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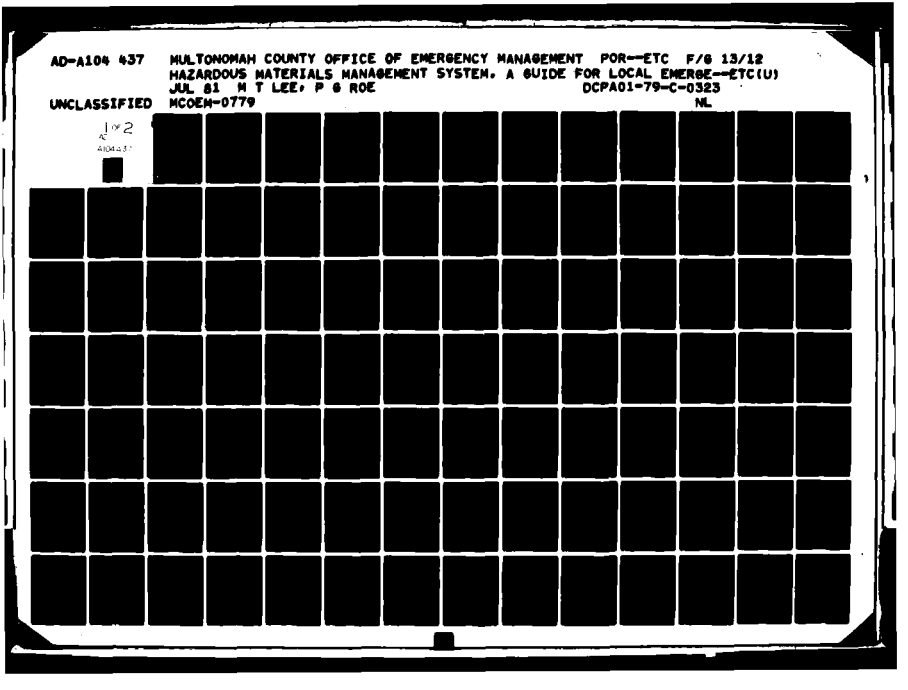

MCOEM 0779
July, 1981

HAZARDOUS MATERIALS MANAGEMENT SYSTEM
A GUIDE FOR LOCAL EMERGENCY MANAGERS

By
Myra T. Lee
Penelope G. Roe

for

Federal Emergency Management Agency
Washington, D.C. 20472

Contract No. DCPA01-79-C-0323 Work Unit 4521E
James W. Kerr, COTR

Approved for Public Release
Distribution Unlimited

Multnomah County Office of Emergency Management
12240 N.E. Glisan, Portland, Oregon 97230

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Final Report

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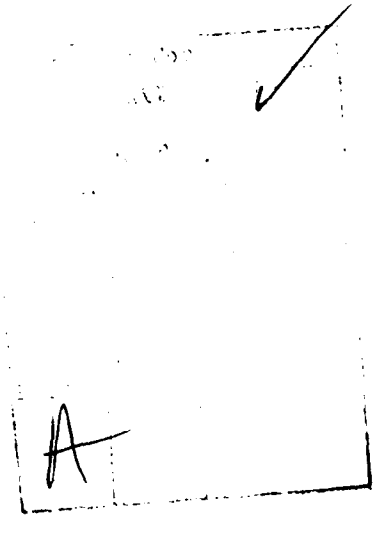

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HAZARDOUS MATERIALS SYSTEM "HOW TO" MANUAL

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

An increase in the manufacture, storage, and transportation of hazardous materials is occurring across the nation. Local jurisdictions have realized than they have the responsibility to assure a reasonable level of safety to their community members and visitors alike. Such a responsibility can be met by developing methods of preventing hazardous materials incidents; enforcing laws related to transporting and storing hazardous materials; the initiating of an appropriate first response, and activating available resources of government agencies and commercial organizations that deal with containment

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and clean up. This manual has been written to help in the development of a total Hazardous Materials Management System. The manual describes one approach but allows for variations as may be appropriate for the specific jurisdiction.

DETACHABLE SUMMARY

This project is the result of a proposal submitted by Multnomah County, Oregon, Division of Public Safety, Office of Emergency Management, for the development of a Hazardous Materials Management System. The overall goals of the project were to reduce the number of hazardous materials incidents that occur in Multnomah County, mitigate the effects of those that do occur, and improve the effectiveness, efficiency, and safety of the county efforts to deal with these incidents. In accordance with these general goals, the specific objectives were established for the project as follows:

Task: Conduct a risk analysis to measure the magnitude and nature of the county's exposure to hazardous materials incidents and to identify those hazardous materials most likely to be encountered in the area.

Methodology: It was felt that there was limited expertise within the agencies involved to adequately address the problem. Therefore, a decision was made to sub-contract with an organization having demonstrated experience in such activities. The result provided the basis for data collection and analysis and has been incorporated as a maintenance element within the system.

Task: Conduct a resource inventory to identify and organize the resources available to the county, for both internal and external sources, for dealing with hazardous materials incidents.

Methodology: Materials were gathered from various sources identifying organizations, equipment, supplies, and manpower necessary or mandated to respond to hazardous materials incidents. This information was categorized and cross referenced then added to the resource inventory system.

Task: Develop a hazardous materials technical information system, having three major components:

(a) A comprehensive library of pertinent reference books, reports, manuals, and other documents.

(b) A manual system of forms and procedures for recording, storing, and analyzing information about actual hazardous materials incidents in the county.

(c) A simple computerized information retrieval system, capable of accessing remote data bases of general hazardous materials reference information, and a local data base of information specific and unique to Multnomah County.

Methodology: The components of the technical information system were individually addressed:

(a) A search was conducted to identify sources of information. Starting with those that are well known, the network of information sources rapidly expanded as each source was able to provide additional avenues to search. A comprensive list was then organized which continues to be added to.

(b) During the project development, forms were gathered that had been utilized by other responding agencies. These were tested on actual alerts and incidents and later analyzed in relation to the adequacy and usefulness of the information being requested. From that analysis draft forms were prepared and tested with the final resulting system expected to provide valid data for continued planning activities.

(c) This portion of the information system was sub-contracted to technical experts for the development of both the hardware and software design. Although it is recognized that additional refinement will occur as the "state of the art" progresses, the system appears to satisfactorily meet the current needs for product and response information.

Task: Establish a hazardous materials incident prevention program, with legal enforcement, industrial relations, and public relation components similar to those of fire prevention programs.

Methodology: Contacts were made with agencies that have a response or investigative responsibility and with the businesses and industries that handle hazardous materials. Emphasis was placed on the need for adequate and appropriate handling of hazardous materials as well as response plans and coordination of activities. Requests for training have been met by providing workshops, and basic and intermediate training courses.

Task: Establish equipped initial response units as a joint venture of Multnomah County Fire District #10, Multnomah County Office of Emergency Management and the Division of Public Safety.

Methodology: The few existing response units on which information was available were reviewed and their capabilities compared with the needs and objectives as identified for this geographic area. Based on this information, a determination was made regarding the type of vehicle; type and quantity of equipment and supplies; essential manpower; and communication requirements. Since this was a multi-agency project the final product reflects the requirements of all responding parties and represents a comprehensive approach to the technical operations.

Task: Establish a hazardous materials training program, based primarily on the coordination of the existing training courses.

Methodology: It became clearly evident even before the project began that training programs were being developed all across the nation. It was difficult to know exactly what the training needs were, therefore, two of the more prominent programs were attended. An experimental DOT course was presented in Multnomah County on a pilot basis and an instructor from Tennessee was contracted to present two weeks of instruction to first responders from both Oregon and Washington. The course has been further refined and

will be an annual event open to personnel from both government and industry. There are plans to conduct additional courses on specialized subject matter that is relevant to the local program. All the above activities have been covered in a "Hazardous Materials Management System Guide" which is intended to provide a structured plan of action. It must be adapted to the needs within a specific, defined geographic area and based on the degree of hazard and the available resources.

Table of Contents

6

ACKNOWLEDGEMENTS

As in every work of this kind, there are numerous people who contribute to the final product. No one person can generate a valid document that fulfills the needs of the various disciplines. This guide is certainly no exception. It was conceived and nurtured by a variety of dedicated persons, all of which cannot be adequately thanked or acknowledged here. However, the following people were exceptional in their unwavering support and good nature in the face of numerous frustrations and setbacks, and were tenacious in seeing the project through to completion.

I would like to thank Clifford McLain and Helain (Lanny) Elderkin for providing the opportunity to realize a dream; to Fred Pearce for allowing the freedom to "do it my way" and to make my own mistakes; to Penny Roe, Len Malmquist and Brian Reynolds for their combined knowledge, expertise, and attention to detail; and last but not least to the Division of Public Safety Word Processing Unit that put up with the numerous proofings, changes, and requirements for perfection. Without these people I would not have been able to present to you what I believe will enhance the ability of an Emergency Manager to provide an integral element of a comprehensive Emergency Management system.

MYRA LEE, Manager

Office of Emergency Management

July, 1981

PREFACE

PREFACE

This guide is one of the products that resulted from a proposal that was initially funded by the Defense Civil Preparedness Agency (which was later incorporated into the Federal Emergency Management Agency). The Multnomah County Office of Emergency Management was fortunate enough to be the recipient of funds that came at a time when local resources were severely limited and problems relating to the handling of hazardous materials incidents were beginning to surface in ever increasing numbers all across the nation.

One of the objectives for the project was to optimize the available funds for the good of the community as a whole. In order to realize this objective it has been essential to generate coordination and cooperation as a multi-disciplinary and multi-jurisdictional effort. While many problems surfaced, the project has ultimately been a satisfying and productive process that has proved beneficial to all agencies directly involved as well as others that participated peripherially by attending training sessions, evaluating response activities, offering advice and assistance, or donating equipment and supplies.

It is recognized that by the time the concept of a systems approach for hazardous materials management sweeps the country in the near future the system which was implemented under this project contract will probably be relatively obsolete. The system will continue to be effective but better more efficient methods and technology will be developed as business, industry, and government personnel become more aware of their individual roles and responsibility for mitigation, response, and recovery.

INTRODUCTION

10

INTRODUCTION

Purpose

The purpose for the development of this handbook is to provide a tangible guide to the local emergency manager for the development and implementation of a comprehensive system approach for dealing with hazardous materials incidents within a specific geographic area. It was written from the perspective that such a system is multi-disciplinary in nature and therefore it is essential that those involved identify, understand, and accept their individual roles within the concept of a team effort. The role of the local emergency manager is that of directing and coordinating developmental activities, monitoring the implementation of the system, and subsequently, to test and evaluate its progress. The roles of initial response, clean up, investigation, and regulatory enforcement are most appropriately handled by the public and private agencies with the technical expertise and mandated authority to do so.

Process

The planning process may be the most beneficial phase of system development in terms of a positive learning experience. It is during this period of time that enthusiasm is high, support is forthcoming from local officials, and the basis for continuing cooperation can be established.

II

Usually when a project such as this, relating to a specific contingency or function, elicits the involvement of a number of agencies, there is a question as to which one will act as the lead agency. The parochialism inherent in such an effort can be overcome if all participants take a critical and objective look at what their agency role really is and how it functions as an integral element of the "system".

There are arguments for and against various personnel and positions which could adequately and efficiently handle this function. However, that point is not argued here. The rationale for writing this guide for the local emergency manager is that a specific responsibility of emergency managers is to help other agencies and divisions of local government do their job better. This can be accomplished through inter-agency coordination which is a primary and essential activity of every emergency management program on all government levels throughout the nation. The emergency manager must clearly identify the major tasks that need to be organized in accordance with personnel, time, and funding, monitor the progress of the project and minimize, to the extent possible, delays, problems, and barriers which may be encountered.

Limitations

While the term "hazardous materials" as used here has a broad connotation it refers primarily to commodities rather than hazardous wastes. Much of the equipment and many of the safety measures for responding to a hazardous material incident could also be used for hazardous waste incidents. However, there are some unique characteristics related to the handling of hazardous waste and the authority to enforce regulatory statutes that are not dealt with in this guide.

DISCUSSION OF THE PROBLEM

An increase in the manufacture, storage, and transportation of hazardous materials is occurring across the nation. Local jurisdictions have realized that they have the responsibility to assure a reasonable level of safety to their community members and visitors alike. Such a responsibility can be met by developing methods of preventing hazardous materials incidents; enforcing laws related to transporting and storing hazardous materials; the initiating of an appropriate first response, and activating available resources of government agencies and commercial organizations that deal with containment and clean up.

In most instances there are a number of factors that may hamper local government efforts to meet these responsibilities. The following are primary problem areas that are addressed in this handbook:

Lack of Information About the Hazard

There are few communities that have any organized source of information about the identity and location of the major hazardous materials manufacturing, storage, transfer, and distribution facilities or the quantities, types, schedules, and routes of shipment of these materials into, out of, through, and within a geographic area. Any jurisdiction wishing to specifically identify the extent of their problem should conduct a hazard analysis that provides this information.

DISCUSSION OF THE PROBLEM

Lack of Information About Resources

Another of the weak links in emergency management programs of local government seems to be the lack of information related to identification, location, availability, and access to resources that can be used for mitigation, response, and recovery from an emergency situation. Dealing with hazardous materials incidents is no exception. Although resources for such activities are available through local, state, federal, and private agencies, there is generally no central source of information which identifies all of the resources, describes their capabilities, or provides for their coordinated use. All of this information is essential in a comprehensive emergency management system and can be obtained by conducting a survey of business, industry, labor, and government agencies.

Lack of Tactical Information

There is a need for access to accurate and comprehensive information about the characteristics and effects of specific hazardous materials (of which there are thousands). Procedures for dealing with them are limited due to the fact that local government has had relatively little experience with or exposure to such incidents. There is no central source of detailed historical

information about hazardous materials incidents that have occurred in the past and few if any systems have been developed for capturing such information in the future. The development of an information retrieval system which is directly related to the identified risk in a specific geographic area is imperative in order to optimize the ability of the responders to protect their own lives as well as those of persons near the hazard. Additionally, it should provide enough information to the response personnel to make knowledgeable decisions related to containment, control, and cleanup, particularly if there is no commercial organization readily available to handle it.

Lack of Response Capability

Local government has law enforcement and fire service agencies which are generally well prepared and equipped for dealing with most ordinary and many extraordinary types of incidents. However, there remains a requirement for local government to be specifically prepared for initial response, assessment, and control of hazardous materials incidents that would affect the jurisdiction, in order to carry out their legal mandate to protect lives and property, and to stay alive in the process. In order to do so they need to have appropriate information, equipment, and supplies readily available for this purpose.

Lack of Training

Hazardous materials training courses are available to local response personnel in many forms and from many sources . However, they are seldom organized into a coordinated overall program which clearly defines goals and objectives designed to meet local needs. Local government often lacks the ability and the funds to conduct in-house training programs of this type. Since hazardous materials incidents are a universal and costly problem it behooves both the public and private organizations to pool their training resources and to conduct training programs that are regional in scope and specifically related to the types of materials that constitute the greatest risk to a specific area.

Lack of Prevention Capability

There is a need for review and possible strengthening of a local government's hazardous materials law enforcement efforts and for clarification of the legal environment in which an enforcement program operates. This is an element that becomes even more essential as new laws are enacted by local, state, and federal agencies, some of which have resulted in conflicts between different levels of government and the public and private sector. The

6

problem proliferates in direct proportion to the increase in agencies designated or claiming a primary responsibility for control of hazardous materials and waste substances. Additional regulations and requirements placed on business and industry seem also to have resulted, in some areas, in a decrease in cooperation between public and private organizations. This emphasizes the need for a well organized industrial and public relations effort aimed at information exchange and incident prevention measures.

ORGANIZATION OF TASKS

ORGANIZATION OF TASKS

The multi-disciplinary nature of hazardous materials response dictates the active involvement of those with specific technical expertise throughout the entire planning, development, and implementation of a hazardous materials management system. There are many ways to effect such involvement however, the one profferred by this guide is the establishment of a small Technical Advisory Committee (TAC) consisting of representatives from police, fire, and emergency management. This group can serve both in an advisory capacity to the emergency manager and as an operational group to carry out the activities identified in the following task descriptions.

TASK ONE

HAZARD ANALYSIS

TASK #1: HAZARD ANALYSIS

OBJECTIVES

A hazard analysis can be accomplished either by obtaining qualified assistance from any appropriate unit of government, such as the fire department, or by contracting with a consultant. The task will require the identification of all fixed facilities where hazardous substances are manufactured, stored, distributed, transferred, or sold within a defined area. In each case the types and quantities of material involved should be determined. These factors may vary due to seasonal considerations, i.e. agricultural use of pesticides and fertilizers.

It is also necessary to examine the transportation of hazardous materials and the routes used in and through the area. The end product should be a collection of information identifying:

- Major high risk fixed facilities
- Major carriers of hazardous materials
- Main transportation routes
- Types and quantities of materials

It is essential to designate specific "key hazards" such as major manufacturing plants or particularly dangerous transportation routes. A map or or set of maps may be beneficial in illustrating the specific "key hazards" for a visual interpretation of the risks involved in the area.

ACTIVITIES

1. Identify the specific work activities to be carried out and deliverable products to be produced. (Deliverable product means any document or illustration that will result from a particular task.)

2. Compile this information into a formal request for a proposal (RFP) if the activities are to be contracted out, or into a work plan if it is to be accomplished with existing agency assistance.

   Steps involved in negotiating a contract with a consultant.

   - Write a formal request for a proposal (RFP).
   - Issue requests for proposal to various consultants.
   - Confer with consultants as necessary to explain activities and results expected from the contractor.
   - Review responding proposals.
   - Interview leading candidates.
   - Select consultant.
   - Negotiate a finalized work plan.
   - Award contract.

3. Survey and identify all of the fixed facilities where quantities of hazardous materials are found. Categorize each facility according to whether hazardous materials are manufactured, used, stored, sold, distributed, or transferred. Then characterize each facility by using the Uniform Building Code to see if the building, configuration or structure poses a threat because of the hazardous materials being used in the operation of this facility.

(NOTE: The Uniform Building Code will aid in the identification of those facilities which have safety features incorporated into the building design. These design features provide for the separation of hazardous processes, the safe removal of flammable or explosive vapor, and the containment of and diking of corrosive or toxic products. These design features will aide a responding agency in case of an incident.)

4. Identify the major modes of transportation and their routes by which hazardous materials are transported into, out of, through, and within the area. Estimate the frequencies of shipments and the types and quantities of materials involved.

(NOTE: Records of the State Public Utilities Commission, port offices, railroads, highway commissions, various fire service organizations, and other sources may need to be reviewed to obtain this information.)

5. Identify specific locations and/or routes which are "key hazards" by virtue of the type and/or quantity of material or materials; exposure to population centers or the environment; barriers to access by response agencies; danger to response personnel; and response capability of the jurisdiction.

6. Prepare a report of the findings of the hazard analysis. Include in the report a plan for periodic updating of the analysis.

7. Prepare a map or set of maps in a convenient format for visual interpretation of the report.

DELIVERABLES

- Report of hazard analysis findings.
- Map or maps of hazardous materials routes and locations.

CONSIDERATIONS OF EXAMPLES

It is important to remember that you will be dealing with private businesses and organizations and this information may be proprietary in nature. You may need to assure a business or organization that any information received will be kept confidential.

TASK TWO

RESOURCE INVENTORY

TASK #2: RESOURCE INVENTORY

OBJECTIVES

A resource inventory should identify the available resources needed in dealing with a hazardous materials incident. A method of accomplishing this task is by using the Technical Advisory Committee (TAC). Types of resources to be taken into consideration are:

- Technical Assistance - Chemists, toxicologists, industrial response teams, government agencies, public or private agencies, clean up organizations, etc.

- Equipment - Self contained breathing apparatus, pumps, generators, heavy equipment, special suits, special meter equipment, etc.

- Supplies - Lime, dirt, soda ash, plugging materials, patching materials, estinguishing agents, etc.

Finally, the TAC should establish procedures for utilizing these resources.

ACTIVITIES

1. Identify the specific work activities to be carried out, the results expected, and the deliverable products to be produced. Compile this information into a formal inter-agency memorandum.

2. Identify the local, state, and federal agencies and private companies which can respond or provide assistance to a hazardous materials incident. For each such organization:

   A. Define the types of incidents to which the organization can respond.

   B. Classify the organization as initial responder, advisor, clean up operation, etc.

   C. Identify the specific information such as names, telephone numbers, etc., to be notified to elicit a response from the organization 24 hours a day.

   D. Determine the status of any agreements with the organization. When necessary and appropriate establish, renew, or strengthen any such agreements.

E. Assess the ability of the organization and local government to coordinate joint operations. For example, Investigate such factors as commonality of radio frequencies, interchangability of equipment components and coordination of command and control. When necessary and appropriate, recommend changes and improvements.

3. Identify types of available equipment necessary for containment and control of an incident.

4. Identify types of available supplies necessary for containment and control of an incident.

5. Obtain the following information from each company or organization listed for each individual resource category.

- Name of Business or Agency
- Address
- Primary Contact Person
- . Business Phone Number
- . After Hours Phone Number
- Secondary Contact Person
- . Business Phone Number
- . After Hours Phone Number
- Resource Category (Vehicles)
- Characteristics of resource, i.e.
  - . Size
  - . Different Types (Chemical Truck, etc.)
  - . Power Capacity

Establish, renew, or revise any mutual aide or response agreements from commercial companies or public agencies as necessary.

CONSIDERATIONS AND EXAMPLES

The activities listed will help in developing an effective manual system for maintaining a resource inventory. This same information can be used when developing a computerized system. Suggestions for utilization of information in a computerized system are:

- Categorize resource by its utilization relative to a specific hazard classification.

- To prevent constant updating of information, list only the types of equipment available, not quantities.

Attached is a sample list of resources used by first responders for management of hazardous materials incidents.

Remember, even though a company may be listed as a resource their equipment may be out of service or unavailable so be sure to list as many sources as possible for each item.

SAMPLE RESOURCE CATEGORY LIST

TECHNICAL ASSISTANCE:

Army Ordinance Unit
Bomb Handlers
Bureau of Explosives
Chem-TREC
Chemical Information
Chemical Response Information
Chemists
Clean-up Companies
Department of Environmental Quality
Department of Transportation
Environmental Proetection Agency
Fire Departments
Gas Companies
Hazardous Material Experts
Hazardous Material Teams
Highway Department
Law Enforcement Agencies
Motor Carrier Safety
National Response Center (NRC)
National Transportation Safety Board
Port Authorities
Public Information Media
Public Works
Radio Stations
Radioactive Material Handlers
Railroad Dispatchers
Railroad Division Superintendent
Railroads
Regional Response Teams
Sanitation Agencies
Sheriff's Office
State Fire Marshal
State Police
Stevedoring Companies
Street Department

Structural Engineers
Television Stations
Toxicologists
US Coast Guard
US Department of Agriculture
US Department of Transportation
US Nuclear Regulatory Commission
Waste Disposal Companies
Wrecking Companies

EQUIPMENT:

A, B, and C Chlorine Kits
Boom Floats (oil spills)
Breathing Air (self contained breathing aparatus - positive pressure)
Bulldozers
Cement Mixers
Centrifugal Pumps
Chain Saws
Chemical Suits
Chlorine Patch Kits
Circular Saws
Construction Equipment
Cranes
Cutting Torches
Draeger Kit
Dump Trucks
Explosion Meters
Explosion Proof Lights
Fire Department Equipment
Flood Lights
Fuel Suppliers
Gasoline Delivery Trucks
Generators
Heavy Equipment
Hurst Tools
Infrared Probeye
Lighting Units (portable)
Marine Tug (with fire pump)

Negative Pressure Pumps
Oxygen Meters
Positive Pressure Pumps
PH Meters
Radio Communication Center (mobile)
Railroad Cranes
Saws (chain, circular, gas, electric)
Submersible Pumps
Suction Pump Truck
Sump Trucks
Tow Trucks
Tractor/Trailers
Vacuum Tanks
Welding Equipment

SUPPLIES:

Absorbents, Chemicals
Barricades
Barrels
Cement
Compressed Air
Diking Material
Dirt
Drums
Fire Department Supplies
Foam, AFF
Foam, Alcohol
Foam, High Expansion
Foam, Protein
Gravel
Lime
PVC Pipes - steel, concrete, plastic, cast iron
Plug - in - Dike
Portable Water
Quarries
Rope
Sand
Sawdust
Soda Ash

TASK THREE

TACTICAL INFORMATION SYSTEM

TASK #3: TACTICAL INFORMATION SYSTEM

For the purposes of this guide a tactical information system consists of information concerning the properties and effects of hazardous materials; procedures for dealing with hazardous materials incidents; and a method of obtaining and maintaining incident information.

A practical system will include the following:

- An incident reporting system
- A reference library
- An information retrieval system

INCIDENT REPORTING SYSTEM

OBJECTIVES

The incident reporting system will be a simple manual system. The system will consist of standard forms and procedural check lists for a complete, accurate, and consistent recording and reporting of hazardous materials incidents.

The Technical Advisory Committee (TAC) should interview potential providers and users of hazardous materials incident reports to determine what information is really needed and how it would be used. Next, they should design a set of data collection forms. Finally, TAC should prepare a users procedure describing how to fill out the incident report form, how to summarize statistics, and how to make practical use of the data.

ACTIVITIES

1. Plan the work to be done in the development of a hazardous materials reporting system. Identify the specific activites to be carried out, the results expected, and the deliverable products.

2. Conduct a requirements analysis:

   A. Identify those persons who have a need for reports, statistics, and other information concerning hazardous materials incidents.

   B. Identify any potential external users who may require specific information, such as state or federal agencies.

   C. Identify any external systems with which the reporting system should be compatible, such as Department of Transportation, National Fire Protection Association, Uniform Fire Incident Reporting System, or the reporting systems of the National Fire Prevention and Control Administration.

   D. Determine the specific items of data needed to support the information needs of the person and agencies identified in "A" and "B" above.

   E. Determine the best sources of information for each of these items.

      - dispatch records
      - police reports

- fire reports
- initial responders
- secondary responders (e.g., federal agency or clean up agency)

F. Identify agencies which require reports within a specific period of time.

G. Review any forms, reports, or procedures currently being used by public safety agencies to record and report hazardous materials incidents. Determine the degree (if any) to which they meet the requirement defined in "A" through "E" above, and outline any necessary changes.

3. Develop a set of collections forms from information gathered in the requirements analysis.

4. Prepare a procedure giving detailed instructions for gathering data, filling out the data collection forms, preparing statistics, distributing reports to the users, and maintaining reference files of completed forms and reports for further planning activities.

DELIVERABLES

- Data collection forms
- Utilization procedure

CONSIDERATIONS AND EXAMPLES

Several different types of data collection forms have been developed by other hazardous material projects. A source for obtaining copies of these forms are through fire and police trade magazines and different hazardous materials newsletters and bulletins.

The information gathered for the data collection form can be used in several different manners. The obvious one is for legal documentation of the incident. Accurately document as much information as possible about an incident. This information is important because it will help establish liability, provide public information and as reference for similar incidents. When a similar incident has occurred review all past data forms. This may help in obtaining technical assistance or resources that have been used in the past. It may also help in preventing mistakes which happened in previous incidents.

Following is a sample data collection form.

HAZARDOUS MATERIALS
INCIDENT REPORTING FORM

REPORTING

Date: _____
Time: _____

Agency Calling: _____

Person Calling: _____

Telephone Number: _____

Report Numbers: Police _____ Sheriff _____ Fire _____

PROBLEM

Address: _____

County: _____

Location Description: (Rural, Residential, etc.) _____

_____

Date of Incident: _____ Time of Incident: _____

Name of Product: _____

EPA Number: _____

DOT Classification of Product: _____

Type of Transportation: _____

Identification Number: _____

Shipper, Owner, or Producer of Product: _____

Name of Carrier: (If Transportation Accident) _____

Color and Number of any Labels on the Carrier or Cargo: _____

_____

Quantity of Product: _____

_____

Type of Incident: Pick-up _____ Spill _____ Accident _____

Leakage _____ Purposeful Drainage _____ Fire _____

Other _____

Environmental Threats: Water _____ Ground _____

Air Problem _____ Other _____

HAZARDOUS MATERIALS
INCIDENT REPORTING FORM
PAGE 2

Reason for Cause of the Incident: _____
_____
_____

ACTION

Environmental Factors:

Weather Conditions: _____

Wind Direction: _____

Wind Velocity: _____

Product Factors:

Flammability: _____

Vapor Density: _____ Specific Gravity: _____

Toxicity: _____

Active Ingredient: _____

Responders:

Fire: County _____ City _____

Police (on scene control): State _____ County _____ City _____

State Agencies: DEQ/DOE _____ Agric. _____ Health Div. _____

Hwy Div. _____ Fish & Game Comm. _____ PUC _____ DOT _____

Other: EPA _____ FAA _____ NTSB _____ Forest Serv. _____

USCG _____ Other _____

Notified:

Emergency Managemet: State _____ County _____ City _____

Health Dept.: State _____ County _____ City _____

Hospitals: (Name of hospital) _____

Hwy Dept.: State _____ Public Works: County _____ City _____

State Agencies: Accident Response System _____ DEQ/DOE _____

Other: CHEMTREC _____ NRC _____ DOT _____

Nuclear Reg. Comm. _____ Other _____

HAZARDOUS MATERIALS
INCIDENT REPORTING FORM
PAGE 3

Action Taken: _____

_____

_____

_____

_____

_____

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_____

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_____

_____ (Use back of page, if necessary)

Disposal: _____

_____

_____

_____

_____

_____

HAZARDOUS MATERIALS
INCIDENT REPORTING FORMS
PAGE 4

Injuries: (Name and Address per Victim)

(1) _____ (2)) _____

_____ _____

_____ _____

(3) _____ (4) _____

_____ _____

_____ _____

Ambulance Transporting Victims:

(1) _____ (2)) _____

(3) _____ (4) _____

Remarks: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Report by: _____ Date: _____

REFERENCE LIBRARY

OBJECTIVES

A reference library should be established because it provides essential data and safety procedures and acts as a manual backup system.

The reference library should be simply a collection of reference books, text books, manuals, papers, reports, magazines, journals, and other documents and pericdicals on the subject of hazardous materials. A plan for periodic review and updating should also be included as books are needed or become available.

ACTIVITIES

1. Conduct a literature search to develop a list of reference books, text books, manuals, papers, reports, magazines, journals, and other documents and periodicals dealing with hazardous materials. Determine the costs of each item, review the items for the selection of those which are most pertinent to the needs of the area.

2. Purchase selected documents, enter subscriptions for applicable magazines, and periodicals, and request "free" materials.

3. Plan for periodic review and updating of the reference library. For example, be placed on any mailing list for automatic modification of up-dates and revisions.

DELIVERABLES

- List of available reference materials including costs.
- Collection of selected reference materials.

CONSIDERATIONS AND EXAMPLES

A good source of available reference materials is through the fire and public safety trade magazines. Telephone calls to any of the hazardous materials training institutes may provide lists of good reference materials.

A list of reference materials have been included in this guide. See Appendix I.

INFORMATION RETRIEVAL SYSTEM

OBJECTIVES

The information retrieval system is a method for accessing information on specific hazardous materials and their locations within a specific area.

There are two different methods of presenting this information. It may be either a manual system or an electronic system. A manual system can be a set of forms cross referenced and organized into specific catagories, i.e., product names, synonyms, United Nations number, and facility and kept in notebooks or card files. An electronic system can be either microfilm, microfish, or a computerized system and can also use the same information as designated above.

ACTIVITIES

1. Plan the work to be done in the development of an information retrieval system. Identify monetary constraints.

2. Identify the fixed facilities in which hazardous materials are manufactured, used, stored, sold, distributed, or transfered.

3. Identify all the hazardous materials found in each fixed facility.

4. Research each hazardous material. Document important characteristics and factors that need to be known if the hazardous material was to be involved in an incident, i.e.,

- Flammability
- Flashpoint
- Vapor density
- Specific gravity
- Toxicity
- Reactivity
- Protective gear
- First aid information
- Extinguishing methods
- *Evacuation*
- Hazard class
- Synonyms, etc.

5. Develop a form for documentation of all of the research information listed in Activity 4 including the facility locations of the hazardous materials.

6. Develop a form which will cross reference locations with the vital information related to hazardous materials located at that facility. This form should be geared more towards information about the facility itself, i.e.,

- Emergency phone numbers
- 704 building placard

- Other hazardous materials found in the building
- Protective gear
- Extinguishing methods
- Drainage
- Water supplies
- Product information experts
- Industrial response teams
- Facility on-site capability to handle the problem

7. If an electronic system is to be used, a review and comparison of different systems is imperative. Determine the type of system needed, cost of the system, and functional requirements for implementation.

8. Prepare a formal request for proposals. Include in the request a functional description of the desired operation of the system, a technical specification of the required hardware, a general description of the local data base contents and access requirements to remote data bases, if necessary.

   NOTE: Follow same procedure as described in Task I - Hazard Analysis for awarding contracts.

9. Prepare an operational procedure for using the system. This should be done regardless of the type of system used.

16

DELIVERABLES

Data collection forms

System design

Operational Procedure

CONSIDERATIONS AND EXAMPLES

A model of a local computer data base accessing data by three different methods; common product name, synonym name, and location is shown on the following page. Each category is cross referenced to the assigned Department of Transportation number or Chemical Abstract Service (CAS) number.

Besides developing a local information retrieval system, other computerized systems are available. For example:

A system called the Chemical Information System (CIS) has 13 data bases, one of which is called OHM-TADS (Oil and Hazardous Materials Technical Assistance Data System.) This data base has 1050 products and 126 items of information per product. Factors to be taken into consideration when researching remote data bases include subscription fees, cost of actual computer usage time, and compabability with various computer systems.

If you are using a mobile radio telephone in conjunction with a field terminal to access a data system, be sure that the lines through the telephone system are compatible with the computer system.

The following is an example of a hazardous material computer print-out.

EXAMPLES OF HAZARDOUS MATERIALS COMPUTER PRINTOUT

HAZARDOUS MATERIALS: (Common Product Name)

Name: METHYL ETHYL KETONE
STCC: 5 11 93
In Ohm-tads? (Y/N): Y
Document: 5, 7, 10
Pages: 234, 578, 952

Agency:
Comments PLCD 1-3-0 COLORLESS LIQUID WITH ACETONE ODOR. FLAM: FLAMMABLE LIQUID. FLAMMABLE LIMITS 1.8-10.0% FP: 21 F VD: 2.4 SPGR: .806 REACT: REACTS VIOLENTLY WITH OXIDIZERS TOX: NARCOTIC BY INHALATION. TOLERANCE LEVEL 200 PPM IN AIR. AVOID IGNITION SOURCES STORE IN COOL, WELL VENTILATED AREA DANGEROUS FIRE RISK WEAR SCBA AND TURNOUTS WATER SOLUBLE SMALL FIRE-CO2 OR DRY CHEMICAL. LARGE FIRE-STANDARD TACTICS. CONTAINERS MAY RUPTURE. EVACUATION 2000' ALL SIDES. SYN: BUTANONE, MEK, ETHYL METHYL KETONE.

SYNONYM:

Synonym Name: BUTANONE
STCC: 5 11 93

Synonym Name: ETHYL METHYL KETONE
STCC: 5 11 93

Synonym Name: MEK
STCC: 5 11 93

HAZARDOUS LOCATIONS:

Street Number: 5920
Street Address: NE 87th
City: ENGINE 48
STCC: 5 11 93
Phone 1: 252-3468
Phone 2:
UBC: H2
Census: 073.00
Comments: PLCD: 4-4-3-NW MANY EXTREMELY HAZARDOUS CHEMICALS LOCATED ON THESE PREMISES I.E., TRICHLOROETHLENE, TRICHLOROETHANE, ISOPROPYL ALCOHOL, EPICHLOROHYRIN, NITROMETHANE, AND PERCHLOROETHLENE. SUSPECT CARCINOGINS ON THESE PREMISES. POSSIBLE RAILCAR OR TANKCAR ON THESE PREMISES. FULL TURNOUTS AND SCBA BE WORN AT ALL TIMES.

TASK FOUR

RESPONSE UNIT

TASK #4: RESPONSE UNIT

OBJECTIVES

Although there are different types of response units throughout the nation, for the purposes of this guide, a description of a converted "motor home" response van will be provided.

Hazardous materials incident first responder units should be established within the appropriate agency. The objective of these units is to provide fast initial response, identification of the material, assessment of the incident, and initial containment and control of the incident until a private company or government team arrives for containment and clean up of the incident. The response unit should also be able to handle the total management of small scale incidents, if necessary. The unit must be staffed with trained professionals available on call 24 hours every day. The unit should be fully loaded, equipped and self contained.

ACTIVITIES

1. Plan the work to be done in establishing a response unit.

2. Study the hazardous materials response units throughout the nation. Determine the type of unit needed and identify the type of equipment to purchase for the needs of the area.

3. Establish a response unit.

   - Prepare procurement specifications for the response unit and equipment.

   - Design the internal arrangement of the unit.

   - Order and procure the unit and equipment.

   - Construct the interior of the unit and install the equipment.

4. Set up the organizational personnel framework of the unit.

5. Establish written operating policies and procedures for activation and response.

6. Prepare written job descriptions for each member of the response team and assign roles.

7. Provide and prepare procedures for training of personnel and testing of equipment.

51

DELIVERABLES

- Response van and equipment.
- Operating policies and procedures for unit.
- Job descriptions for response team personnel.
- Procedures for testing equipment.
- Response Team training program and schedule.

CONSIDERATIONS AND EXAMPLES

When deciding what type of response unit is needed, keep in mind what other type of response equipment may need to accompany the hazardous materials response unit or if the unit will be used for primary response. Provide for optimal utilization of the unit by its dual-use as an on-site command post for other emergency situations.

Carefully study all brands of equipment. Don't let costs be the primary factor. Determine your choice by the safety protection factors the equipment may offer as related to the danger of the hazardous material products.

When writing the operational procedures for the response unit, be sure to research various response agencies and determine the functions which <u>your</u> agency will be responsible for. You may not want to duplicate operations, so be sure your guidelines are clear.

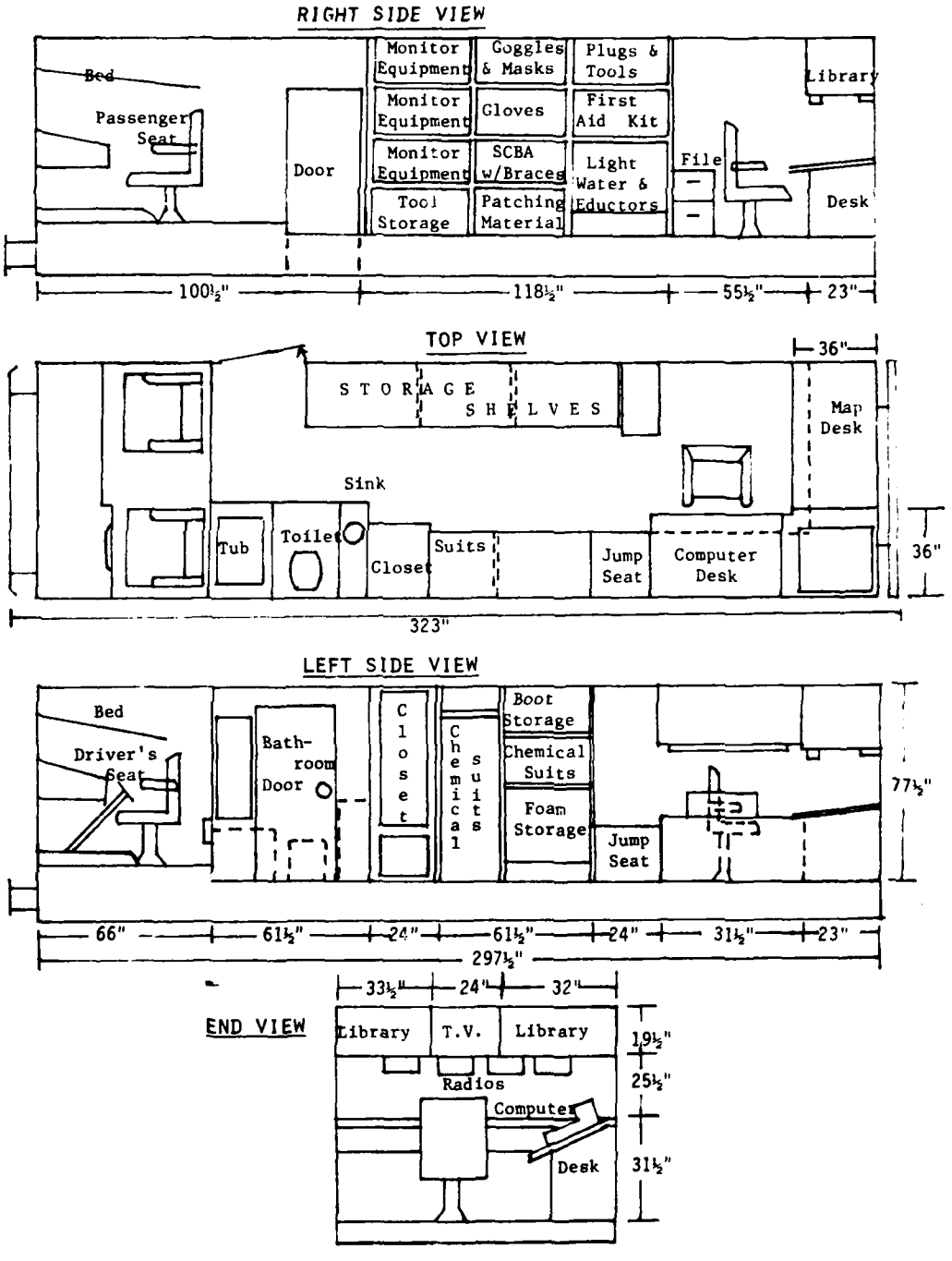
A model design of a "motor home" response unit is shown on the following page.

A sample inventory of the unit may be found in Appendix 2.

When selecting your response team, it is advisable to organize it based on a multi-disciplinary response. For example: two firemen, one policeman, and one emergency management person. By having a multi-disciplinary response, the differentiation of roles between police, fire, and emergency mangement personnel will be maintained and communications will remain open because each team member can talk to their respective agency and keep them apprised of the situation. It is often very difficult for one agency to direct the actions of another agency and expect them to respond, even if it is in the best interest of safety. Although the problem will not be resolved, it should be alleviated.

A response team for a unit as described in this guide should consist of at least three people. A minimum of four members is advised. This will provide for one 2-man team, a back-up/monitor for the team, and one communications/resource person.

HAZARDOUS MATERIALS RESPONSE UNIT



TASK FIVE

TRAINING

TASK #5: TRAINING

OBJECTIVES

The hazardous materials training program should emphasize the identification and coordination of existing courses, rather than the creation of redundant new courses. A well coordinated training program may consist of courses supplied by government agencies as well as private or commericial organizations. These courses should be cataloged and arranged in logical sequence and functional groups that meet the needs of the locale in which they are to take place.

ACTIVITIES

1. Plan the work to be done for a coordination of training programs. Identify the specific activities to be carried out, the results expected, and the deliverable products to be produced.

2. Determine the training needs of the agencies with responsibilities related to hazardous materials. Specifically determine who must be trained, the subject areas that must be covered, and any costs and schedule considerations that will apply.

3. Identify any professional or educational organizations or agencies which provide official recognition and certification of hazardous materials training programs. Such organizations might include local colleges and universities, the State Board on Police Standards and Training, the National Fire Prevention and Control Administration, fire training and standards boards, etc. Identify the specific standards and requirements for such certification.

4. Identify the hazardous materials training programs available to local personnel. These would include in-service programs provided by local agencies of the various disciplines, as well as classes and programs offered by state and federal agencies, private companies, professional groups, and other organizations.

5. Collect and compile complete information on all of the courses in Activity 4. The information on each course should include:

   - Eligibility requirements
   - Course content
   - Duration
   - Travel information
   - Location
   - Fees
   - Materials and supplies

57

6. Analyze information in Activity 5. Identify those courses which can best meet local objectives. Organize them into a curriculum in such a way that the content is not redundant, it follows a logical progression, and it builds upon each preceeding section or class. In this way the prerequisites for each succeeding course are met by earlier courses. Identify those courses or sequences appropriate to different disciplines or functional areas of responsibilities and/or various phases of response, e.g., containment and control, disposal and recovery. Identify any gaps in the resulting program which must be covered by supplementary inservice training. Verify that the overall program meets any certification requirements as previously defined.

7. Establish a program for maintaining a cadre of adequately and appropriately trained personnel by:

   - Providing for training of multi-disciplinary instructors to present inservice classes and assist in the conduct of intermediate and advanced training courses.

   - Coordinating training courses developed and conducted by government agencies and private organizations.

   - Obtaining current information on the development of new hazardous materials training programs.

   - Send key personnel to appropriate hazardous materials courses.

DELIVERABLES

- Work plan
- List of available training courses
- Report identifying multi disciplinary training needs.
- Curriculum implementation plan
- Certification criteria

CONSIDERATIONS AND EXAMPLES

The course published by the National Fire Protection Association is a good basic orientation program. It should be followed up with a course such as the one outlined on the next page.

Training and education should be a continuous element of the management program. It should consist of the most up-to-date information available.

Various companies will either conduct training classes or provide information to be incorporated in local programs. A sample list of these agencies and organizations is found in Appendix III.

INTERMEDIATE HAZARDOUS MATERIALS COURSE CURRICULUM

WEEK I

DAY I

INTRODUCTION

HAZARDOUS MATERIALS

A. Classes of Fires

1. Class A
2. Class B
3. Class C
4. Class D

B. Identifications of Hazardous Materials

1. DOT classification
   a. Explosive materials
   b. Compressed gases
   c. Flammable liquids and solids
   d. Chemically reactive materials
   e. Biologically active materials
   f. Radioactive materials
2. 704M system

C. Tactical Information Systems

1. CHEMTREC
2. Chemical Information Systems
3. Reference materials

90

MATTER AND ENERGY

A. Matter Defined

B. Units of Measurement

1. Length
2. Volume
3. Mass

C. Density of Matter

1. Vapor density
2. Specific gravity

D. Energy Defined

E. Temperature

F. Pressure

G. Effects of Heat on Matter

1. Heat - calorie, BTU
2. Conduction
3. Convection
4. Radiation
5. Heat capacity
6. Changes in phase
7. Coefficient of expansion

H. Flammability

1. Flashpoints
2. Kindling points

61

DAY 2

I. The Gaseous State

1. Boyles Law
2. Charles Law
3. BLEVE

J. Hazards of Cryogens

1. Critical Temperature
2. Critical Pressure
3. Critical Volume

SUBDIVISIONS OF MATTER

A. Elements and Compounds

1. Physical properties
2. Chemical properties

B. Atoms, Molecules and Ions

C. Chemical Formulas

The periodic chart

a. Metals
b. Non-metals

PRINCIPLES OF CHEMICAL REACTIONS

A. Types of Chemical Reactions

1. Synthesis reactions
2. Decomposition reactions
3. Single - replacement reactions
4. Double - replacement reactions
5. Oxidation - reduction reactions

B. Rate of Chemical Reactions

1. Nature of material
2. Subdivision of the reactants
3. State of aggregation
4. Concentration of reactants
5. Activation energy
6. Temperature
7. Catalysis

C. Chemistry of Combustion

D. Chemistry of Fire Extinguishment

1. Water
2. Fire extinguishment agencts
3. Foams

DAY 3

CHEMISTRY OF SOME ELEMENTS

A. Oxygen

1. LOX
2. Principles of oxidation

B. Hydrogen

1. Liquid hydrogren
2. Hydrogen - oxygen explosions
3. Activity series

C. Fluorine, Chlorine, and Bromine

1. Fluorine (oxidizing ability)
2. Chlorine
3. Bromine

D. Carbon

E. Phosphorus

1. Allotropes
2. Compounds

F. Sulfur

1. Compounds
2. Mercaptans

TRIP TO CHLORINE FACILITY

A. "A" Kit demonstration

B. "B" Kit demonstration

C. "C" Kit demonstration

DAY 4

CHEMISTRY OF CORROSIVE MATERIALS

A. Acids

1. Strength of acids
2. Reactions of acids
3. Other acids

B. Alkalis (bases)

1. Strength of bases
2. Reactions of alkalis
3. Other alkalis

CHEMISTRY OF WATER REACTANT MATERIALS

A. Alkali Metals
   1. Amalgums
   2. NAK
B. Magnesium, Zirconium, Titanium, Aluminum and Zinc
C. Organometallic Compounds
D. Hydrides
E. Peroxides
F. Nitrides, Carbides and Phosphides
G. Water reactive Inorganic Chlorides
H. Water-reactive Organic Compounds

PLASTIC, RESINS AND FIBERS

A. Polymers
   1. Fire hazards
   2. Toxic hazards
B. Monomers
   1. Fire hazards
   2. Toxic hazards

DAY 5

TOXIC MATERIALS

A. Basics of Toxicity
B. Measurement of Toxicity
   1. LD 50

2. LC 50

3. TLV

C. Carbon Monoxide and Carbon Dioxide

D. Hydrogren Cyanide

E. Hydrogen Sulfide and Sulfur Dioxide

F. Oxides of Nitrogen

G. Ammonia

1. Spill control

2. Properties and specifications

H. Toxic Heavy Metals

I. Protection from Toxic Materials

PESTICIDES

A. Labeling

B. Hazards

C. Shipping

D. Containers

E. Poisoning

1. Symptons

2. Treatment

F. Preplanning

1. Facilities

2. Resources

3. Demonstrations

EXERCISE IN USE OF PROTECTIVE GEAR

WEEK 2

DAY 1

OXIDATION - REDUCTION REACTIONS

A. Prinicipl es of Oxidizer and Fuel

B. Strength of Oxidizers

C. Oxidizer Hazards

D. Peroxides

E. Ammonium Compounds

F. Permangantes

G. Ammonium Nitrate

H. Nitrates

I. Hydranzine (a reducing agent - fuel)

DEMONSTRATION IN PATCHING OF SMALL CONTAINERS

RADIOACTIVE MATERIAL

A. Nuclei, Isatopes and Radioactivity

B. Types of Radiation

C. Units of Measurement

D. Effects of Radiation

E. Equipment Demonstrations

F. Exercise in Monitoring Radioactive Materials

DAY 2

ORGANIC COMPOUNDS

A. Classification of Organic Compounds

B. Hazards of Organic Compounds

1. Fire

2. Toxicity

C. Gaseous Hydrocarbons

1. LPG gas

2. Acetylene

D. Aromatic Hydrocarbons

E. Alcohols

F. Organic Peroxo Compounds

G. Miscellaneous Organic Compounds

H. Containment of Flammable Liquid Spills

TRIP TO LPG FACILITY

DAY 3

CHEMICAL EXPLOSIVES

A. Classes of Explosives

1. Terms

2. DOT classes

3. Nitroglycerine

4. Dynamite

5. TNT

B. Primary Explosives

C. Homemade Bombs

D. Gaseous Explosions

LOCAL BOMB SQUAD TECHNICIAN SPEAKER

DEMONSTRATION OF BOMB DISPOSAL UNIT

DAY 4

TRUCKS

A. Truck Specifications

B. Truck Identification

1. MC 301
2. MC 306
3. MC 311/312

TRIP TO TRUCK FACILITY

RAILROADS

A. Types of Cars

B. Car Specifications

C. Waybill

D. Attack Methods

TRIP TO RAILYARD

DAY 5

CHEMICAL DEMONSTRATIONS

NEUTRALIZATION EXERCISE

TASK SIX

PREVENTION PROGRAM

TASK #6: PREVENTION PROGRAM

OBJECTIVES:

Prevention often times is a matter of awareness. To promote this the emergency manager should establish a program to reduce the number of hazardous materials incidents within the jurisdiction by: clarifying legal rights and responsibilities; strengthing the existing enforcement program;

- Supporting industrial hazardous materials programs
- Orientating judges and other officials to the nature and impact of hazardous materials incidents
- Increasing public awareness.

A hazardous materials incident prevention program can be modeled upon standard fire prevention or public safety programs and practices. First, the Technical Advisory Committee (TAC), with the assistance of legal counsel should review and summarize existing laws , i.e., Code of Federal Regulations #49, under which enforcement and prevention activities must function (drafting of new legislation may not always be the best way to deal with the problems). In the light of the review, enforcement programs should be examined and strengthened where necessary. Next, an industrial relations program should be organized. The purpose of this program would be to establish a liaison with the "key hazard" companies, making sure they are at least in compliance with the law. Inform them of program activities, work out incident response plans with them and assist them in conducting their own training and safety programs. Finally, a small scale public awareness campaign should be initiated. The objective of which is to inform the public of program activities and increase public awareness of the dangers inherent in dealing with hazardous materials.

12

ACTIVITIES

1. Plan the work to be done to establish a prevention program. Identify the specific activities to be carried out, the results expected, and the deliverable products to be produced.

2. Review and summarize the local, state, and federal laws which define authority and responsibility with respect to hazardous materials.

3. Review the enforcement program and strengthen it as required:

   A. Identify agencies which have authority and responsibility for enforcing hazardous materials laws. Determine their formal and informal policies concerning enforcement of these laws, and estimate their level of enforcement activity.

   B. Identify the state and federal agencies which have enforcement authority in a specific geographic location. Clarify the procedures and policies for activating these agencies.

   C. Establish specific goals and objectives for enforcement of hazardous materials laws in the jurisdiction. Adopt any hazardous materials laws which may be appropriate for enforcement within a jurisdiction.

   D. As required, establish, strengthen, or redirect local authority in the use of local, state, and federal enforcement agencies.

E. Work with the enforcement agencies and prosecuting officials, as required, to obtain their concurrence and support in implementation of the programs.

4. Identify the major industries and organizations, constituting potential "key hazards", which may be appropriate subjects for a hazardous materials industrial relations program. For each such organization:

A. Establish formal liaison with key persons in the organization.

B. With approval of the agency, review their hazardous materials safety, prevention, response, and containment policies and programs, and discuss perceived limitations.

C. Explain to liaison personnel the local hazardous materials programs in terms of:

- Resources available to the area and to the organization from or through the jurisdiction.

- Response capabilities of the jurisdiction and other agencies and companies.

- Specific response plans pertinent to the organization.

D. Help the liaison personnel to organize internal informational and training programs.

5. Establish a program to inform the public of the hazardous materials management project and to generally make them aware of the problems and dangers in dealing with hazardous materials. Utilize press releases, newpaper articles, media announcements, and other methods as necessary and appropriate.

6. Prepare a report summarizing the findings of the legal review, the industrial relations program, and the public relations program.

DELIVERABLES

- Work plan
- Summary report of findings and programs

CONSIDERATIONS AND EXAMPLES

It is essential that communications between public and private agencies be open and direct at all times. Misunderstandings frequently occur between these sectors and could result in a strained working environment that may exacerbate rather than alleviate a hazardous materials incident.

CONCLUSION

CONCLUSION

The transportation of hazardous materials is increasing daily in communities all over the country. As accidents do occur during the transportation of these commodoties, it is imperative that adequate prevention enforcement and response programs are available to protect our citizens and mitigate long term damage to our environment.

The development of a comprehensive Hazardous Materials Management System requires a serious commitment by the local government entity instituting the program, and the cooperation of emergency management, police, and fire agencies to succeed.

This guide was produced to provide emergency managers with information delineating one method of developing a Hazardous Materials Management System that has proven successful in one jurisdiction.

APPENDIX I

REFERENCE LIBRARY LIST

APPENDIX I

REFERENCE LIBRARY LIST

	Cost (1981)
ACCIDENT REPORTS National Transportation Safety Board Washington, D. C. 20591	Free
AMERICAN NATIONAL STANDARD FOR THE STORAGE & HANDLING OF ANHYDROUS AMMONIA (Standard K61.1) American National Standards Institute, Inc. 1430 Broadway New York, New York 10018	
ANALYSIS OF PROCEEDINGS OF THE NATIONAL TRANSPORTATION SAFETY BOARD Into Derailments of Hazardous Materials, April 4 through 6, 1978 National Transportation Safety Board Washington, D. C. 20591	Free
BASIC PRINCIPALS OF RADIATION PROTECTION-TP 30 Training Resource Center (HFX-70) DTMA, BRH, FDA 5600 Fishers Lane Rockville, Maryland 20857	Free
BIOLOGICAL AFFECTS OF NEUTRONS - TP 38 Training Resource Center (HFX-70) DTMA, BRH, FDA 5600 Fishers Lane Rockville, Maryland 20857	Free
BIOLOGICAL ETHENICS OF IONIZING RADIATION - TP 37 Training Resource Center (HFX-70) DTMA, BRH, FDA 5600 Fishers Lane Rockville, Maryland 20857	Free
CHRIS MANUAL - HAZARDOUS CHEMICAL DATA Superintendent of Documents U.S. Government Printing Office Washington, D.C. 20402 (Stock #050-012-00147-2)	
CHEMICAL ENGINEERS HANDBOOK, 5th Edition By Robert H. Perry & Cecil H. Chilton McGraw - Hill Book Company 1221 Avenue of The Americas New York, New York 10020	56.50
CHEMICAL SAFETY SLIDE RULE National Safety Council 444 N. Michigan Avenue Chicago, Illinois 60611 Stock #129.91-9	6.00

CHEMISTRY OF HAZARDOUS MATERIALS — 20.00
By Meyer
Prentice - Hall, Inc.
200 Old Tappan Road
Old Tappan, New Jersey 07675

CHLORINE MANUAL — 3.00
The Chlorine Institute, Inc.
342 Madison Avenue
New York, New York 10017

COMPRESSED GASES & CRYOGENICS REPORT — 144.00/YR
Van Nostrand Reinhold Company
7625 Empire Drive
Florence, Kentucky 41042

CONTROL OF INTERNAL RADIATION HAZARDS - TP 51 — Free
Training Resource Center (HFX-70)
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

CORRELATION OF EXPOSURE DOSE & ABSORBED DOSE - TP 52 — Free
Training Resource Center (HFX-70)
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

CORRELATION OF UNITS OF ACTIVITY & EXPOSURE - TP 53 — Free
Training Resource Center (HFX-70)
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

CRITICAL REVIEWS IN TOXICOLOGY, Vol. 9 — 80.00
CRC Press, Inc.
2255 Palmbeach Lakes
West Palmbeach, Florida 33409

DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS — 96.00
By N. Irving Sax
Van Nostrand Reinhold Company
Division of Litton Education of Publishing, Inc.
135 West 50th Street
New York, New York 10002

DEALING WITH CHLORINE EMERGENCIES - FIRE — 1.25
The Chlorine Institute, Inc.
342 Madison Avenue
New York, New York 10017

DETERMINATION OF HALFLIFE (LA 13)-TP 265 — Free
Training Resource Center (HFX-70)
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

DIAGNOSTIC X-RAY EQUIPMENT-TP 65 — Free
Training Resource Center (HFX-70)
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

DIRECTORY OF CHEMICAL PRODUCERS — 595.00
Stanford Research Institute International
Attention: Elaine Klapproth
333 Ravenswood Avenue
Menlo Park, California 94025

DO's AND DON'TS — Free
Publication #4, July 19, 1978
Institute of Makers of Explosives
420 Lexington Avenue
New York, New York 10017

EFFECTS OF EXPOSURE TO TOXIC GASES, 2nd Edition
by William Braker
Matheson
Lyndhurst, N. J.

EFFECTS OF RADIATION ON LIVING TISSUE & CHEMICAL STRUCTURE-TP 67 — Free
Training Resource Center (HFX-70)
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

EMERGENCY HANDLING OF HAZARDOUS MATERIAL IN SURFACE TRANSPORTATION
Bureau of Explosives
Association of American Railroads
1920 L Street
Washington, D.C. 20036

EMERGENCY HANDLING OF RADIATION ACCIDENT CASES — Free
Department of Energy
Assistant Secretary for Environment
Washington, D. C. 20545

EMERGENCY REPAIR OF PRESSURE TANK CAR LEAKS — Free
Philipps Petroleum
Bartlesville, Oklahoma 74003

EXPLOSIVES & TOXIC HAZARDOUS MATERIALS — 17.95
By James Meidl
Glencoe Publishing Company, Inc.
17337 Ventura Blvd.
Encino, California 91316

FARM CHEMICALS HANDBOOK, 1980 — 35.00
Meister Publishing Company
37841 Euclid Avenue
Willoughby, Ohio 44094

FEDERAL ACTIVITIES AND TOXIC SUBSTANCES — Free
Toxic Integration Information Series
U.S. Environmental Protection Agency
Office of Pesticides & Toxic Substances
Washington, D.C. 20460

FIRE OFFICERS GUIDE TO DANGEROUS CHEMICALS
National Fire Protection Association
470 Atlantic Avenue
Boston, Massachusetts
Number FSP-36A

FIRE PROTECTION GUIDE ON HAZARDOUS MATERIALS — 14.00
National Fire Protection Association
470 Atlantic Avenue
Boston, Massachusetts 02110
Attn: Publications Sales Department

FLAMMABLE HAZARDOUS MATERIALS — 16.95
By James H. Meidl
Glencoe Publishing Company, Inc.
17337 Ventura Blvd.
Encino, Californnia 91316

FLASHPOINT INDEX OF TRADE NAME LIQUIDS-SPP 51 — 7.50
National Fire Protection Association
470 Atlantic Avenue
Boston, Massachusetts 02210
Attn: Publications Sales Dept.

GUIDE FOR SAFETY AND THE CHEMICAL LABORATORY
Manufacturing Chemists Association
Van Nostrand Reinhold Company
450 West 33rd Street
New York, New York 10001

HIGHLY HAZARDOUS MATERIALS SPILLS & EMERGENCY PLANNING — 29.75
Marcel Dekker, Inc.
270 Madison Avenue
New York, New York 10015

HANDBOOK FOR CHEMICAL TECHNICIANS — 59.95
By Howard J. Strauss, PhD
McGraw - Hill Book Company
PO Box 400
Hightstown, New Jersey 08520

HANDBOOK OF ANALYTICAL TOXICOLOGY GENERAL DATA — 59.95
CRC Press, Volume 1 - Section A
Volume 2 - Section B
2000 NW 24th Street
Boca Raton, Florida 33431

HANDBOOK OF LABORATORY SAFETY, 2nd Edition
By Steere
CRC Press, Inc.
The Chemical Weber Company
18901 Cranwood Parkway
Cleveland, Ohio 44128

HANDBOOK OF POISONING: DIAGNOSIS & TREATMENT — 19.00
Robert H. Dreisbach
Lange Medical Publications, Inc.
Drawer L
Los Altos, California 94022

HANDLING RADIATION EMERGENCIES
National Fire Protection Association
470 Atlantic Avenue
Boston, Massachusetts 02110

HAZARD ASSESSMENT HANDBOOK — 14.00
Superintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402
(Stock No. 050-012-00160-0)
(Document CG 446)

HAZARDOUS CHEMICAL SPILL CLEANUP
Noyes Data Corporation
Noyes Building
Park Ridge, N. J. 07656

HAZARDOUS COMMODITY HANDBOOK, 4th Edition
National Tank Truck Carriers, Inc.
1616 P Street NW
Washington D. C. 20036

HAZARDOUS MATERIALS EMERGENCY RESPONSE GUIDEBOOK — Free
Dept. of Transportation
Materials Transportation Bureau
Research and Special Programs Administration
Washington, D. C. 20590

HAZARDOUS MATERIALS GUIDEBOOK
American Trucking Association, Inc.
Attn: Traffic Department
1616 P Street, NW
Washington, D.C. 20036

HAZARDOUS MATERIALS GUIDE - NFPA, 7th Edition — Free
National Fire Protection Association
470 Atlantic Avenue
Boston, Massachusetts 02210

HAZARDOUS MATERIALS GUIDE, 5th Edition
United Parcel Service
51 Weaver Street
Greenwich Office Park 5
Greenwich, Connecticut 06830

HAZARDOUS MATERIALS HANDBOOK — 9.95
By James H. Meidl
Glencoe Publishing Company, Inc.
17337 Ventura Blvd.
Encino, California 91316

HAZARDOUS MATERIALS HANDBOOK
The Operations Council
American Trucking Association, Inc.
1616 P Street, NW
Washington, D. C. 20036

HAZARDOUS MATERIALS NEWSLETTER — Free
Materials Transportation Bureau
Research and Special Programs Administration
Washington, D. C. 20590

HAZARDOUS MATERIALS REFERENCE MANUAL, 2nd Edition
Labelmaster
Complete Pocket Digest
6001 N. Clark Street
Chicago, Illinois 60660

HAZARDOUS MATERIALS TRANSPORTATION ACCIDENT — 6.00
National Fire Protection Association
470 Atlantic Avenue
Boston, Massachuesetts 02110

HAZARDOUS MATERIALS — 17.95
by Isman
Order Code: 47502
Glencoe Publishing Company
100 West Brown Street
Riverside, New Jersey 08370

INDUSTRIAL APPLICATIONS OF RADIATION-TP 84 — Free
Training Resource Center (HFX-70)
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

INSPECTION OF MEDICAL AND DENTAL XRAY INSTALLATIONS-TP 482 — Free
Training Resource Center (HFX-70)
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

INTERNATIONAL MARITIME DANGEROUS GOODS CODE — 184.00
Volumes 1 through 4
Unipub
345 Park Avenue South
New York, New York 10010

INTERNATIONAL MARITIME DANGEROUS GOODS CODE — 55.00
Amendments 14, 76 and 15, 77
Annex 1 Brochure-IMCO
Unipub
345 Park Avenue South
New York, New York 10010

LANGE'S HANDBOOK OF CHEMISTRY, 11th Edition — 34.50
By John A. Dean
McGraw - Hill Book Company
1221 Avenue of the Americas
New York, New York 10020

MATHESON GAS DATA BOOK
Matheson Gas Products
East Rutherford, New Jersey

MEDICAL FIRST AID GUIDE FOR USE IN ACCIDENTS INVOLVING DANGEROUS GOODS — 16.50
Unipub
345 Park Avenue South
New York, New York 10010

MEDICAL XRAY PROTECTION-TP 105 — Free
Training Resource Center (HFX-70)
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

MERCK INDEX
Merck & Company, Inc.
PO Box 2000
Rahway, New Jersey 07065

NIOSH REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES — 22.00
GPO Stock #017-033-00346-7
Supertintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402

NIOSH/OSHA POCKET GUIDE TO CHEMICAL HAZARDS — 5.50
GHEW Publication #78-210, GPO Stock
#017-033-00342-4
Superintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402

OCCUPATION EXPOSURE LIMITS FOR AIRBORNE TOXIC SUBSTANCES
Unipub
345 Park Avenue South
New York, New York 10010

OIL SPILLS AND SPILLED HAZARDOUS SUBSTANCES — Free
U. S. Environmental Protection Agency
Oil and Special Materials Control Division
401 M Street, SW
Washington, D.C. 20460

OIL & HAZARDOUS MATERIALS TECHNICAL ASSISTANCE DATA SYSTEM — Free
U.S. Environmental Protection Agency
Oil & Special Materials Control Division
Office of Water Program Operations
Washington, D. C. 20460

OIL & HAZARDOUS SUBSTANCES RESPONSE MANUAL — Free
Region 10 Contingency Plan DPA
1200 Sixth Avenue
Seattle, Washington 98101

PERSONAL INSTRUMENTS-TP 129 — Free
Training Resource Center (HFX-70)
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

PESTICIDE PRODUCTS SAFETY MANUAL
Shell Chemical Company
2401 Crow Canyon Road
San Ramon, California 94583

PLANNING FOR HANDLING OF RADIATION ACCIDENTS — 9.75
(Safety Series #32-STI/PUB/227)
Unipub
345 Park Avenue South
New York, New York 10010

PROPERTIES & PRODUCTION OF XRAYS-TP483 — Free
Training Resource Center (HFX-70)
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

PROTECTIVE CLOTHING FOR CHLORINE-65 — Free
The Chlorine Institute
342 Madison Avenue
New York, New York 10017

QUANTITY & UNITS OF RADIATION-TP481 — Free
Training Resource Center
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

RADIATION PROTECTION GUIDSs-TP 145 — Free
Training Resource Center (HFX-70)
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

RADIOACTIVITY - TP 152 — Free
Training Resource Center (HFX-70)
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

RECOGNITION AND MANAGEMENT OF PESTICIDE POISONING, 2nd Edition
U. S. Environmental Protection Agency
Office of Pesticide Programs
Washington, D. C. 20460

REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES — Free
Department of Health Education and Welfare
National Institute of Occupational Safety and Health
1600 Clifton Road, NE
Atlanta, Georgia 30333

RESPONSE METHOD HANDBOOK — 6.50
Document CG446 - 4
Superintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402

RISK EVALUATION FOR PROTECTION OF THE PUBLIC IN RADIATION ACCIDENTS — 7.00
(Safety Series #21-STI/PUB/124)
English Version
Exclusive Distribution Agency In The U. S.
Unipub
345 Park Avenue, South
New York, New York 10010

SAFETY IN TRANSPORTATION, STORAGE, HANDLING AND USE OF EXPLOSIVES — Free
Publication #17
Institute of Makers of Explosives
420 Lexington Avenue
New York, New York 10017

SEALED SOURCES IN INDUSTRY-TP 188 — Free
Training Resource Center
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

SHELL CHEMICAL SAFETY GUIDE
Shell Chemical Company
2410 Crow Canyon Road
San Ramon, California 94583

SHIELDING PROPERTIES OF COMMON MATERIALS (LAB)-TP 295 — Free
Training Resource Center
DTMA, BHR, FDA
5600 Fishers Lane
Rockville, Maryland 20857

SHIELDING PROPERTIES OF COMMON BUILDING MATERIALS FOR XRAY & GAMMA RAYS — Free
Training Resource Center
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

SOURCES OF RADIATION EXPOSURE-TP465 — Free
Training Resource Center
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

THE BASIC REQUIREMENTS FOR PERSONNEL MONITORING — 8.75
(Safety Series #14-STI/PUB/95)
Unipub
345 Park Avenue South
New York, New York 10010

THE CLINICAL HANDBOOK ON ECONOMIC POISONINGS - EMERGENCY INFORMATION FOR TREATING OF POISONING
By The Public Health Service Publication
U. S. Government Printing Office
Washinton, D. C. 20402

THE CONDENSED CHEMICAL DICTIONARY
By Gessner G. Hawley
Van Nostrand Reinhold Company
450 West 33rd Street
New York, New York 10001

THE FIRE FIGHTERS HANDBOOK OF HAZARDOUS MATERIALS — 8.58
By Charles J. Baker
Maltese Enterprises, Inc.
PO Box 34048
Indianapolis, Indiana 46234

THERAPEUTIC XRAY EQUIPMENT-TP 214 — Free
Training Resource Center
DTMA, BRH, FDA
5600 Fishers Lane
Rockville, Maryland 20857

TITLE 49 CODE OF FEDERAL REGULATIONS — Free
Superintendent of Documents
United States Printing Office
Washinton, D. C. 20402

TOXIC CHEMICALS - A PUBLIC PROTECTION — Free
Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

TOXIC SUBSTANCES — Free
Control of Chemical Substances
Inventory: Initial Inventory
Industry Assistance Office
U. S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460

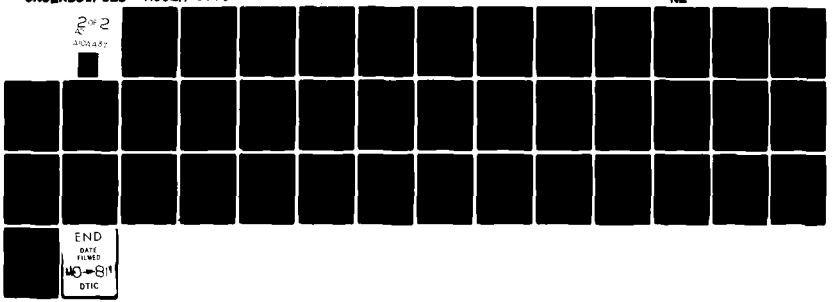
TOXICOLOGY OF DRUGS & CHEMICALS — 36.00
William Deichmann & Horace W. Gerarde
4th Edition, Academic Press, Inc.
Harcourt Borace Jovanovich Building
1001 Polk Street
San Francisco, California 94109
ISBN 0-12-208858-1

APPENDIX II

RESPONSE UNIT INVENTORY

AD-A104 437 MULTNOMAH COUNTY OFFICE OF EMERGENCY MANAGEMENT POR--ETC F/G 13/12
HAZARDOUS MATERIALS MANAGEMENT SYSTEM. A GUIDE FOR LOCAL EMERGE--ETC(U)
JUL 81 M T LEE, P G ROE DCPA01-79-C-0323

UNCLASSIFIED MCOEM-0779 NL



APPENDIX II

HAZARDOUS MATERIALS RESPONSE UNIT INVENTORY

ITEM

- Air Tanks
- Air Tanks, Positive Pressure with Braces and Regulator
- Ax, Firefighting
- Bag, Resusci Folding Ambu
- Binoculars, 8 x 24 Power
- Blankets
- Bombs, Smoke
  - 1/2 minute
  - 1 minute
  - 5 minute
- Boots, Rubber
- Boots, Turnout
- Broom, Kitchen
- Cabinet, File
- Cables, Booster
- Camera, 35 mm with flash and lens attachment
- Charger, Radio
  - Desk, 110 Volt
  - Vehicular, 12 Volt
- Cleaner, Hand
- Coveralls, Blue
- Coveralls, Flame Retardant
- Detectors, Infrared Probeye
- Detectors, Radiation
- Draeger Kit, with Tubes
- Duck Seal
- Educator, foam
- Extinguisher, ABC Dry Chemical
- Extinguisher, Halon 1211
- Extinguisher, Metal-X
- Foam, Alcohol 6%
- Kit, First Aid
  - Airways
  - Applicators, Cotton Tipped
    - 3"
    - 6"
  - Bandage, Compress
    - 2"
    - 3"
    - 4"
  - Bandages, Gauze
    - 1"
    - 2"
  - Bandages, Stretch
    - 1"
    - 2"

- Bandages, Zip Strip
- Cotton, Sterile
- Cream, First Aid
- Cuff, Blood Pressure
- Depressors, Tongue
- Inhalants, Ammonia
- Instant Glucose
- Isoprophyl Alcohol Rubbing Compound
- Lotion, Calamine
- Masks, Oxygen
- Ointment, Antiseptic and Burn
- Pads
  - Eye
  - Gauze
    - 2 X 2
    - 3 X 3
    - 4 X 2
  - Sanitary
- Pins, Safety
- Rolls, Gauze
  - 1"
  - 2"
- Scissors, Assorted
- Splints
- Splints, Wire
- Stethescope
- Tape, Adhesive
  - 1/2"
  - 1"
  - 2"
  - 3"
- Thermometers
- Tourinquet and Forceps
- Wipes, Wound
- Flares
- Gloves
  - Leather
  - Neoprene
  - Plastic - PVC
  - Rubber - Natural
- Goggles
- Heater
- Helmets, Acid with Face Shields
- Helmets, Fire
- Meter, Hydrocarbon and Oxygen with 5' Brass Probes
- Jackets, Turnout
- Light, Extension
- Masks, Oxygen Face
- Monitors, Organic Vapor
- Pants, Turnout
- Pick Handle
- Pick Head
- Pillows
- Plug-n-dike - 48 Pounds

- Plugs, Oak
  - 3/4" - 4"
- Radio, CB 40 Channel
- Radio, UHF 2 Channel Portable
- Radio, UHF 8 Channel Portable
- Radio, UHF Mobile Base
- Radio, VHF 8 Channel Portable
- Radio, VHF Mobile Base
- Rope
- Rope, Nylon
- Scanner
- Sheets
- Sheet Rolls, Plastic
- Shovels
  - Square
  - Round End
- Soda Ash
- Suits, Acid
- Suits, Fire Entry
- Suits, Incapsulated
- Suits, Incapsulated with Case
- TV, Color
- Tank, Resuscitator
- Tape, Flagging
- Telephone, Mobile
- Tools, Non-Sparking
  - Bars, Pry
  - Chisel, Coal
    - Small
    - Medium
  - Crowbar
    - Medium
    - Small
  - Hammer
    - Ballpeen
      - Medium
      - Large
    - Chipping
    - Sledge
  - Pliers, Battery
  - Scoop, Shovels
  - Scrapers
    - Short Handled
    - Long Handled
  - Screwdriver
    - Phillips
      - 8"
  - Wrench
    - Cresent
      - 10"
      - 12"
      - 15"

- Pipe
  - 10"
  - 14"
  - 18"
- Tools, Regular
  - Die Set
  - Chisel, Coal
  - Level
    - Small
  - Pliers
    - Battery
    - Dike
    - Electric Wire
    - Side Cutters
    - Vise Grip
      - 7"
  - Point Gauge Tool
  - Punches, Center
  - Saw, Hack with Extra Blades
  - Screwdriver
    - Phillips
      - 5"
      - 6"
      - 7"
      - 12"
    - Regular
      - Small
      - Medium
    - Square End
      - 7"
      - 9"
      - 15"
  - Shovel
    - Square Nose
      - 15"
      - 20"
  - Socket Set
    - 1/8"
    - 1/4"
    - 1/2"
  - Tow Clamps
  - Wrench
    - Allen
    - Box
      - 7/16-3/8
      - 9/16-1/2
    - Crescent
      - 6"
      - 12"
      - 15"

Open End
- 19/32-11/16
- 5/16-1/4
- 7/16-3/8
- 7/16-1/2
- 9/16-1/2
- 3/4-5/8

Open End Box
- 1/4
- 5/8
- 7/8
- 3/4
- 9mm

Pipe
- 10"

Towels
Water, light 6%

APPENDIX III

LIST OF AGENCIES AND ORGANIZATIONS PROVIDING TRAINING PROGRAMS

HAZARDOUS MATERIALS TRANSPORTATION COURSES AND SEMINARS

College and University Courses and Seminars

Alabama

University of Alabama
Department of Commerce and Business
Dr. Stanley J. Hille
Box J
University, Alabama 35486
(205) 348-6100

University of South Alabama
Department of Marketing and Transportation
Mr. Richard Mathisen
Mobile, Alabama 36688
(205) 460-6411

California

University of California - Berkeley
Institute of Transportation/Traffic Engineering
Mr. John Schremp
109 McLaughlin Hall
Berkeley, California 94720
(415) 642-7350

Golden Gate University
Transportation Program
Mr. Korth
536 Mission Street
San Francisco, California 94105
(415) 391-7800 ext. 279

Louisiana

Louisiana State University
Nuclear Science Center
Agricultural/Mechanical Center
Dr. Curry
Baton Rouge, Louisiana 70803
(504) 388-2163

Michigan

Michigan State University
School of Packaging
Dr. Hugh Lockhmt
East Lansing, Michigan
(517) 353-6462

New York

Franklin D. Roosevelt
Institute of Maritime Studies
Mr. Ron Bohn
15 State Street
New York, New York 10004

Suffolk County Comm. College
Mr. Joseph E. Galvin
533 College Road
Seldon, New York 11784
(516) 233-5277

Syracuse University
School of Marketing/Transport
The Franklin Program
Dr. Theodore O. Wallin
129 College Place
Syracuse, New York 12310
(315) 423-2916

Colorado

Metropolitan State College
chool of Professional Studies
Mr. William B. Rourke, Jr.
1006 11th Street, Box 30
Denver, Colorado 80204
(303) 629-8310

Connecticut

Norwalk Community College
Department of General Business
Mr. Milton Goldstein
333 Wilson Avenue
Norwalk, Connecticut 06854
(203) 853-2040

Florida

Florida International University
School of Business
Mr. J. A. F. Nicholes
SBOS-DM346
Miami, Florida 33199
(305) 522-2571

Miami - Dade Community College
South Campus, Aviation Department
Mr. Kane
11011 SW 104th
Miami, Florida 33156
(305) 596-1154

Florida Junior College
Kent Campus
Transportation Department
Mr. Paul A. Halloran
Jacksonville, Florida 32205
(904) 387-8167

University of Niagara
Institute of Transportation
Travel and Tourism
Dr. Samuel I. Porrath
Buffalo, New York 14109
(716) 285-1212 ext. 311

Ohio

Ohio State University
Continuing Education
Columbus, Ohio 43210
(614) 422-1311

University of Cincinnati
Evening College
Mr. Kenneth Dickens
Cincinnati, Ohio 45221
(513) 475-4431

Utah

LDS Business College
Special Courses and Conference
Mr. Ross Derbridge
411 East South Temple
Salt Lake City, Utah 84111
(801) 363-2765

Washington

Seattle Community College
Business and Commerce Division
Mr. Phil Running
9600 College Way, North
Seattle, Washington 98103
(206) 634-4436

University of Miami
Ryder Program and Transportation
Dr. Anthony Cantanese
1541 Brescia
Miami, Florida 33144
(305) 284-2901

Iowa

Iowa State University
Department of Environmental Health and Safety
Industrial Education
Dr. Jack Beno
Building 208-C
Ames, Iowa 50010

Northern Iowa Area Community College
Department of Trade and Industry
Mr. Ted Crawford
500 College Avenue
Mason City, Iowa 50401
(515) 421-4355

Kansas

University of Kansas
Radiation Safety Office
Dr. Friesen
Lawrence, Kansas 66045
(913) 864-4089

Wisconsin

Northeast Wisconsin Tech. Ins.
Depart. of Marketing/Business
Mr. E. R. DeRoche
2740 West Mason Street
Green Bay, Wisconsin 54303
(414) 423-3125

Univ. of Wisconsin - Stout
Department of Packaging
Mr. Marvin Kufahl
Menomie, Wisconsin 54751
(715) 232-2295

Colleges and Other Institutes Offering Hazardous Materials Courses

Alabama

Alexander City State Junior College
Fire Science Department
Paul Blackwell
Cherokee Road
P.O. Box 699
Alexander City, Alabama 35010
(205) 234-6346

George C. Wallace
State Community College
Fire Science Department
Michael Houghland
P. O. Drawer 1049
Selma, Alabama 36701
(205) 875-2634, Ext. 31

Alaska

Anchorage Community College
Fire Science Program
James Evans
2455 Providence Drive
Anchorage, Alaska 99504
(907) 279-6602

Arizona

Arizona College of Technology
Fire Science Department
William Buttery
Route 97
Winicelman, Arizona 85292
(602) 356-7864

Cochise College
Douglas Campus
Fire Science Department
Richard Seals
Douglas Arizona 85607
(602) 364-7943

Cochise College
Sierra Vista Campus
Fire Science Department
Richard Seals
901 Columbo
Sierra Vista, Arizona 85635
(602) 934-2211

Eastern Arizona College
Fire Science Department
Ralph Orr
Thatcher, Arizona 85552
(602) 428-1133

Glendale Community College
Fire Science Department
Renault Catalano
600 West Oliver Avenue
Glendale, Arizona 85301
(602) 934-2211

Pima Community College
Fire Science Department
Ignacio Garcia
2202 West Anklam Road
Tucson, Arizona 85709
(602) 884-6693

Mohave Community College
Vincent Salmon
1971 Iagerson Avenue
Kingman, Arizona 86401
(602) 757-4331

Phoenix College
Fire Science Department
Robert F. Noll
1202 West Thomas Road
Phoenix, Arizona 85013
(602) 264-2492

Scottsdale Community College
Fire Science Department
Ed Gates
9000 East Chaparral Road
Scottsdale, Arizona 85253

California

Allan Hancock College
Fire Science Department
Robert Pile
800 S. College Drive
Santa Maria, California 93454
(805) 922-6966

American River College
Fire Science Department
Louis Quint
4700 College Oak Drive
Sacramento, California 95841
(916) 484-8316

American River College
Placerville Campus
Fire Science Department
Art Scott
106 Placerville Drive
Placerville, California 95667
(916) 622-7575

Antelope Valley College
Fire Science Department
Frank C. Roberts
3041 West Avenue K
Lancaster, California 93534
(805) 943-3241

Bakersfield College
Fire Science Department
Joseph Angelo
2101 K Street Mall
Bakersfield, California 93305
(805) 395-4481

Barstow College
Fire Science Department
Jack Sherman
2700 Barstow Road
Barstow, California 92311
(714) 252-2411

Butte College
Fire Science Department
Fred Allen
Route 1 Box 183A
Oroville, California 95965
(916) 895-2401

Cabrillo College
Fire Science Department
David Barbin
6500 Soquel Drive
Aptos California 95003
(408) 425-6447

Cerro Coso Community College
Fire Science Department
James Sirman
Ridgecrest, California 93555
(714) 375-5001

Chaffey College
Fire Science Department
Eddie Smith
5885 Haven Avenue
Alta Loma, California 91701
(714) 987-1737

Cosumnes River College
Fire Science Department
Cecie Fontanoza
8401 Center Parkway
Sacramento, California 95823
(916) 421-1000

College of the Desert
Fire Science Department
Bill Kroonen
43-5000 Monterey Avenue
Palm Desert, California 92260
(714) 346-8041

El Camino College
Fire Science Department
Ed Muraski
16007 Crenshaw Blvd.
Via Torrance, California 90506
(213) 532-3670

Glendale College
Fire Science Department
Dave Leek
1500 N. Verdugo Road
Glendale, California 91208
(213) 240-1000

Chabot College
Fire Science Department
Glenn Bass
25555 Hesperian Blvd.
Hayward, California 94545
(415) 782-3000

Columbia Junior College
Fire Science Department
J. Amundsen
P.O. Box 1849
Columbia, California 95310
(209) 532-3141

Cuesta College
Fire Science Department
Edwin M. Pearce
P.O. Box J Obispo
San Luis Obispo, Cal. 93406
(805) 544-2943

East Los Angeles College
Fire Science Department
M. S. Pena
1301 Brooklyn Avenue
Monterey Park, California 91754
(213) 265-8650

Fresno City College
Fire Science Department
Roy Edwards
1101 East University Avenue
Fresno, California 93741
(209) 442-4600 ext. 8517

Grossmont College
Fire Science Department
Dave Lien
8800 Grossmont College Drive
El Cajon, California 92020
(714) 465-1700

Hartnell College
ire Science Department
Thomas C. Campbell
156 Homestead Avenue
Salinas, California 93901
(408) 758-7261

Indian Valley Colleges
Fire Science Department
Howard Stillwell
1800 Ignacio Blvd.
Navato, California 94947
(415) 883-2211

Long Beach City College
Fire Science Department
Denny Pace
4901 E. Carson Street
Long Beach, California 90808
(213) 599-2421

Los Angeles Harbor College
Fire Science Department
Van G. Waring
1111 Figueroa Place
Wilmington, California 90744
213) 835-0161

Los Medanos College
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Oregon City, Oregon 97045
(503) 656-2631

Portland Community College
Fire Science Department
John Koroloff
12005 West 49th Avenue
Portland, Oregon 97219
(503) 244-6111

Rogue Community College
Fire Science Department
Mr. Mark Burns
3345 Redwood Highway
Grants Pass, Oregon 97526
(503) 579-5541

Pennsylvania

Butler County Fire Chiefs Association
Butler County Fire School
John Stokes
124 West North Street
Butler, Pennsylvania 16001
(412) 382-4200

Delaware County Community College
Fire Academy
Walter Omlor
Media, Pennsylvania 19063
(215) 353-5400, Ext. 427

Northampton County Area Community College
Fire Science Department
Regina Tauke
3835 Green Pond Road
Bethlehem, Pennsylvania 18017
(215) 865-5351

Pennsylvania State University
Fire Science Department
Charles R. Meck
209 Keller Building
University Park, Pennsylvania
16802

Community College of Philadelphia
Fire Science Department
Paul Ruhne
1600 Spring Garden Street
Philadelphia, Pennsylvania 19130
(215) 972-7436

Rhode Island

Providence College
Fire Science Department
Roger L. Pearson
River and Eaton Streets
Providence, Rhode Island 02918
(401) 865-1000

Rhode Island Junior College
Fire Science Department
John Marmaras
400 East Avenue
Warwick, Rhode Island 02886
(401) 825-2145

South Carolina

Midlands Technical College
Fire Science Department
P. O. Drawer Q
Columbia, South Carolina 29250

South Carolina Fire Academy
Paul W. Risher, Jr.
Illinois Avenue
West Columbia, South Carolina
29169
(803) 758-8420

South Dakota

Fire Services Training
Jim Slippin
222 West Pleasant Drive
Pierre, South Dakota 57501
(605) 773-3876

Tennessee

Chattanooga State Technical Community College
Fire Science Department
Leslie Owen
4501 Amnicola Highway
Chattanooga, Tennessee 37406
(615) 622-6262

Roane State Community College
Fire Science Department
William C. Marshals
Harriman, Tennessee 37748
(615) 354-3000

Shelby State Community College
Fire Science Department
Clem Weinrich
P. O. Box 22026
Memphis, Tennessee 28122
(901) 382-0504

University of Tennessee
Fire Science Department
Mike Solecki
Charlotte Avenue
Nashville, Tennessee 37219
(615) 251-1341

Walter State Community College
Fire Science Department
Ronald Lemke
Morristown, Tennessee 37814
(615) 581-2121

Texas

Del Mar College
Fire Science Department
E. E. Walters
Baldwin at Ayers
Corpus Christi, Texas 48404
(512) 881-6425

El Paso Community College
Fire Science Department
Gerald B. Money
6601 Dyer Street
El Paso, Texas 79904
(915) 778-7117

Galveston College
Fire Science Department
James Frazier
4015 Avenue "Q"
Galveston, Texas 77550
(713) 763-2661

Midland College
Fire Science Department
Mr. Mil Goodwin
3600 N Garfield
Midland, Texas 79701
(915) 684-7851

Odessa College
Fire Science Department
Mr. O. Nordmarken
P. O. Box 3752
Odessa, Texas 79760
(915) 337-5381, Ext. 238

San Antonio College
Fire Science Department
Mike Pickett
1300 San Pedro
San Antonio, Texas 78284
(512) 734-7311, Ext. 209

South Plains College
Fire Science Department
Mr. B. P. Robinson
2404 Avenue "Q"
Lubbock, Texas 79405
(806) 747-0576

Texas A & M University System
Engineering Extension Service
Fire Protection Training Service
David White
F. E. Drawer K
College Station, Texas 77843

Texarkana Community College
Social Science Division
Bob Bell
2500 N Robinson Road
Texarkana, Texas 75501
(214) 838-4541

Utah

Utah Technical College - Provo
Fire Science Department
Mr. G. D. Evans
1395 North 150 East
Provo, Utah 84601

Vermont

Southeastern Vermont
Emergency School
Fire Science Department
Mark B. Rivers, Director
P. O. Box 44
Brattleboro, Vermont 05301

Virginia

George Mason University
John M. Smith
4400 University Drive
Fairfax, Virginia 22030
(703) 323-2405

Temple Junior College
Fire Science Department
Mr. S. W. Churchill
2600 South First Street
Temple, Texas 76501
(817) -73-9961, Ext. 51

Tyler Junior College
Fire Science Department
R. T. Minter
Henderson Highway
Tyler, Texas 75701
(214) 593-4401

Vermont Fire Fighter's
Association
Walter Read
East Dorset, Vermont 05253
(802) 362-1369

J. Sargent Reynolds Community Dr.
College
Fire Science Department
George Kitchen
P. O. Box 12084
Richmond, Virginia 23241
(804) 264-3301

'est Virginia Northern Community College
·ire Science Department
Richard Sambuco
Wheeling, West Virginia 26003
(304) 233-4900

West Virginia State College
Fire Protection Technology
Mr. Gwinn
Institute, West Virginia 25112
(304) 766-3192

Wisconsin

Fox Valley Technical Institute
Fire Science Department
Charles Bavry
P. O. Box 2277
Appleton, Wisconsin 54911
(414) 739-8831

Gateway Technical Institute
Fire Science Department
Dr. Nevala
3520 30th Avenue
Kenosha, Wisconsin 53141
(414) 656-6900

Milwaukie Area Tech College
Fire Science Department
Robert L. Wolf
1015 North 6th Street
Milwaukie, Wisconsin 53203
(414) 278-6428

Moraine Park Tech Institute
Fire Service Training
Bob Bruce
235 N National
Fond du Lac, Wisconsin 54935
(414) 922-8611, Ext. 413

Northeast Wisconsin Tech Institute
Service Departmet
William T. Schrnidt
?740 West Mason Street
Green Bay, Wisconsin 54303
(414) 497-3003

Southwest Wisconsin Vo-Tech Fire Institute
Fire Service Department
Don Covert
Bronson Blvd.
Fennimore, Wisconsin 53809

Wyoming

University of Wyoming
Fire Science Department
Dr. E. G. Meyer
Laramie, Wyoming 82071

Northern Virginia Community College
ire Science Department
Robert L Smith
8333 Little River Turnpike
Annandale, Virginia 22003
(703) 323-3253

Tidewater Community College
Fire Science Department
Mr. A. B. Corley
1700 College Crescent
Virginia Beach, Virginia 23456
(804) 427-3070

Washington

L. H. Bates Vocational Tech Institute
Fire Science Department
J. F. Wilbert
1101 S. Yakima
Tacoma, Washington 98405
(206) 597-7257

Columbia Basin College
Fire Science Department
2600 N 20th Avenue
Pasco, Washington 99301
(509) 547-0511

Commission for Vocational Education
Fire Service Training
Edward Prendergast
Airdustrial Park, Bldg. 17,LS-10
Olympia, Washington 98504

Edmonds Community College
Fire Science Department
Gary Isham
Lynnwood, Washington 98036

Whatcom Community College
Fire Science Department
Barbara Merriman
5217 Northwest Road
ellingham, Washington 98225
(206) 676-2170

Yakima Valley College
Fire Science Department
P. O. Box 1647
Yakima, Washington 98907

West Virginia

Community College of Marshall University
Fire Science Technology Program
Larry Artrip
Huntington, West Virginia 25701
(304) 696-3646

Fairmont State College
Community College
Fire Science Program
Jack Clayton
Fairmont, West Virginia 26554
(304) 367-4000

Parkersburg Community College
Fire Science Department
Pat Alford
Parkersburg, West Virginia 26101
(304) 424-8290

Shepherd College
Fire Science and Safety
Tech
Dr. Howard Carper
Shepherdstown, West Virginia
25443
(304) 876-2511, Ext. 275

FEDERAL, STATE AND LOCAL GOVERNMENT AGENCIES OFFERING COURSES AND SEMINARS

The California Specialized Training Institute
Louis O. Giuffrida
Building 904, Camp San Luis Obispo
San Luis Obispo, California 93406
(850) 544-7100

Maryland Department of Transportation
State Aviation Administration
3rd, Floor Terminal Building
Baltimore - Washington International Airport
Baltimore, Maryland 21240
(301) 787-7086

Naval School Transportation Management
Commanding Officer
ATTN: Quota Control
Oakland, California 94625
(415) 466-5969

Port Authority of New York and New Jersey
Eunice C. Coleman
The World Trade Institute
1 World Trade Center - 55 FL
New York, New York 10048
(212) 466-3170

Ammunition School
DARCUM Ammunition Center
ATTN: SARAC-ASA
Savannah, Illinois 61074
(815) 273-8000

Joint Military Packaging Training Center
Ms. Elsie M. Clark
ATTN: DRXPT-A
Aberdeen Proving Grounds; MD 21005
(301) 278-5185

Colorado Training Institute
1001 East 62nd Avenue
Denver, Colorado
(303) 289-4891

Multnomah County
Office of Emergency Management
Myra Lee
12240 NE Glisan
Portland, Oregon 97230
(503) 255-3600

Sheppard Air Force Base
ATTN: STTC/TTGXT
William Speights
Sheppard AFB, Texas 76311
(817) 851-2075

State of North Carolina
Department of Insurance
Dawson Nethercutt
Fire and Rescue Services
Division
Raleigh, North Carolina 27611
(919) 733-2142

Department of Transportation
Transportation Safety
Institute
Mr. Gary Groman
Oklahoma City, Oklahoma 73125
(405) 686-4824

Academy of Advanced Traffic
Anthony Matero
One World Trade Center
New York, New York 10047
(217) 466-1980

CORPORATIONS AND OTHER BUSINESS WHICH OFFER COURSES

Academy of Advanced Transportation
Lee Thomas
One East Penn Square Building
Market and Juniper Streets
Philadelphia, Pennsylvania 19107
(215) 563-3061

J. T. Baker
Carol Morris
222 Red School Lane
Phillipsburg, New Jersey 08865
(201) 859-2151

Chemical Manufacturers Association
John Zercher
1825 Connecticut Avenue
Washington, DC 20009
(202) 328-4218

Dean Allard and Associates
Dean E. Allard, Sr.
P. O. Box 3128
Lynnwood, Washington 98036
(206) 771-1711

Federal Express
Rick Finney
P. O. Box 30167
Memphis, Tennessee 38130
(800) 238-5592

J. J. Keller & Associates, Inc.
Joe Nemecek
145 W. Wisconsin Avenue
Neenah, Wisconsin 54956
(414) 722-2848

National Fire Protection Assoc.
Education Technology Unit
470 Atlantic Avenue
Boston, Massachusetts 02210
(617) 482-8755

Ashland Chemical Co.
Walt Schneider
P. O. Box 2219
Columbus, Ohio 43216
(614) 889-3061

Center for Professional
Advancement
Talia Catering
P. O. Box H
East Brunswick, New Jersey
08816
(201) 249-1400, Ext. 200

Conrail
B. L. Swieringa
No. 6, Penn Center, Rm. 315
Philadelphia, Pennsylvania 19104
(215) 977-4559

ENSAFE
Environmental and Safety Design
Wendall Knight
P. O. box 34207
Memphis, Tennessee 38134
(901) 372-7692

Flying Tiger Line
Alan Hollander
Safety Department HO8
7401 World Way West
Los Angeles, California 90009
(213) 642-4082

Lyon Technology, Inc.
William P. Taggart
466 Mount Hope Avenue
Dover, New Jersey 07801
(201) 366-3200

Medical Services, Inc.
Brad Childs
2100 West 11th Avenue
P. O. box 2446
Eugene, Oregon 97402
(502) 485-2121

Operations Council
American Trucking Assoc., Inc.
Mr. Brent Grimes
1616 P. Street, NW
Washington, D. C. 20036
(202) 797-4537

Radiation Service Organization
Mr. Daniel Caulk
P.O. Box 419
Laurel, MD 20810
(301) 792-7444
(301) 953-2484 (Washington, D.C.)

Safety Systems, Inc.
Mr. Ronald G. Gore
P.O. Boix 8463
Jacksonville, Florida 32211
(904) 725-3044

Seaboard Coast Line
Industries, Inc.
Mr. Peter Gill, Manager
Hazardous Materials Control
500 Water Street
Jacksonville, Florida 32202
(904) 359-3587

Southern Pacific Trans. Co.
Mr. Robert Andre
One Market Street
San Francisco, California 94015
(415) 362-1212, Ext. 21563

Traffic and Distribution
Services, Inc.
Mr. Samuel L. Watts
1050 Waltham Street
Lexington, MW 02177
(617) 861-1830

Training Services, Inc.
Mr. Leonard J. Smith
130 Orient Way
Rutherford, New Jersey 07070
(201) 933-5880

Transportation Skills Program
Mr. Robert J. Keegan
320 W. Main Street
Kutztown, Pennsylvania 91530
(215) 683-5098

UNZ and Company
Mr. Fred Neuman
190 Baldwin Avenue
Jersey City, New Jersey 07306
(800) 631-3098
(201) 795-5400 NJ

Wein Air Alaska, Inc.
Marketing Training Dept.
Mr. Thomas L. Kenney
4100 International Airport Road
Anchorage, Alaska 99504
(907) 266-3608/3609

NOTE: The Organizations above offer both courses and seminars. Contact those organizations for scheduling and other details.

E. I. Dupont de Nemours
and Co., Inc.
Dr. Arthur C. Santora
Applied Technology Division
Clayton Building, Concord Place
Wilmington, Delware 19898
(302) 772-5998

National Agricultural
Chemicals Association
Director of Communications
Department of Communications
1155 Fifteenth Street, NW
Washington, D. C. 20005
(202) 296-1585

Video Systems Network, Inc.
Mr. Jerry Meisel, Regional Manager
12530 Beatrice Street
Los Angeles, California 90066
(213) 871-0677
800-421-6521

NOTE: The Organizations listed above offer training materials only.

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Hazardous Materials Management System
A Guide for Local Emergency Managers
Unclassified
Multnomah County Office of Emergency Management
July, 1981
99 Pages
Contract No. DCPA 01-79-C-0323 Work Unit No. 4521E

Purpose

The purpose for the development of this handbook is to provide a tangible guide to the local emergency manager for the development and implementation of a comprehensive system approach for dealing with hazardous materials incidents within a specific geographic area. It was written from the perspective that such a system is multi-disciplinary in nature and therefore it is essential that those involved identify, understand, and accept their individual roles within the concept of a team effort. The role of the local emergency manager is that of directing and coordinating developmental activities, monitoring the implementation of the system, and subsequently to, test and evaluate its progress. The roles of initial response, clean up, investigation, and regulatory enforcement are most appropriately handled by the public and private agencies with the technical expertise and mandated authority to do so.

Hazardous Materials Management System
A Guide for Local Emergency Managers
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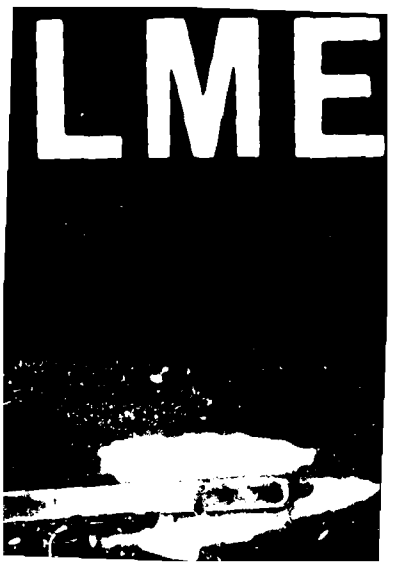
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