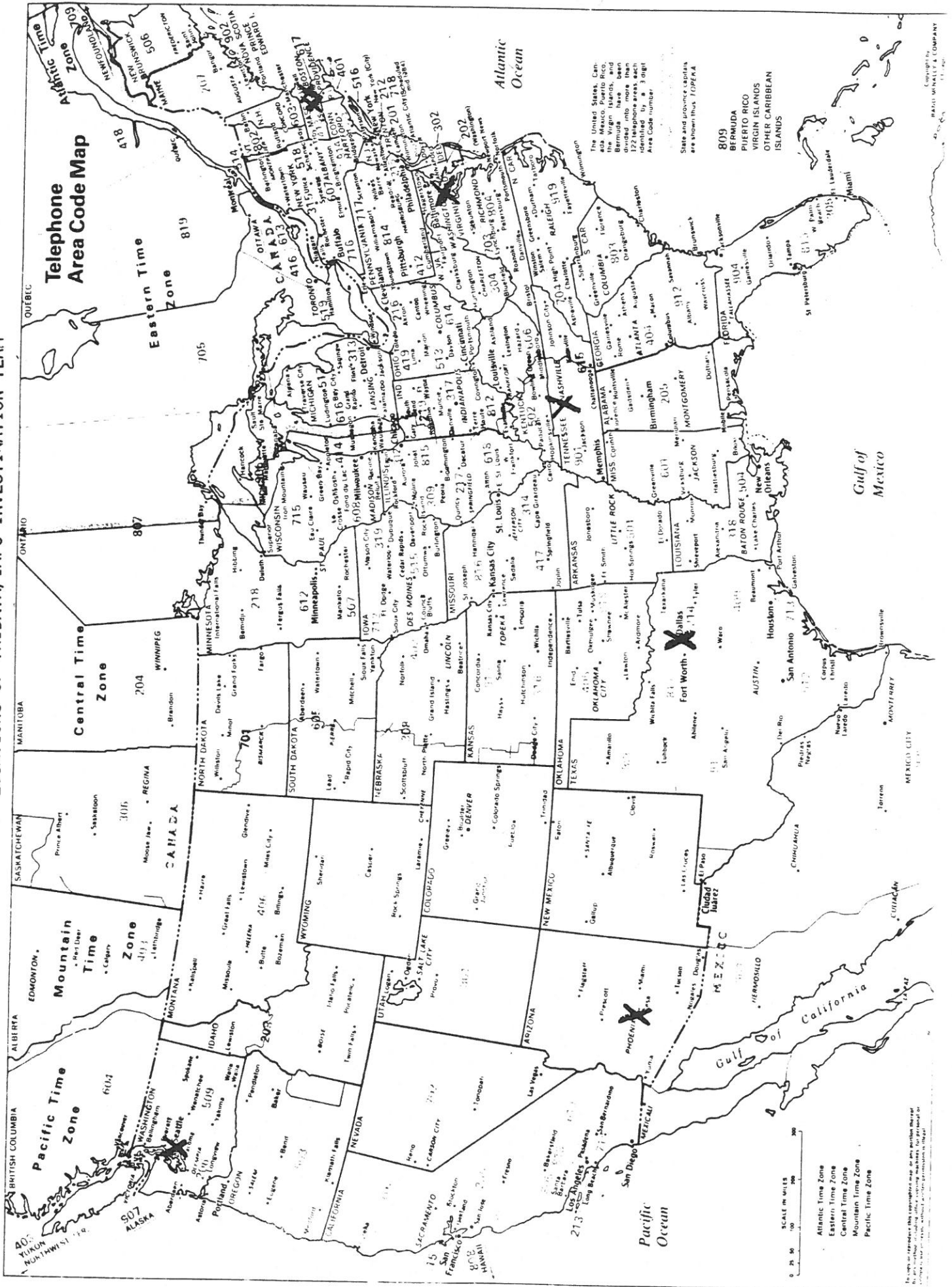
Three are former chief fire marshals of Metro cities, four are fire protection engineers. They are sensitive to working with local fire departments. All have signed agreements to be available on short notice for dispatch to major fires on behalf of the U.S. Fire Administration.

- This extraordinary group have conducted hundreds of fire investigations, including the following major fires, several of which were done for USFA:

- Maury County, Tennessee, Jail Fire (42 deaths)
- MGM Grand Hotel Fire (85 deaths)
- Mississauga, Ontario, Nursing Home Fire (25 deaths)
- Quebec Social Club Fire (48 deaths)
- Cambridge, Ohio, Hotel Fire (10 deaths)
- Greece, New York, Hotel Fire (10 deaths)
- Brooklyn, New York, Supermarket Roof Collapse (6 firefighter deaths)
- Syracuse, New York, Fire (4 firefighter deaths)
- Providence College Dormitory Fire (10 deaths)

- TriData's fire investigators are geographically dispersed throughout the country, which will ensure faster arrival at the fire scene and lower travel costs. (See the map on the next page.) It also increases the likelihood that an investigator will attend the scene who is trusted by the fire service in his region and knowledgeable about fire protection practices, the applicable codes, etc.

LOCATIONS OF TRIDATA/IAFC INVESTIGATION TEAM



- TriData's team is large enough to investigate multiple major fires simultaneously should that occur.
- The IAFC will help ensure cooperation by the local chiefs, and in disseminating results of the investigation throughout the fire service.
- The Chairman of the National Fire Protection Association's Fire Investigations Committee, Richard Custer, is on TriData's team. He will provide state-of-the-art technical expertise and help improve the quality and consistency of the investigations.
- The proposed Project Manager, Philip Schaenman, has 10 years of experience in coordinating indepth fire investigations. This includes early identification of fires to be investigated, and early decision-making on whether to investigate and at what level of investigation. He will be accessible virtually continuously during the project via a paging system.
- We have a corporate commitment to excellence with a track record to prove it. Our project team members are individually committed to the success of this project.

Here is a summary of how TriData proposes to approach the project.

TECHNICAL APPROACH

After identifying a candidate major fire (or other major emergency incident) and getting a decision from the USFA Project Officer that it will be a limited or full-scale investigation, we will dispatch the nearest investigator. Special circumstances might suggest a preference for one or another specialty or experience possessed by a particular member of the team. For example, one investigator specializes in HazMat incidents and evacuation problems. Another is especially strong for reconstructing the flame propagation sequence. In such a case, the specialist will be sent. For very large or important incidents (such as an MGM Grand) two or more investigators may be sent.

Our Project Manager, assisted by the IAFC, will make the sensitive arrangements with local governments to receive our investigator on site, dispatch the investigator(s), and monitor their activities. Richard Custer, will serve as a consulting resource to the investigators in the

field on technical questions and will provide an extra review of the investigation reports for quality control (for fires he does not personally investigate.)

The overriding emphasis throughout the project will be on "lessons learned." The reports and supplemental investigation materials will be prepared with a view to helping USFA and the fire service understand the implications of each fire investigated for improving fire protection practices. The reports will be comprehensive as to the relevant issues and special attention will be given to obtaining good photos and slides that illustrate the "lessons learned."

TriData and IAFC can assure USFA/FEMA that articles and news releases on the investigations will be approved by the government prior to release and made available to all major fire magazines to increase the readership and use of the results by a wider portion of the fire service.

We have the assurance of at least two major magazines that have not had access before that they will run articles on major fires. Further, the IAFC will have presentations made at each regional and national meeting on any major fires with important lessons that USFA wishes to disseminate. Liaison is assured with USFA's public awareness and public education efforts through TriData, a subcontractor on that project, as well as through USFA staff.

TriData and the IAFC have excellent working relations with USFA/FEMA personnel. Both organizations have track records of successful projects carried out to USFA's satisfaction and the benefit of the fire service.

TriData operates with stringent management and product quality controls to keep its projects on track and verify that the work is carried out properly according to the client's requirement and not our own agenda. We can and will deliver impartial investigations of the highest quality.

Because even highly committed staff individuals can have problems during the course of the year which renders them unavailable for a period of time, TriData has organized the team in depth.

This team has a history of excellence and high achievement that we are willing to stack up against any of our competitors.

Additional Management Controls -- All staff performers for this project. Their performance will be closely managed by professional managers. Investigation protocols for the investigations will guide the formats used in the field. Of course some flexibility is needed, but there will be a basic structure to follow. There will be a consulting investigator (Richard Custer) to serve as a quality controller on the strength of his professional knowledge in addition to the Project Manager rather than managerial assignment. And, the investigation reports will be closely reviewed by the Project Manager and the IAFC for accuracy and utility to the fire service.

SPECIAL RELEVANT QUALIFICATIONS OF KEY STAFF

The qualifications of our proposed key staff for each task and the project's management are described below. Complete resumes appear in Appendix B.

Project Management

Philip Schaenman, the President of TriData Corporation, will be the Project Manager. He holds the Professional Degree of Electrical Engineer, in addition to two bachelor degrees and a Master's Degree in engineering.

He has been managing technical projects in engineering and data systems for 20 years. He was the youngest supervisor in the Bell System system engineering subsidiary in which he started his career, and since then has received outstanding ratings for managing projects on time and with excellent results. Schaenman has three engineering degrees and a bachelor

of science degree. He has an extensive education in systems analysis, statistics, computer technology, and data systems.

Schaenman manages and coordinates the fire investigations that TriData undertakes as part of litigation on a wide variety of fire problems. He has participated in the analysis of photographs, fire data, lab reports, diagrams, etc., from over 35 fires involving deaths and serious injuries or high dollar loss across the country in the past four years. He has given both videotape and written court depositions, and directed a team of expert investigators. He has also advised consulting engineering and law firms on details of the investigations, and has personally participated in investigation for these clients.

Schaenman was Associate Administrator of the U.S. Fire Administration, FEMA, from 1976 to 1981 and headed the National Fire Data Center. In that capacity he was responsible for seven divisions: Fire Data System, which conducted and or managed the indepth investigation of major fires and the development and management of the National Fire Incident Reporting System; Computer Operations Division, which included the development of software for collecting and analyzing the NFIRS data, data from major fires and indepth investigations, and data from special studies; Data Analysis and Evaluation Division, which included the analysis of the NFIRS data and data from other sources to develop national fire estimates, the annual Fire in the United States report, and analyses of various fire topics; Data Dissemination and Use Division, which included the preparation of manuals, reports, and graphics suitable for use by the fire service and a wide variety of other users; Fire Protection Technology Development Division, which included the development of the quick response sprinkler systems and the evaluation and dissemination of information on smoke detectors; and the Fire Fighter Health and Safety Division, which included the development of fire fighter protective gear and other programs to promote the health, safety, and welfare of the nation's fire fighters.

Schaenman actively participated in each area substantively as well as administratively. He participated in the development of at least 50 Fire Administration manuals and reports for the fire service. He received

repeated management awards for his program. He was the FEMA representative on a government-wide committee to improve management in the federal government. The Data Center's program has stood the test of time in that its products are still being used. This management experience is directly applicable to the proposed project.

Barbara Lundquist will back up Schaenman as Project Manager and serve as editorial reviewer. She is TriData's Vice President and served as Deputy Associate Administrator for the National Fire Data Center where she assisted in the management of the overall program and in the editorial review of its products. Lundquist is expert in converting technical information into a form usable by the fire service and others in the fire community. She has repeatedly contributed to reports on fire issues.

Randolph Eugene Kirby was the Chief Fire Marshal of Alexandria, Virginia, where he directed a team of arson and fire investigators and was highly respected as a tactful manager while himself working under demanding managers that included Fire Chief Charles Rule and City Manager Doug Harmon. He is a fully qualified fire investigator and has worked with TriData for several years on fire investigations. He has investigated many significant fires, such as the Alexandria jail fire.

Richard L. P. Custer, was formerly Associate Director of the Center for Fire Research at the National Bureau of Standards and is now the Deputy Director and Professor of the Center for Firesafety Studies at Worcester Polytechnic Institute, the nation's only graduate fire protection engineering program. He is a nationally known forensic engineer and fire investigator, and is the Chairman of the National Fire Protection Association's Committee on Fire Investigation. He has been a consultant and fire investigator for TriData for the last four years on a wide variety of cases through the U.S.. He also has a great deal of experience in reviewing investigations and advising on ways to improve them, and on investigation techniques. Custer has investigated many nationally important fires, including the Gulliver's Night Club fire in Westchester County, New York.

David Demers is another nationally known fire investigator. He participated in the investigation of the MGM Grand fire, was an investigator for NFPA and USFA on major fires, managed the NFPA major fires investigations for five years, and now runs his own successful fire investigation company. He has a great deal of experience in preparing reports on major fires that must stand the test of litigation, and summarizing the results for national publications.

Thomas McNerney was the Chief Fire Marshal of Seattle, Washington. He is a well known fire investigator with a national practice, and is especially active in the western half of the country. He has investigated scores of significant fires, including work for TriData.

Thomas Copeland was an investigator on the staff of the Tennessee State Fire Marshal and was the principal investigator for the Maury County, Tennessee jail fire that killed 42 people. He prepared the report analyzing this fire, and testified on it before a Congressional Subcommittee. He is now in private practice as a fire investigator and has investigated a broad spectrum of fires for his clients. A major part of Mr. Copeland's consulting practice involves the indepth analysis and investigation of fires involving deaths and injuries, major property loss, and fire code aspects.

J. Gordon Routley is a fire protection engineer and assistant to the chief of the Phoenix Fire Department. He has extensive experience in fire protection systems, behavior of people at fires, codes and firefighting technology, and fire fighter health and safety and hazardous materials. He investigates many such incidents for the Phoenix Fire Department and will be used to investigate these aspects of major fires.

Jerry Lambert, now a fire protection consultant and fire investigator for private industry clients, served in the Dallas Fire Department for 23 years, retiring as the Assistant Fire Chief and Fire Marshal. With particular expertise in building and fire code enforcement and fire prevention, during his tenure as Fire Marshal the City of Dallas achieved a 30 percent reduction in its number of fires. Lambert has investigated scores of

significant fires first for Dallas and now for a variety of private sector clients.

The full resumes of this outstanding team are in Appendix B. The team not only has the technical ability to investigate and analyze major fires, but enough depth to handle three simultaneous major fire investigations, each with a two-man team. The team also has enough geographical spread to assist in early identification of major fires and fast response, regardless of where the fire occurs, plus the ability to back each other up and consult with each other.

In addition to the above information on the qualifications of our key staff relevant to the project, below we present additional information of our qualifications relevant to the criteria specified in the Evaluation Factors of the RFP.

a. Demonstration of Ability to investigate and analyze major fires

Our investigative team has been involved in hundreds of fire investigations, including the following major and significant fire investigations selected from their experience. These are among the major fires personally investigated by our team:

- MGM Grand Hotel Fire
- Maury County, Tennessee, Jail Fire
- Las Vegas Hilton Hotel
- Mississauga, Ontario, Nursing Home Fire
- Quebec Social Club Fire
- Cambridge, Ohio, Hotel Fire
- Greece, New York, Hotel Fire
- Quebec Hotel Fire
- Brooklyn, New York, Fire and Roof Collapse
- Syracuse, New York, Fire
- Providence College Dormitory Fire
- Washington, DC, Gay Movie Theater
- Kentucky Gasoline Tank Truck Fire
- Danbury, Connecticut, Federal Prison Fire

b. Demonstration of ability to access key officials

The International Association of Fire Chiefs has excellent working relations with the nation's fire departments, whose chief officers are their members. The IAFC also works cooperatively with their

counterpart organizations in police and city management, which are connections that may need to be tapped to facilitate gaining access to information, photos, and samples in the field.

The TriData Project Manager has personally visited or met with hundreds of fire departments and is on a first name basis with many of the nation's chiefs. TriData frequently needs access to fire department records or personnel for various projects, and has had no problem in obtaining that access. We frequently interview fire service personnel, undertake fire investigations in connection with our law case work, and obtain data and information from many departments.

We believe we have an excellent reputation in the fire service and are well-known even among smaller departments. We also have worked extensively with the National Volunteer Fire Council, which is yet another channel for gaining access to small departments.

TriData's Project Manager also has worked extensively with the police community and city management. TriData deals with city managers, mayors, and heads of many types of departments in the course of its varied projects in city management. The Project Manager was a senior research associate at the Urban Institute, and his books and reports are to be found in most city management offices.

Further, our investigators are widely known and well respected in their regions.

Access will be no problem.

c. Demonstration of ability to support narrative reports with diagrams, etc.

TriData will be able to produce first-rate graphics for the investigation reports. Going further than minimum requirements, we have been well-known for innovative graphic presentation from our days at USFA and at present. Our charts and graphics have been used in many fire academies and fire departments. We will upgrade the graphics from the level they have been, especially with an eye to reducing unimportant information and getting across the major lessons.

Each member of the TriData investigative team has prepared diagrams, floorplans, charts, graphics, and photographs for a wide range of fires and emergency incidents.

TriData has a well-equipped Visual Department of six people, including a professional photographer, and a photography workshop at its immediate direction. They are a jointly-used resource of TriData and its sister corporate divisions that are part of the parent System Planning Corporation, and are in the same building with us. The graphic artists do a wide range of work of even higher complexity than is likely to be needed. We require our investigators to prepare accurate diagrams as input to the graphic artist.

d. Ability to dispatch an appropriate investigator within 24 hours

The TriData Project Manager, over a period of five years, was responsible for monitoring major fires, and dispatching investigators for USFA within 24 hours. This included the MGM Grand, Las Vegas Hilton, and Beverly Hills nightclub fires. He is used to making those arrangements.

Each investigator on TriData's team is highly qualified to investigate major fires (as shown in their credentials), has spent large periods of his career on call for dispatch to investigations, and has successfully carried out investigations on many occasions. They all are currently responding to major fire investigations for their clients or their agencies on 24 hour notice.

TriData Corporation currently dispatches staff members and investigators to fire scenes and locations all over the U.S. in connection with its law firm, insurance, and industry clients. We have a modern telephone communications system that allows us to reach our investigators literally at the touch of a button. Our travel agency is located in the same building as our company and can make immediate reservations for the investigators.

Because our project investigators are dispersed geographically in major transportation hubs, there is a greater chance of arriving sooner at a fire -- within 24 hours.

The investigators have each signed agreements to be available for the investigations and will put their professional names on the line. Because we have more than enough on the team to investigate multiple fires at the same time, there should be no concern about the availability of any individual any more than when full employees are sick or on leave. We guarantee USFA the ability to dispatch a qualified investigator within 24 hours. USFA may build penalties into the contract if there is any about our ability to score a "10" on this.

e. Ability to integrate a concise overview of multiple unit activities.

TriData's project staff are expert at turning out well-written, well-edited reports on tactical emergency scenarios and fire protection issues. Our project investigators all have been active fire officers and investigators. Some currently serve in fire department roles; most have retired from that and now investigate for private clients. All have had to write up complex incidents involving multiple fire, police, EMS and other city units (e.g., electrical and gas department). All have worked on major fire reports. Dick Custer is Chairman of the NFPA Committee that sets standards for investigations, and will review each report to see it is of the highest standard. Lundquist and Schaenman have edited many major fire reports and will ensure they communicate clearly and accurately. And IAFC staff will ensure that the interests and information needs of the ultimate fire service readers/users of the investigation reports are met.

PARENT COMPANY SUPPORT TO TRIDATA

TriData is a subsidiary of System Planning Corporation (SPC), which provides clients with a variety of technical studies and advanced technology products. SPC is wholly owned by its more than 500 employees.

SPC provides certain administrative and technical services to TriData, including finance and accounting, personnel, computer, resource management, security, library, graphics, photography, word processing, electronic mail and documentation services. For large projects TriData can draw additional personnel in engineering, systems analysis, statistics, operations research, computer science, mathematics, economics, publications production, editing, research assistance, secretarial support, and security from SPC with the specialized skills needed to best satisfy the requirements of its clients. This matrix approach to staffing and the administrative umbrella provided at SPC ensure that efficient, timely, and quality studies and products are accomplished.

FACILITIES

TriData Corporation is located in Arlington, Virginia, just across the Key Bridge from Washington, DC. This location is convenient to government offices in downtown Washington and nearby areas, and facilitates rapid response when tasks require such support. TriData staff is within easy driving distance of Emmitsburg, Maryland. Our ample, modern facilities include computer services, a technical library, document services, and conference rooms.

Technical Library. SPC's technical library provides the staff with a large reference collection and access to various information retrieval systems.

This resource will be used to locate and obtain adjunct materials (e.g., standard and codes) in support of the investigation reports, and past investigations relevant to the ones undertaken.

The Special Libraries Association recently honored our library with an award for excellence, one of only two given in the entire Washington area. Professional librarians are trained and experienced in literature surveys and in the acquisition and control of government documents and scientific and technical information. The wealth of technical material resources in the Washington area that are available through government

libraries, offices, and official documentation centers provides an exceptionally healthy environment for indepth research and access to the latest available information. SPC is a subscriber to Lockheed Dialog and SDC Orbit -- computer systems that access and retrieve information from more than 200 different data bases. Some of the available data bases are the National Technical Information Service, Disclosure, EIS Industrial Plants, World Patents Index, Newspaper Index, and Compendex Engineering Index. In addition, the library staff has access to the Defense Technical Information Center's Defense RDT&E On-Line System for interactive retrieval and ordering of defense documents and bibliographies.

Visual Department. Visual Department staff specialties include concept sketches; plans; design, illustration, and production of full-color illustrations; slides, vugraphs, and presentation charts; exhibits; and artwork for reports, slides, diazo masters, displays, posters, brochures, and booklets. The enormous volume of graphics material that is produced annually, both for SPC/TriData reports and briefings and for government agencies directly, is only possible with a highly experienced and skilled staff that is supported by modern camera, phototypesetting, and diazo equipment. The Department continually receives commendations from customers for its responsiveness, quality, and ingenuity.

The Department also has a fulltime professional photographer and photography lab that can assist the project with the photographs and photographic processing needed for the major fires investigation reports.

Word Processing Equipment. Composition of documentation, from initial draft through final camera-ready copy, is performed on modern word processing equipment (NBI System 3000). This system has a full complement of features for generating and revising drafts and allows permanent storage of text for future changes. By direct communications cabling, the word processing equipment is connected to a sophisticated optical character reader, which permits typewritten or copied material in any typeface to be transferred to word processing disks; and to the central computer, which allows data transfers between the two systems. This latter capability considerably reduces on-line computer time. All secretaries and editors

are fully trained on the system. TriData's secretary has a terminal to this system at her desk, used to prepare this proposal.

Publications Capability. SPC and TriData emphasize the timely delivery of high-quality reports. A technical editor is assigned to every project at the beginning of the contract. Responsible for the product throughout its preparation and delivery, the editor serves as the interface between the project team and the typist, illustrator, and printer. All editors have years of experience writing and editing technical and lay publications, and they are thoroughly familiar with the GPO Style Manual and many other current technical and grammatical references. The editor assures that the organization, writing, grammar, and format of documents satisfy the requirements of the client and that accuracy and quality meet high corporate standards. The editor specifies design approaches for illustrations and directs the printing processes and materials to be used in reproduction.

The Publications Department is responsible for assisting in the review, approval, and reproduction of all reports and contract documents. All work is continually proofed and checked, not only during the reproduction process, but also during the binding process to ensure the best end product possible.

To further emphasize the importance that SPC and TriData place on quality, all documents are subject to a strictly enforced sequence of approvals before they can be transmitted outside the company.

Conference Facilities. The System Planning Corporation building in which TriData is located has excellent conference, classroom, and meeting spaces, two of which can accommodate up to 100 persons. Each of these rooms is equipped with film, vugraph, and 35-mm projection, video recorder/players, easels, controlled lighting, etc. Other conference rooms are available for smaller groups.

Telephone Equipment. TriData has a completely modern telephone system that allows calls anywhere in the world. We have an AT&T Private Branch Telephone Exchange (PBX) system, which facilitates conference calls. We

also have WATS service, which reduces the cost of the large number of long distance calls that will be needed to help coordinate this project and make arrangements for the investigations. TriData's Project Manager has a touch-a-matic phone that allows for calls to USFA or the investigators at the touch of a button. TriData's project manager also will be equipped with a telephonic pager for this project.

Investigation Equipment. Each of the TriData fire investigators is equipped with a professional quality-camera, flashlights, and other equipment needed to undertake fire investigations, which they do routinely in their current work.

Videotape and Playback Equipment. TriData/SPC has both half-inch and one inch videotape equipment suitable for reviewing tapes obtained as part of major fire investigations.

IAFC Organization and Facilities

The International Association of Fire Chiefs (IAFC) is a professional association representing the world's career and volunteer fire chiefs who are responsible for directing local governments' fire prevention and control activities, emergency medical services and emergency response to disasters. The International Association of Fire Chiefs is broken down into eight divisions, seven in the United States and one in Canada.

The IAFC has its own structure of committees which serve as technical advisors to the association. There are 23 committees, six of which advise on internal association matters and 17 of which advise on subjects of importance to the fire service. Topics covered by the committees include training and education, research, fire prevention, employee relations, automatic detection and arson, just to name a few.

The physical facilities of the International Association of Fire Chiefs are located in Washington, D.C., at 1329 18th Street, Northwest. IAFC offices consist of 6800 square feet of space in downtown Washington. Resources available at his facility include:

- A technical library which houses more than two thousand volumes and a serial collection of more than sixty periodicals on all aspects of comprehensive emergency management, administration, budget, labor relations and related subjects;
- Meeting/conference facilities that comfortably accommodate twenty people and provide a full range of audio-visual aids (videotape, slide, motion-picture, and overhead projection equipment);
- An in-house computer center equipped with a "Mentor 4000" computer system with word processing capability, thirteen data entry terminals, two letter-quality printers, and one high-speed, dot-matrix printer;
- A copy center equipped for duplication, collation, and binding documents of up to 200 pages in length.

SECTION 4: EXPERIENCE AND PAST PERFORMANCE

This section demonstrates the recent experience of TriData Corporation in performing work that is comparable to the type of effort required for the successful completion of the proposed work for the U.S. Fire Administration.

The experience of Philip Schaeenman in running the National Fire Data Center which included the management of the indepth investigation program of the USFA is described in Section 3 on pages 29-53. The Data Center was a \$6 million program with 50 in-house staff and required managing 40 to 60 outside organizations and consultants under contract at any one time. Barbara Lundquist assisted in running the Data Center and that is the same management team proposed to manage the proposed work for USFA. The Data Center staff conducted major fire investigations and coordinated major fire investigations by contractors and consultants -- exactly the experience needed here.

TriData's proposed investigation staff is the heart of this project. They must be able to do a highly professional investigation, liaison with other investigators on the scene, and document their findings graphically, with photos, and in writing. The experience of this group was summarized earlier and is detailed in their resumes in Appendix B. It includes the investigation of the major fires listed previously on page 45.

Additional credentials:

Fire Investigations for Law Firms and Insurance Companies (39 contracts to date)

a. Contracting agencies:

39 law firms to date, some representing major insurance companies. Clients include:

Jacoby and Meyers, Phoenix, AZ
Hausmann, McNally & Hupy, Milwaukee, WI
James Belt, Dallas, TX
Williams, Lenaham & Miller, Nashville, TN
Ripple, Chambers & Steiner, Detroit, MI

Liston, Gibson & Lancaster, Winona, MS
Dean, Dean, Segar, Hart & Shulman, Flint, MI
Leonard, Street, and Deinard, Minneapolis, MN
Silverstein and Hicks, Milwaukee, WI
and others

b. Contract number and type of contract:

N/A; time and materials. Typically the contracting period for each incident is was 6 months to 2 years.

c. Date of contracts, period, and place of performance:

1/1/82 - present; work has been conducted in 23 states and the District of Columbia.

d. Address and phone number of contracting and technical officers:

Examples:

Michael J. Donovan
Hausman, McNally & Hupy
Suite 1815, Clark Bldg.
633 W. Wisconsin Ave.
Milwaukee, WI 53202

William Doyle
Jacoby & Meyers
810 N. 2nd Street
Phoenix, AZ
(602) 254-5898

Ronald Bornstein
Silverstein and Hicks
839 N. Jefferson St.
P.O. Box 92547
Milwaukee, WI Box 92547
(414) 271-5300

Additional names can be supplied on request.

e. Turnover percent of contract personnel per year:

None.

f. Size of contract and dollar value:

Over \$140,000; dollar value is client confidential for individual cases; they range from \$1,000 to \$15,000.

g. Brief description:

TriData managed and conducted indepth fire investigations, and provided documentation and testimony. TriData used a nationwide network of fire investigators, fire protection agencies, and test laboratories to obtain data for specific fire cases. This included flammability assessments and other fire science technical work, fire reconstruction, fire protection features of the buildings (or their absence), and hazard analysis. This work has been provided in support of litigation and other cases. Issues included:

- Large scale exposure fire (one of largest dollar losses in U.S. history)
- Propane and natural gas fires
- Smoke detectors in residential occupancies
- Fire protection systems in apartment buildings
- Fabric flammability
- Residential code compliance

The fires in these cases span a variety of occupancies: apartment buildings, halfway houses, mobile homes, office buildings, single family dwellings, restaurants, and demolition sites.

TriData, using the NFIRS data base, also provided statistics on incidence, deaths, injuries, and dollar loss by occupancy, consumer product, brand/model, type of business, region, or other categories, and provided expert witnesses to give testimony on various aspects of fire safety in connection with the above cases.

h. Comparability to proposed effort:

This work required triggering and managing fire investigations on short notice, and delivering investigation reports comparable to those required by USFA.

Many of the cases required TriData to direct fire investigators, either ones working for TriData or hired by the client, and to have TriData staff participate in the investigation. This is similar to the experience needed for undertaking major fires investigations.

The fire data analyses performed in support of these investigations require expert knowledge about NFIRS and other sources of fire and safety data. This expertise is needed to fill out the NFIRS forms that are deliverables for the proposed project.

All of these projects are conducted under negotiated cost contracts, and many have absolute deadlines (court dates). TriData's cost and time management is extremely tight for both the in-house staff and the field teams.

The investigations conducted for the client firms involve all of the steps and skills needed to undertake major fire investigations for USFA: cause and origin determination, fire growth,

analysis of fire protection features in the buildings and their absence, photographs, floor plans, interviews of occupants and firefighters, lab analysis of samples, etc.

i. Major technical problems:

Technical problems included evidence lost during fire fighting and overhaul, and the usual challenges for cause and origin determinations. Because of the legal issues at stake, many aspects of these fires are analyzed in even more detail than is typically needed in major fire investigations. Facts about the fires were deduced from what survived and interviews/depositions from occupants, witnesses, and fire fighters.

j. Subcontractors:

TriData used many consultants, including fire investigators, and other fire protection consultants. They include Custer, Kirby, and McNerney from among the consultants proposed for this project.

Analysis of Indepth Investigations of Fires Involving Wearing Apparel

a. Contracting agency:

Consumer Product Safety Commission

b. Contract number and type of contract:

CPSC-C-85-1172; fixed price contract

c. Date of contract, period, and place of performance:

1985-1986, Arlington, VA

d. Address and phone number of contracting and technical officers:

Bea Harwood
CPSC
Room 642, Westwood Building
Washington, D.C. 20207
(202) 492-6470

e. Turnover percent of contract personnel per year:

None.

f. Size of contract and dollar value:

\$25,000

g. Brief Description

The CPSC had obtained raw data from over 2,000 indepth investigations of apparel fires that occurred over a 14 year period. The results of the investigations had not been analyzed. TriData was given the task of reviewing the information collected and determining the lessons learned.

h. Comparability to proposed effort:

This study involved some of the skills needed for the proposed effort. The interpretation of indepth investigation results into fire protection-related "lessons learned," comparing the NFIRS-encoded investigations to our wider body of fire knowledge, and identifying problems in both the investigating methods and the investigation reporting process that made it difficult to interpret some of the investigation results or caused investigations to be discarded, all provide lessons for doing indepth investigations and making their results useful.

In addition to the above directly relevant activities, TriData has engaged in a wide variety of fire protection studies that provide important context for understanding fire issues, directing investigation of important questions, and interpreting results of major fires in ways likely to be most useful for fire protection. These studies include preparation of documents on complex fire issues involving multiple agencies. They also provide a wealth of contacts with the fire service. Examples are described below.

United States Fire Administration Project to Enhance Public Fire Prevention Education

a. Contracting agency:

U.S. Fire Administration, Federal Emergency Management Agency.

b. Contract number and type of contract:

EMW-85-C-2043; Competitive contract.

c. Date of contract, period, and place of performance:

October 1, 1985 two years; work is performed at prime contractor Ogilvy & Mather Washington, TriData, the U.S. Fire Administration, and at fire meetings and fire department headquarters.

d. Address and phone number of contracting and technical officers:

Ms. Chandra Lewis
Contracts Office
Federal Emergency Management Agency
500 C Street, SW
Washington, DC
(202) 646-3755

and

Mr. Harry Walsh
U.S. Fire Administration
Federal Emergency Management Agency
16825 S Seaton Ave.
Emmitsburg, MD 21727
(301)447-6771

e. Turnover percent of contract personnel per year:

None for TriData subcontract.

f. Size of contract and dollar value:

Cost plus fixed fee subcontract in the amount of \$265,582.

g. Brief description:

The USFA National Public Education Program has two major goals:

- The enhancement of USFA's overall program through greater utilization of its publications and other products throughout the fire service and by community organizations, private industry, and the media.
- The research design, production, and coordination of at least two national public information and education campaigns focused on residential fire dangers -- targeted specifically to "dwellers" and to community fire prevention programs.

During the two year project the following products will be delivered:

- A manual on current public fire education practices and materials from fire departments across the country.
- A national program strategy for the next three to five years.
- Two national fire safety campaigns.
- Updated and new public information materials including public service announcements, quick response packets, and other products.
- Speakers Guidelines.
- Graphics Guidelines.
- An evaluation plan and data for the safety campaigns and a final report for the entire project.

The targeted fire safety campaigns are designed to change unsafe citizen behavior and include not only direct public education efforts, but also activities to motivate fire departments to increase their efforts in public fire safety education by providing them with factual information on the need to do so, as well as information on the techniques and methods being used by fire departments with successful public education programs already underway.

h. Comparability to proposed effort:

This project identified leading fire problems and revealed areas for which we lack adequate motivation of the fire service and public. Knowing these holes helps select fires to be investigated and the particular aspects of the fires that need to be focused on. It also sets the stage for making use of the indepth investigations as part of USFA campaigns and public information activities.

This project entails dealing with the fire marshal's office and fire chief in many cities. These contacts will be valuable for getting on site for major fires, and for informing the project that they have occurred.

The project also required review of all past USFA publications, including including investigation reports and articles, and showed areas in which they could be improved.

i. Major technical problems:

There have been no major technical problems to date on the Public Education Awareness project.

j. Subcontractors:

TriData is the subcontractor to the prime contractor, Ogilvy & Mather Washington. TriData manages the work of consultant Anthony Granito. There are no subcontractors to TriData.

National Fire Prevention Program of The Tobacco Institute

a. Contracting agency:

The Tobacco Institute, Washington, DC.

b. Contract number and type of contract:

N/A; Continuous consulting and project subcontracts.

c. Date of contract, period, and place of performance:

March 1982 to present; work is performed at TriData, The Tobacco Institute, and throughout the country at fire department and national fire organization headquarters, fire world meetings, legislative offices, and the offices of advertising firms, and other private companies.

d. Address and phone number of contracting and technical officers:

Mr. Peter G. Sparber, Vice President
The Tobacco Institute
1875 I St., NW, Suite 800
Washington, DC 20006
(202) 457-9313

e. Turnover percent of contract personnel per year:

None

f. Size of contract and dollar value:

Dollar value is client confidential; level of effort in example year (FY85) was over 2 person-years.

g. Brief description:

TriData has provided continuous consulting, research, and field assistance to The Tobacco Institute since it initiated its fire prevention program in 1982 with two objectives: to help reduce the accidental fire death rate and to demonstrate to the American fire service, legislators, and others involved in public safety policy that the tobacco industry is acting responsibly in this area. The program plan was national in scope from the outset, and was designed to fill voids in critical areas through working with fire officials to come up with public fire education projects of their choosing.

TriData from the outset has been the matchmaker between fire officials and organizations and the tobacco industry to facilitate identifying fire prevention projects that are in the interests of both the fire organization and this overall national fire prevention program. TriData has also identified critical gaps in fire prevention materials and supervised the development of materials to fill these gaps, generally produced by commercial firms and fire organizations under TI support and supervised by TriData.

Components of the TI program include:

- The Tobacco Institute supplies the National Volunteer Fire Council with materials that volunteer fire departments use in their local fundraising and recruiting campaigns on the premise that filling these needs would put volunteer departments in a better position to undertake more prevention activities. The "New Tools for Volunteer Firefighters" is a kit containing advertisement copy, graphics, public service announcement scripts, and bumpersticker graphics, as well as instructions on how to use them. A TV public service announcement on recruitment, which starred the Okum, CT, Volunteer Fire Department, was also filmed and duplicated for the volunteers' use. The New Tools Kit has proved extremely popular throughout the volunteer community, and TI has supported two waves of additional materials, particularly on fire prevention topics, including ads on heating-related fires, detectors, and radio PSAs recorded by Richard Petty, the nationally famous race car driver, arranged on a gratis basis.
- With state and local funding for fire prevention limited, The Tobacco Institute designed and implemented a pilot program to help fire departments do a better job of educating the public about fire safety. Working with fire department personnel to identify prevention education needs in Seattle, Des Moines, Boston, New York City, Milwaukee, Chicago, Detroit, Baltimore, Springfield (IL), and Portland (OR), the

first wave of cities in the program, assistance in the form of prevention materials and equipment was given to these departments. Use of the materials provided was monitored and it was found that their prevention efforts have indeed been significantly enhanced. The program has continued with similar assistance to over 60 city fire departments and several state and county level fire organizations.

- "Firesafety for the Rest of Your Life," a secondary school firesafety curriculum, was developed through the Foundation for Fire Safety and tested by the Nassau County Vocational Extension and Education Board and the New York State Office of Fire Protection and Control. This curriculum manual complements the National Fire Protection Association's "Learn Not To Burn" program and is now being distributed by NFPA in conjunction with that curriculum.
- The National Volunteer Fire Council is stimulating the use of the high school curriculum in communities served by volunteer departments by providing funding for matching grants to fire departments that engage their high schools to use the curriculum guides and supporting teaching materials.
- Nassau County (NY) developed a firesafety knowledge evaluation questionnaire package that can be used to assess the knowledge of critical safety lessons of children or any other population group to aid in planning and evaluating fire prevention programs locally. It was used in 100 communities during Fire Prevention Week of 1985 and is now widely distributed.
- TriData's international concepts in fire protection study series and the dissemination of this work, which is designed to promote the fire service's emphasis on fire prevention nationwide, is described below.
- The Tobacco Institute initiated a project to increase residential smoke detector coverage in selected cities with particular attention to residences of the elderly and the poor. The second goal of this project is to increase public awareness and knowledge regarding smoke detector maintenance. The Illinois Fire Chiefs Foundation is conducting this project, bringing together experienced fire public educators from major cities with The Tobacco Institute bringing in writers, TriData, and other contributors, to design and prepare campaign materials in information manuals for fire officers. A similar project targeted at rural audiences will be taken into 10 pilot states by the International Society of Fire Service Instructors in 1986 under TI support.

h. Comparability to proposed effort:

TriData staff has met with hundreds of fire officials during this program, which will provide valuable contacts for major fire investigations and early notice, and the dissemination of the results.

TriData has attended many fire service conferences at which major fires is a workshop topic; this exposure provides a valuable background for the project. Any investigations that yield slides relevant to fire problems of the elderly, or smoke detectors, or inner city fires or rural fires can be used in the materials developed for these programs.

A great deal of technical knowledge was gained with respect to fires involving cigarettes and upholstered furniture. That can help direct investigations to key issues should these types of fires be candidate major fires.

i. Major technical problems:

A leading fire organization hired by The Tobacco Institute failed to produce a product intended for national distribution -- specifically a manual and support materials for fire departments to use in promoting smoke detector usage and maintenance in urban (high poverty) areas. This project was transferred to the Illinois Fire Chiefs Foundation, which is progressing on schedule. Final production and distribution under continued Tobacco Institute support is now underway.

j. Subcontractors:

No subcontractors have been used by TriData, however, other contractors and grantees of The Tobacco Institute such as Ogilvy & Mather, Gray and Co., Phoenix Associates, and the Foundation for Fire Safety, have been technically supervised by TriData staff.

International Concepts in Fire Protection -- Ideas from Europe that Could Improve U.S. Fire Safety

a. Contracting agency:

The Tobacco Institute, Washington, DC.

b. Contract number and type of contract:

N/A; Grant.

c. **Date of contract, period, and place of performance:**

7/82-12/82; work was performed in England, France, Germany, Sweden, Switzerland, and at TriData.

d. **Address and phone number of contracting and technical officer:**

Mr. Peter G. Sparber
Vice President
The Tobacco Institute
1875 I St., NW
Washington, DC 20006
(202) 457-9313

e. **Turnover percent of contract personnel per year:**

None.

f. **Size of contract and dollar value:**

Dollar value is client confidential; staff level was approximately four man-months.

g. **Brief description:**

This study examined fire statistics and the fire protection practices in five European countries that contribute to their relative success in controlling fire deaths and other losses compared to the United States. The countries studied were Great Britain, France, Germany, Sweden, and Switzerland. Information gained from site visits to over 20 government fire agencies and fire departments, review of published research, and extensive correspondence with fire and other government officials resulted in the report International Concepts in Fire Protection: Ideas from Europe that Could Improve Fire Safety, December 1982, TriData Corporation. It has been widely quoted and excerpted in this country and abroad. A two-part series summarizing the research findings was published in Fire Chief. Congressional testimony based on the report was given to the Senate Committee on Commerce, Science, and Transportation, Subcommittee on Science, Technology, and Space, March 1983, and the House Committee on Energy and Commerce, Subcommittee on Health and Environment, March 1983.

h. **Comparability to proposed effort:**

European major fires and approaches to indepth investigations were examined. These provide ideas to consider when we investigate major fires in the United States. (For example, what happens to the person who started a major fire?)

In addition, the preparation of the final report was developed with an eye to including headline type comparisons of cities and nations so that executives, the press, and legislators can quickly grasp the magnitude and characteristics of the problems studied and the major findings of the work. The same approach is proposed for the Major Fires Investigations Reports.

i. Major technical problems:

The major technical problem was ensuring that the information gathered from site visits to foreign nations was accurate as summarized in the final report. This was solved through a series of technical reviews before publication to ensure that all aspects of the report were correct and up-to-date.

j. Subcontractors:

No subcontractors were used.

International Concepts in Fire Protection -- Practices from Japan, Hong Kong, Australia, and New Zealand

a. Contracting agency:

The Tobacco Institute, Washington, DC.

b. Contract number and type of contract:

N/A; Grant.

c. Date of contract, period, and place of information:

1/20/84-2/85; Japan, Hong Kong, Australia, New Zealand, and at TriData.

d. Address and phone number of contracting and technical officers:

Mr. Peter G. Sparber
Vice President
The Tobacco Institute
1875 I St., NW
Washington, DC 20006
(202) 457-9313

e. Turnover percent of contract personnel per year:

None.

f. Size of contract and dollar value:

Client confidential; staffing level approximately six man-months.

g. Brief description:

The report of the project International Concepts in Fire Protection -- Practices from Japan, Hong Kong, Australia, and New Zealand was published in 1985, and a series of articles in Fire Chief, Firehouse, Fire Engineering, Fire Command, and others as well as many invited presentations and congressional testimony have followed. Briefings on this study have also been given to the congressional staffs on the House Science and Technology Committee and the Senate Commerce Committee as well as the Consumer Product Safety Commission, Center for Fire Research, U.S. Fire Administration, and various federal officials.

h. Comparability to proposed effort:

Same in in previous project on Europe.

i. Major technical problems:

The major technical problem faced was how to resolve differences of opinion on the effectiveness of various approaches to fire prevention. Having the technical experience to research the detail of the data sources and to interview in depth various fire officials helped resolve the problem.

j. Subcontractors:

This project included a subcontract to Mr. Ed Seits of the California State Fire Marshal's office, who researched Australia and New Zealand and coauthored the study report and journal articles. (He is one of the proposed consultants to the project.)

Improving the American Petroleum Institute's Fire and Safety Data System

a. Contracting agency:

American Petroleum Institute, Washington, DC.

b. Contract number and type of contract:

N/A; competitive contract and extensions.

c. **Date of contract, period, and place of performance:**

7/82-11/84; work was performed at various petroleum company offices in the United States, at API, and TriData.

d. **Address and phone number of contracting and technical officers:**

Mr. Gregory G. Noll
Fire and Safety Coordinator
American Petroleum Institute
1220 L St., NW
Washington, DC 20005
(202) 682-8089

e. **Turnover percent of contract personnel per year:**

None.

f. **Size of contract and dollar value:**

11.9 man-months; \$135,639.

g. **Brief description:**

TriData assessed the strengths and weaknesses of the American Petroleum Institute's Fire and Safety Data System, defined problem areas and unmet needs, analyzed the then existing data to illustrate its potential, and developed a program plan for improving this system, including participation in it.

Some important new findings about the industry's safety experience were derived by TriData analysis of API's existing data. The program plan developed was accepted by API management and has governed the continuation of work on this data system. The combined efforts of API, its member companies, and TriData, led to an immediate sharp increase in the participation in fire and occupational injuries and illness data collection throughout the petroleum industry as a result of this project. A "User's Group" was established to serve as the industry representatives to be studied as to their data collection practices and the uses they make, or potentially could make, of the data from the system. TriData conducted a series of meetings with them with structured agendas to elicit the required information.

TriData produced a report detailing 67 recommendations for improving the specific data elements collected through the American Petroleum Institute's Fire and Safety Data System and for improving API's published annual reports. This included recommendations on improving the quantitative analysis of the data and for developing a set of graphics to be included in the reports or for use in special presentations. Also, the long-range plan for

improving the API Data System was updated. The participation level in the data system increased to the highest level in the decade. By chairing a series of meetings and through technical correspondence and discussions on the analysis and definitions of data elements, TriData got the Users Group, the API staff, and the Data Task Force to reach a consensus on these recommendations for improving the system.

TriData prepared the API Fire and Safety Data System Users Manual, which includes a revised set of data collection forms and a written set of definitions for the data. From a diversity of opinions at the start among the Users Group, a working consensus was reached among the companies on the specific definitions of the data elements to be collected and the quantitative formulas for calculating some of the elements for analysis, such as injuries/illnesses incident rates per employee hour worked and others. The Users Manual has been fully approved and is now in use throughout the API Data System.

h. Comparability to proposed effort:

TriData examined reports on many major fires and hazardous materials incidents involving the petroleum industry. Contacts with API and the industry fire protection departments were developed that will be invaluable if a major fire to be investigated involves this industry. Insights into their fire problem will help sharpen the investigator's search for lessons.

i. Major technical problems:

The major technical problems that arose was during the data analysis where it became apparent that different companies were using different definitions during their data collection process such that the data in some cases had to be aggregated at a more general level. Because of TriData's experience in the National Fire Incident Reporting System, the staff knew how to interview the people responsible for collecting the data to identify their specific practices and assess the implications of these practices for the analysis.

j. Subcontractors:

None.

State Level Fire Data Analysis Report

a. **Contracting agency:**

Federal Emergency Management Agency, 500 C St., SW, Rm. 406,
Washington, DC 20472, (202) 207-0330.

b. **Contract number and type of contract:**

Order #EME-84-0521; Fixed price.

c. **Date of contract, period, and place of performance:**

1/26/84-2/15/84; TriData.

d. **Address and phone number of contracting and technical officers:**

Contract officer: Victor S. Buyny, NETC, 16825 S. Seton
Ave., Emmitsburg, MD 21727, (301)447-6771 x. 6077. Techni-
cal officer: Charles Boehne, Fire and Training
Directorate/FEMA.

e. **Turnover percent of contract personnel per year:**

None.

f. **Size of contract and dollar value:**

\$10,194; 20 days.

g. **Brief description:**

TriData prepared analyses of current fire problems in the following 10 states: Alaska, California, Georgia, Illinois, Louisiana, Massachusetts, Missouri, New York, Pennsylvania, and Utah. The analyses were based on fire data from NFIRS and the states themselves. The reports described the magnitude and nature of the various causes of deaths, injuries, and dollar loss, geographic and demographic groups affected, and special problems within each state. The level of detail and specific topics varied from state to state with the analysis taking advantage of the best data available in each. The work was performed on a very fast turnaround basis; the draft report was submitted one week from the start date. The information provided was used by the Federal Emergency Management Agency to launch a major national initiative to stimulate private section participation in fire prevention and protection programs.

h. Comparability to proposed effort:

Though not comparable in size to the proposed effort, this work is relevant because it demonstrated the extraordinary speed with which we could conduct analyses for FEMA. It required assessing and utilizing the best available fire data on the assigned topics, which is a key capability required in the proposed work. It also required packaging the results of the data analysis in a format and language that could easily be incorporated into briefings and graphics for the fire service, fire journals, the general press, and for Congressmen and other government leaders.

i. Major technical problems:

The major technical problem on this project was that a very short turnaround was required. TriData's existing contacts at the state government level allowed us to acquire their latest data quickly, in some cases virtually overnight.

j. Subcontractors:

None.

Mobile Home Fire Safety: 1979-1980

a. Contracting agency:

Department of Housing and Urban Development.

b. Contract number and type of contract:

Contract Nos. HUD 7005-82 and HUD 7027-82; Firm fixed price.

c. Date of contract, period, and place of performance:

1/25-6/10/82, TriData.

d. Address and phone number of contracting and technical officers:

Mr. Tobias A. Gottesman, Director, State and Consumer Liaison Division, Office of Manufactured Housing and Construction Standards, DHUD, 451 - 7th St., SW, Washington, DC 20410 (202) 755-6584.

e. Turnover percent of contract personnel per year:

None.

f. **Size of contract and dollar value:**

\$17,900.

g. **Brief description:**

TriData provided an updated analysis of mobile homes fires that occurred during 1979-1980 and made recommendations to improve the data base available for mobile home fires. This work determined that the HUD 1976 standard for mobile homes was effective and identified the specific characteristics of the fire problems in mobile homes. HUD has implemented TriData's recommendations from this study.

h. **Comparability to proposed effort:**

Background on a major class of fire problem and familiarity with encoding fires into NFIRS formats.

i. **Major technical problems:**

No technical problems were encountered.

j. **Subcontractors:**

None.

Heiden, Pittaway Associates

a. **Contracting agency:**

Heiden, Pittaway Associates

b. **Contract number and type of contract:**

N/A.

c. **Date of contract, period, and place of performance:**

9/19 - 11/11/83 and work currently underway; TriData.

d. **Address and phone number of contracting and technical officers:**

Alan Pittaway
Heiden, Pittaway Associates
1100-17th St., NW
Washington, DC 20036
(202) 463-8171

e. Turnover percent of contract personnel per year:

None.

f. Size of contract and dollar value:

Client confidential.

g. Brief description:

One of the studies TriData has done for this client was a detailed analysis of NFIRS data on selected aspects of the alternative heating problem, including woodstoves and chimneys. The analysis included an exhaustive description of "unknowns" left at various levels of the data base; the scenarios involved and possible misreadings that "hid" additional relevant fires. The analysis was continued by state and region of the nation. Results from similar analyses from CPSC and USFA were compared to this analysis. Highlights were published in a report by Heiden, Pittaway that was shared with CPSC.

h. Comparability to proposed effort:

Insights into heating-related fires -- the second leading cause of fire deaths -- will be useful to guide investigations that involve heating.

i. Major technical problems:

NFIRS data has many inaccuracies of coding -- both plain errors and more subtle errors of incorrectly describing a fire scenario for lack of understanding of how to code it. To check on the level of errors, various special NFIRS runs were made to determine the face validity and consistency of the data, and to explore the size of the potential miscoded scenarios.

j. Subcontractors:

None.