

CHAPTER II Operations
SUBJECT 3 Emergency Operations
TOPIC 20 Hazardous Materials

Rev. 1/90

A. SCOPE

Hazardous Materials incidents encompass a wide variety of potential situations including fires, spills, transportation accidents, chemical reactions, explosions, and similar events. Hazards involved may include toxicity, flammability, radiological hazards, corrosives, explosives, health hazards, chemical reactions, and combinations of factors. This topic provides a general framework for handling a Hazardous Materials incident, but does not address the specific tactic or control measures for a particular incident. Unless superseded by a specific part of this topic, all other Cincinnati Fire Division Procedures remain in effect for Hazardous Materials Incidents.

Neutralization site cleanup, and final decontamination are beyond the scope of the Cincinnati Fire Division and will be accomplished by the E.P.A. or other such agency.

B. OBJECTIVE

To outline the Cincinnati Fire Divisions, duties and responsibilities at a Hazardous Materials incident.

Goals: Save Lives

Prevent Injuries

Reduction of Property Loss

Restoration of Vital Services

C. SAFETY

1. Wear full protective clothing including SCBA. (Squad 52 personnel and/or other members as assigned will use chemical protective clothing appropriate for the hazard involved).

C. SAFETY (continued)

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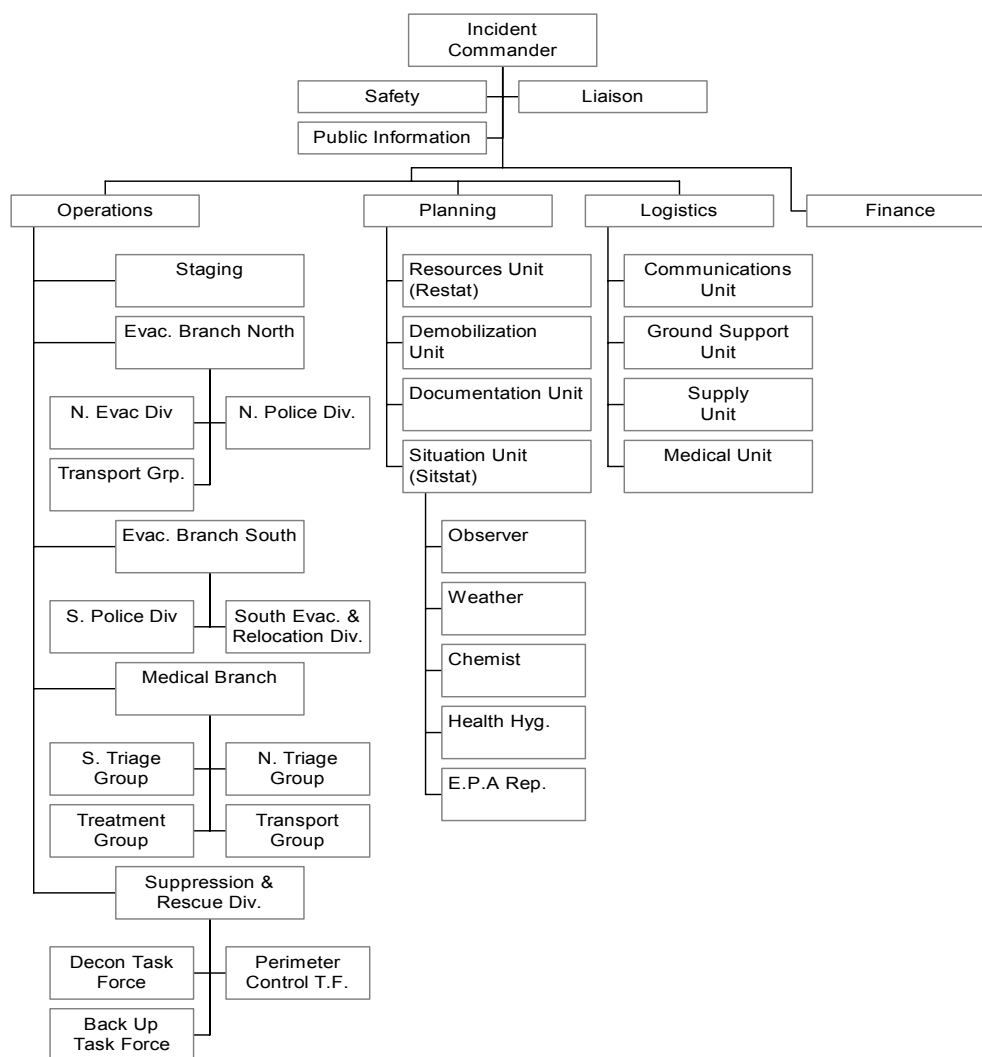
2. Action taken prior to determining the product involved may be wrong and may compound the problem. A wrong decision, while working with hazardous materials, can be worse than no decision, and may place personnel at unnecessary risk.
3. Limit personnel or apparatus commitment to immediate rescue until the following is known:
 - Name and/or type of material(s) involved.
 - Amount and size of container(s).
 - Characteristics of material(s).
 - Problem (leak, spill, fire, etc.).
4. The first arriving unit must consciously avoid committing itself to a dangerous situation. Stop to assess any visible activity taking place, evaluate the effects of wind, topography, and location of the situation. Approach from upwind direction if at all possible.
5. All other units to stage until instructed to take specific action. Placing apparatus so it can provide a quick means of escape if necessary. Do not drive apparatus into the red zone.
6. Sometimes a non-attack mode is the best approach to a hazardous materials incident. A fire in any of the following materials should signal a non-attack mode and immediate evacuation of the surrounding area:
 - Explosives
 - Oxidizers
 - Organic Peroxides
 - Poison - A
 - Unstable or Reactive

D. ESTABLISHING COMMAND

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Command must be established, and will follow the Incident Command System (202.01) utilizing Staff as necessary. Below is an example of an Incident Command System Organization Chart.

Incident Command System



D. ESTABLISHING COMMAND (CONTINUED)

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The Planning and Logistics Officers will have duties similar to any other emergency, as will the Information and Liaison Officers. However, the duties of the Safety Officer and Medical Officer will be somewhat different.

E. SAFETY OFFICER

The Safety Officer is responsible for the establishment of Zones - Red, Yellow, and Green (if they are not established), to assure that everyone working at the scene is properly protected and to supervise decontamination operations.

F. MEDICAL OFFICER

The Medical Officer is the member in charge of the first arriving Paramedic Unit, and must take charge until relieved. This first arriving unit should not leave the scene of a disaster, but should handle triage immediately and escalate medical response as required. See 204.02 (Mass Casualties) for more information, should the Hazardous Materials Incident involve Mass Casualties.

Duties of the Medical Officer include:

1. Evaluate (size up) the extent of the medical emergency including probable escalation.
 - a. Number of victims.
 - b. Extent and type of injuries.
 - c. To what materials have the victims been exposed.
 - d. Should victims be moved and/or decontaminated prior to medical treatment and/or transportation.
2. Establish triage and transfer area within the Yellow Zone.

If the Yellow Zone has not been established, set up operations upwind and well away from the actual area of contamination, until the Yellow Zone is established. Choose alternate area/s, should the wind change direction or the incident escalate.

G. EMERGENCY RETREAT

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In the event that an immediate withdrawal (retreat) of forces becomes necessary, the following emergency message will be transmitted on all Cincinnati Fire Division Radio Channels. "Emergency, all units at (location) retreat", repeat 5 times. Also, an apparatus located near the will signal the retreat in using ten (10) 3 second blast on the apparatus air horn.

H. OPERATIONS

Primary responsibility will be control and/or containment, neutralization, dilution, removal of all ignition sources, and bringing the leak or spill to a safe resolve with minimum exposure to personnel.

When toxic or irritant vapors are being carried downwind, it MAY be most effective to keep everyone indoors with windows and doors closed to prevent contact with vapors instead of evacuating the area. In these cases, companies would be assigned to patrol the area assisting citizens in shutting down ventilation systems and evacuating persons with respiratory problems. The Incident Commander will decide when this is applicable.

In some cases it may be advantageous to use non-Fire Division personnel to evaluate hazards and/or perform certain functions for which they would have particular experience or ability. When such personnel are using SCBA, chemical entry suits, etc., they must be made aware of the functions, limitations, and safety precautions necessary in their use. Squad 52 personnel, using compatible protection, must closely monitor and accompany such personnel.

I. SELECT AN OBJECTIVE

Evacuate and Withdraw (Police evacuate outer area - Fire Division immediate area)

Rescue

Exposure protection

Containment

Extinguish

Temporary holding action until evacuation complete

Control

I. SELECT AN OBJECTIVE (continued)

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The following actions may require consideration at any Haz- Mat incident. (Not all will be significant at any particular incident.)

1. Cooling Containers
 - a. Use adequate water supply
 - b. Apply heavy streams to vapor space
 - c. Use unmanned streams if possible
 - d. Use natural barriers to protect personnel
2. Remove Uninvolved Materials
 - a. Move individual containers
 - b. Move tank cars away from flame
 - c. Cool containers before moving
3. Stop the Leak
 - a. Close valves
 - b. Place plug in openings
 - c. Place container in upright position
 - d. Use water spray to approach leak
 - e. Cover particulate materials with plastic or other suitable material
4. Apply Diluting Spray or Neutralizing Agent
 - a. Dilute water-soluble liquids
 - b. Flush corrosives to reduce danger
 - c. Use spray streams to absorb vapor
 - d. Use water with caution as some materials are water reactive
 - e. Reduce vapor production with foam
5. Construct Dams, Dikes or Channels
 - a. Direct running liquid away from exposures
 - b. Control run off from corrosive materials
 - c. Use sand or dirt
 - d. Collect in temporary ponds, made with diking materials
 - e. Keep contaminants out of sewers and/or waterways

I. SELECT AN OBJECTIVE (continued)

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6. Remove Ignition Sources
 - a. Start down wind
 - b. Eliminate all sources of heat, spark, friction
7. Call for Additional Resources when their need is only anticipated. The action taken in the first few minutes of an incident affects the outcome more than any other single factor.

J. ESTABLISH ZONES

RED ZONE (contaminated area)

1. Limit entry to personnel who are adequately protected and to as few people as necessary for objective.
2. Use red Barrier Tape to delineate.
3. Establish Control Point.

YELLOW ZONE (area immediately surrounding contaminated area)

1. Triage and Transfer area
2. Contaminated civilian assembly area
3. Limited Equipment Staging area
4. Decontamination area
5. Use Yellow Tape to delineate
6. Entry and Exit Routes should be established

GREEN ZONE

1. Command Post (Communications Van)
2. Staging area
3. Support equipment from other agencies
 - a. Police
 - b. Other City Departments
 - c. Cincinnati Gas & Electric
 - d. Cincinnati, & Suburban Bell Telephone
 - e. Other Agencies as required

NOTE: Squad 52 and all District Chief's carry red and yellow barrier tape.

K. ISOLATION AND EVACUATION

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ISOLATION

Keep everybody away from the hazard area if not directly involved with the emergency response or rescue operation. Do not let unprotected people into the area. Conduct any rescue operations as quickly as possible entering the scene from the upwind approach. This "isolate" step is the first to be taken even if "evacuation" is to follow.

During the isolation stage of a hazardous materials incident, the Fire Division will perform any NECESSARY duties in the immediate hazard area. The Cincinnati Police Division will assist in isolation; however, they are not equipped with protective clothing. Therefore, their main function will be traffic control and preventing unauthorized persons from entering the hazard area.

*The Model Response Guide from the Hamilton County Disaster Council was used extensively in developing this appendix.

Keep unnecessary people from entering contaminated area.

Assemble for further examination, anyone who may have had contact with the material. (In yellow zone if established).

Avoid cross contamination with other victims, EMT's and Fire Fighting personnel.

EVACUATION

Remove all people from area and buildings for the distance required. Good judgement must be used in evacuation procedures to avoid placing people in greater danger. In some cases, it may be advisable to leave people inside structures while securing the ventilation system. The key to successful evacuation is a systematic notification and removal of occupants.

1. Since Police and Fire share concurrent responsibility in evacuation situations, the agency charged with the primary role (Fire in Hazardous Material Incidents) will determine the need and whether one or both agencies will participate.

K. ISOLATION AND EVACUATION (continued)

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2. Develop Evacuation/Search Plan
 - a. Select initial evacuation area and evacuation collection point(s).
 - b. Utilize maps and fix responsibility for search groups.
 - c. Designate responsibility for specific areas to individual supervisors and assign personnel in numbers appropriate to the need.
 - d. Utilize chalk marking system for structures to indicate and assure complete search.
3. Evacuation Notification/Warning
 - a. Notify occupants of:
 1. Reason for the evacuation.
 2. Best available route(s) out of the affected area.
 3. Location of Evacuation Relocation Collection Point(s).
 - b. Use public address systems on Police and Fire vehicles.
 - c. Sound sirens on vehicles or use air raid siren to alert residents.
 - d. Door to door notification. (Generally this phase will be accomplished at the same time search teams go through the area).
 - e. Use of Electronic News Media via Cincinnati Police Teletype System.
4. Provide for transportation using the following as available:
 - Private Vehicle
 - Metro Buses
 - School Buses
 - Taxi Cabs
 - Police, Fire, other Automotive Equipment
 - On Foot
 - See Notification and Request For Assistance
 - Transportation Resources, 203.200, pages 23 & 24

K. ISOLATION AND EVACUATION (continued)

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5. Relocation Assistance:

- a. Coordinate with the American Red Cross
- b. Use Crisis Relocation Centers during incidents of extended duration.

Evacuation is a continuation of the isolation stage. Evacuation can involve one to three phases.

Phase 1 (Initial Evacuation)

Evacuate occupants to an initial evacuation area. These area/s are located out of immediate danger. People are collected for short periods of time, weather permitting up to six hours. Attempt to account for all affected people.

Phase 2 (Crisis Relocation Collection Point)

In the event the incident continues or it is obvious from the beginning, the incident will continue for an extended period of time, people should be moved to an evacuation collection point. During this phase, people are collected at central location/s away from the initial evacuation area. An attempt should be made to make a complete accounting for people.

Crisis Relocation Point

This is the location where the general population can be immediately moved out of harm's way without previous notification for a limited time in order to coordinate their movement to a relocation center with more permanent resources and facilities.

Classification of Crisis Relocation Collection Points

Class I

- A Inside Shelter
- B) Parking Space Capability
- C) Ingress and Egress
- D) Security Capability
- E) Traffic Flow Capability
- F) Capability for Command Post, Registration, Medical Station, PublicInformation Station
- G) Food Supply
- H) Gas Supply, Towing

I) Essential Supplies (Tools, Hardware, Bedding, Etc.)

K. ISOLATION AND EVACUATION (continued)

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Class II

Class A) Inside shelter but lacking one or more of the requirements for
I.

Class III

A) All of Class I except:
No inside shelter
No gas, food, or essential supplies

Crisis Relocation Points - DesignatedName Parking Spaces

Class I

Beechmont Mall	2,700
Eastgate Mall	3,800
Kenwood Mall	2,600
Northgate Mall	5,000
Tri-County Mall	5,000

Class II

Riverfront Stadium
Riverfront Coliseum
Convention Center
Cincinnati Gardens
K-Mart Stores
Central Hardware
Van Leunen's
University of Cincinnati
Xavier University
Mt. St. Joseph
Eden Park
Mt. Airy Forest
Carthage Fairgrounds
Winton Woods
Miami Whitewater Forest
Sharon Woods
Del-Fair Shopping Center
Delhi Shopping Center

K. ISOLATION AND EVACUATION (continued)

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Greenhills	
Hyde Park Plaza	
Kenwood Plaza	2,600
Milford Plaza	
Northland Shopping Center	
Norwood Plaza	
Princeton Plaza	
Promenade Plaza	
St. Bernard Plaza	
Surrey Square	
Swifton	4,000
Union Terminal	2,000
Western Woods	
Western Hills	2,800
Brentwood Shopping Center	1,000
Cassinelli Square Center	1,800
Hills Shopping Centers	
<u>Class III</u>	
Dillonvale Shopping Center	350
Milford shopping Center	700
Ashtree Shopping Center	900

Notify Incident Commander of Crisis Relocation Collection Points.

See Notification and Request For Assistance American Red Cross 203.20, page 24 and 25.

Phase 3 (Crisis Relocation Center)

This phase is used only when people are displaced for an extended period of time (usually 24 hours or more).

Crisis Relocation Center

This is the location where the general population will be housed, fed and provided community support due to an emergency situation requiring displacement from their normal community habitat.

L. IDENTIFICATION

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Occupancy Location
Pre-Plans
Right To Know
Container Shapes
Markings/Colors
Placards and Labels
Shipping Papers
Senses

M. HAZARD OF SPECIFIC MATERIAL

DOT Response Guide
Hazardous Materials Library carried by District Chiefs
Hazardous Materials Library carried by Squad 52
CHEMTREC (1-800-424-9300)
Aid from manufacturer or others responsible for material.

N. DECONTAMINATION

All personal protective equipment must be decontaminated before reuse. If it cannot be decontaminated, it must be disposed of in accordance with state and federal regulations.

The decontamination area shall be in the yellow zone immediately adjacent to the red zone.

The most common decontamination is scrubbing with soap and water.

Personnel performing decontamination must be equipped with adequate chemical protective clothing (carried by Squad 52).

Contaminated people should not leave the Yellow Zone, except where an immediate threat to life exists.

Attempt to contain contaminated water used in decontamination.

Isolate and contain contaminated clothing and equipment.

Neutralization site cleanup, and final decontamination are beyond the scope of the Cincinnati Fire Division and will be accomplished by the E.P.A. or other such agency.

O. NOTIFICATION & REQUEST FOR ASSISTANCE

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A. INTERNAL

1. Special Equipment
2. Extra Alarms, Hazardous Material Emergency, or both
3. Other City Departments
4. City Manager Disaster Team

B. EXTERNAL

1. Hamilton County Emergency Operations Center.
2. Ohio EPA (EPA will notify other State agencies). See Appendix "D" for list of State Departments and possible aid. If you want assistance from a State Agency, it must be requested; a notification will not necessarily secure State Agency Assistance.
 3. U.S. Coast Guard - National Response Center (1-800-424-8802).
 4. Private Sector
 - a. Manufacturer
 - b. Transporter
 - c. Special Teams
Railroad Wreck Crews (call Railroad Dispatcher)
Monsanto Merit Team (467-2400)
Mats Team (721-2345) Academy of Medicine
 - d. Others

NOTIFICATIONS - LOCAL STATE AND FEDERAL AGENCY ASSISTANCE

The Fire Chief shall be in charge of the incident until such time that he relinquishes that authority.

O. NOTIFICATION & REQUEST FOR ASSISTANCE (continued)

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A notification and a request for agency assistance is not the same. If agency assistance is required, state who and what is needed.

A. Notification

Local Agencies:

Cincinnati Police & Fire 911

Metropolitan Sewer District 352-4800 - (24 hour number).

Cincinnati Board of Health 352-3197 - weekdays (0800-1700). 721-2345 outside normal work hours or through Fire Alarm Dispatcher.

Cincinnati Building Department - go through Fire Alarm Dispatcher, they have unlisted telephone number.

Cincinnati Public Works 352-3371 - (24 hour number or through Fire Alarm Dispatcher).

Cincinnati Water Works 352-4626 - (24 hour number or through Fire Alarm Dispatcher).

Hamilton County Disaster Net 825-2260 - (Hamilton County Dispatcher) or through Fire Alarm Dispatcher.

State and Federal Agencies:

The Ohio Environmental Protection Agency (Ohio EPA) maintains a 24 hour emergency telephone number 1-800-282-9378, or through Fire Alarm Dispatcher. (See Ohio EPA Notice for more information). The Ohio EPA must be notified of a Hazardous Materials Incident. They will then notify all other State and Federal Agencies with an interest in the situation.

When notified of an incident, the agencies decide whether to respond or not.

O. NOTIFICATION & REQUEST FOR ASSISTANCE (continued)

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B. Request for assistance - State and Federal Agencies

Most State and Federal Agencies, including the Ohio EPA, have resources and are willing to lend assistance.

When requesting assistance, specifically request the agency and type of help. The Ohio EPA will request assistance from other Federal or State Agencies, however, requests for assistance or information are best done from the scene directly to the agency.

Listed are State and Federal Agencies that are frequently called during hazardous materials incidents.

OHIO ENVIRONMENTAL PROTECTION AGENCY - 1-800-282-9378

(24 hour number)

The EPA is particularly concerned with hazardous materials incidents which involve one or more of the following conditions:

- a. Release of toxic fumes or runoff which threatens the public health or safety.
- b. The air, water, or lands of the state could be adversely affected.
- c. A public water supply, sewage treatment system or water disposal site could be adversely affected.

In the event the hazardous materials incident does not involve fire or explosion, the potential for fire or explosion, or radioactive materials, EPA will assume the State primary role for coordinating activities of State Agencies, supported by State Fire Marshal, DSA and other State Agencies as appropriate (Department of Health, Department of Agriculture, Department of Natural Resources). If the fire or explosion potential is greater than the environmental hazards, as determined by the Director of EPA or his authorized representative(s), the EPA will assume an advisory role to the State Fire Marshal until the threat of fire or explosion subsides. EPA will support the other agencies when not employed in a primary role and will provide advice, monitoring and coordination of the removal, neutralization and/or disposal of hazardous materials from the incident site.

O. NOTIFICATION & REQUEST FOR ASSISTANCE (continued) Rev. 1/90

OHIO DISASTER SERVICES AGENCY (DSA) - (614)-889-7150

In hazardous materials incidents involving radioactive materials, Ohio Disaster Services Agency (DSA) will assume the primary State role for coordinating activities of the other State Agencies. In incidents not involving radioactive materials, DSA will support the State Fire Marshal and EPA. Except, that local authority will maintain control until arrival of State Representative.

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) National Response Center -800-424-8802 (24 hour number)

The National Response Center serves as notification center for pollution incidents in U.S. waters. It is located at the U.S. Coast Guard Headquarters in Washington, D.C. and is staffed by Coast Guard personnel. The National Response Team is composed of representatives of primary and advisory agencies. The National Response Team is responsible for planning and response activities at the national level.

United States Nuclear Regulatory Commission - 312-932-2500.

This notification will normally be made by the Cincinnati Board of Health.

United States Coast Guard - Cincinnati -684-3295 (24 hour number).

The National Response Center will notify the local office; however, it is possible to call direct and ask for assistance.

In case of any accidental or unauthorized release of contaminants to the air, land, or waters of the state, such spills, releases, or emissions shall be reported to the Ohio EPA.

O. NOTIFICATION & REQUEST FOR ASSISTANCE (continued) Rev. 1/90

The Ohio EPA EMERGENCY RESPONSE maintains 24 hour service for emergencies.

CALL:

1 - 800 - 282-9278

(IN OHIO ONLY)

and give as much as possible of the following information relative to the contaminate release:

TIME OBSERVED

LOCATION

MATERIAL RELEASED

PROBABLE SOURCE

VOLUME & DURATION

PRESENT & ANTICIPATED MOVEMENT OF CONTAMINATES

WEATHER CONDITIONS

PERSONNEL ON SCENE

ACTIONS INITIATED

PERSON TO CONTACT ON SCENE

For inquiries other than emergencies call (614) 466-8565

STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

ADDITIONAL RESOURCES

The incident commander will be responsible for requesting equipment as needed. In large scale incidents, where the logistics officer position has been filled, he will request or provide standby for the needed equipment.

Cincinnati Police

Manpower and vehicles to assist in isolation especially in securing the area and traffic control.

Manpower and vehicles to assist in evacuation of areas.

Manpower and vehicles to transport victims as prioritized by the Medical Officer.

O. NOTIFICATION & REQUEST FOR ASSISTANCE (continued)

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Direct communications with the news media via teletype.

Note: Police Officers are not equipped with personal protective clothing or respiratory protection, therefore, they cannot enter areas already effected by toxic or anoxic materials.

Note: The highest ranking Police Officer on the scene will report to the Command Post.

Cincinnati Public Works Department Highway Maintenance 352-3371

Primary agency providing construction type equipment used to build dikes, dams, ditches or other means of containment. The Highway Maintenance Division does provide limited manpower on a 24 hour basis. Highway Maintenance also maintains a recall system that is used regularly during snow emergencies.

Below is a list of equipment available from Highway Maintenance:

15	trucks dump tandem 38,000 lbs. net
50	trucks dump 14,500 lbs. net
66	spreader attachments
54	truck mounted snow plows
23	4 wheel drive units
9	loaders rubber tired
2	loaders track
1	hoist trucks 6 tons
2	generators 2,750 watts
4	generators 1,750 watts
5	pumps centrifugal 2"
2	power flushers 2,000 gallons
2	sweepers mechanical
3	backhoes rubber tired
10	chain saws
4	circular saw gasoline
1	bob cat with attachments
2	welding trucks
1	fuel supply truck 1,500 gallons
1	tractor and drag 35 ton
3	vac-alls

O. NOTIFICATION & REQUEST FOR ASSISTANCE (continued)

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8 air compressors
1 fork lift 4 ton
traffic control aids
rope and barricades

Note: Highway Maintenance Personnel are not equipped with personal protective clothing or respiratory protection, therefore, they cannot enter areas already effected by toxic or anoxic materials.

Telecommunications

The Telecommunications Division has the following equipment available for our use:

1 - work truck with 35' aerial bucket
3 - 10' window vans with 25' aerial bucket
3 - 10' window vans
2 - multi purpose heater, blower, generator, pumps
1 - generator 30 AMP
1 - wood chipper used as a blower
2 - 85 GPM sump pumps
1 - 60 CFPM blower
1 - stake body truck with 12' flat bed

Various shovels, picks, etc. Facilities to establish on site private land line communications independent of the communications van capabilities. (connect command posts with constant communications)

Note: Tele-comm. Personnel are not equipped with personal protective clothing or respiratory protection, therefore, they cannot enter areas already effected by toxic or anoxic materials.

Public Works Waste Collection 352-3690

The Waste Collection Division does have manpower and equipment available, but not on an emergency call basis such as Highway Maintenance. Below is a list of equipment available from Waste Collection.

1 - rubber tired bobcat loader
2 - roll-off container trucks ("Dino")
10 - roll-off containers (25 and 30 cubic yards)

O. NOTIFICATION & REQUEST FOR ASSISTANCE (continued)

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- 3 - dump trucks with lift gates
- 69 - rear-loader compactor trucks
- 7 - front-loader compactor trucks

Note: Waste Collection Personnel are not equipped with personal protective clothing or respiratory protection, therefore, they cannot enter areas already effected by toxic or anoxic materials.

PUBLIC WORKS - TRAFFIC ENGINEERING

The Traffic Engineering Division has the following equipment available with the necessary operators.

- 4 - bucket trucks single 40'
- 3 - bucket trucks, double 30'
- 1 - bucket truck, double 65'
- 1 - Van/bucket
- 1 - backhoe rubber tired
- 1 - forklift
- 2 - truck derrick
- 2 - electric generators
- 2 - platform trucks
- 2 - trucks dump 14,500 net
- 2 - trailers utility
- 1 - trailer, pole
- 2 - air compressor

Note: Public Works Personnel are not equipped with personal protective clothing or respiratory protection, therefore, they cannot enter areas already effected by toxic or anoxic materials.

Cincinnati Health Department

Primary support agency in radiation incidents. The Health Department has radiological dosage and rate meters. They also have personnel available to use the equipment and evaluate the health hazards.

The Health Department also provides inspection of food and sanitation facilities at Crisis Relocation Collection Points and Crisis Relocation Centers during any prolonged evacuation.

O. NOTIFICATION & REQUEST FOR ASSISTANCE (continued)

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Note: Health Department personnel are not equipped with personal protective clothing or respiratory protection, therefore, they cannot enter areas already effected by toxic or anoxic materials.

Cincinnati Water Works 352-4623

The Cincinnati Water Works has manpower and equipment available on an emergency basis as listed below.

- 20 - dump trucks 14, 500 net
- 2 - dump trucks tandem 38,000 net
- 1 - loader rubber tired
- 1 - hoist truck mounted 9 tons
- 1 - crane rubber tired 22 tons
- 8 - backhoes rubber tired
- 2 - welders truck mounted
- 2 - welders trailer mounted
- 19 - air compressors
- 14 - generators 1,750 watts
- 40 - pumps centrifugal 2"
- 4 - pumps diaphragm 4"
- 2 - pumps centrifugal 4"
- 2 - pumps centrifugal 3"
- 10 - saws circular gasoline
- 4 - saws chain
- 1 - light tower 15' w/2 1,000 watt
- 6 - fork lift 4-8 ton capacity

The Water Works can aid in increasing water flows where necessary. The Water Works should be notified immediately in cases where an incident may disrupt or contaminate water supplies.

Note: Water Works Personnel are not equipped with personal protective clothing or respiratory protection, therefore, they cannot enter areas already effected by toxic or anoxic materials.

O. NOTIFICATION & REQUEST FOR ASSISTANCE (continued)

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Metropolitan Sewer District

The MSD must be notified when hazardous materials enter or are likely to enter the sewer system. MSD has the following equipment available.

- 24 - dump trucks 14,500 lbs. net
- 6 - backhoes rubber tired
- 1 - tractor and drag 35 ton
- 6 - drags tilt 12 ton
- 1 - crane truck mounted 40 ton
- 1 - crane crawler 20 ton
- 1 - crane rubber tired 15 ton
- 2 - hydraulic truck cranes 12 - 15 ton
- 1 - bulldozer with wench
- 2 - loaders track
- 1 - loader rubber tired
- 5 - chain saws
- 6 - pumps 3"
- 8 - pumps 6"
- 6 - pumps 2"
- 12 - generators

Note: Metropolitan Sewer District Personnel are not equipped with personal protective clothing or respiratory protection, therefore, they cannot enter areas already effected by toxic or anoxic materials.

Transportation Resources

1) QUEEN CITY METRO

24 hour number: 632-7550
632-7551
632-7552

2) TRANSPORTATION AUTHORITY OF NORTHERN KENTUCKY (TANK)

24 hour number: 331-8406

3) GREYHOUND BUS LINES

352-6071

24 HOUR NUMBER:

4) JOSEPH L. HAMILTON
ARLINGTON HEIGHTS

24 hour number: 761-6100
761-3413

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5) KUTZ SCHOOL BUS

SALEM ROAD

24 hour number: 231-2200

769-3980

6) KLUG SCHOOL BUS

1053 EBENEZER ROAD

941-3232

7) TAXI CABS

Center Dispatching for four (4) companies:

Checker

Yellow

Parkway

East

24 hour number:

241-2100

8) CENTER CAB COMPANY

24 hour number: 761-5007

9) BRADY CAB COMPANY

24 hour number: 631-9154

10) READING TATMAN

24 hour number: 821-2066

948-9783

American Red Cross 579-3000 (24 hour number)

Early notification is the key to effective response and the ability of the Red Cross to assume responsibility for persons evacuated from a hazardous situation. Red Cross endeavors to maintain lists of shelters in the area and stands ready to respond 24 hours per day. Early notification prior to an evacuation (if time permits) will allow Red Cross evacuation of the affected population.

Red Cross has been designated the primary agency with responsibility for mass care (shelters and feeding). FEMA recognizes the Red Cross' responsibility: "The Red Cross will operate appropriate shelter facilities and arrange for mass feeding and other appropriate support. (Crisis Relocation Center) FEMA will not reimburse state or local governments for mass care costs..."

O. NOTIFICATION & REQUEST FOR ASSISTANCE (continued) Rev. 1/90

Canteen Service will be available to the command post and field units.

The Red Cross emergency lighting system will be available to the emergency services. Portable generators and lights can be operated by emergency workers at the accident site, as Red Cross volunteers are not trained, nor equipped for working in hazardous materials danger zones.

Drug & Poison Information Center (24 hour number) 558-5117

The Cincinnati Drug and Poison Information Center will provide the following emergency response information.

1. The degree of hazard.
2. Risk assessment information concerning the community and environment.
3. Treatment and Decontamination information.

Greater Cincinnati Hazardous Materials Control Committee telephone numbers are: Paul Fultz - 874-3440 and Bob Long - 271-2468

This organization is made up of local companies who handle large quantities of hazardous materials. Most of the companies in the organization are located in close proximity to the Ohio River. The Haz Mat Control Committee has equipment for containing and controlling hazardous materials especially leaks entering waterways.

Storage location: 3117 Southside Avenue

Equipment available:

- 1 - 24" skimmer w/4 cycle non-shielded gasoline engine
- 4 - 50' lengths skimmer discharge hose
- 11 - skimmer hose floats
- 3 - skimmer hose connectors - straight w/clamps
- 8 - skimmer hose connectors - 450 ells w/clamps
- 2 - 100' sections Acme boom w/quick connects
- 2 - 50' sections Acme boom w/quick connects
- 4 - 10' sections absorbent boom
- 10 - Bags loose absorbent
- 2 - Marker drums for securing anchor and boom

O. NOTIFICATION & REQUEST FOR ASSISTANCE (continued) Rev. 1/90

1 - Hand operated siphon pump

1 - 4.5 KW portable electric generator, w/4 cycle non-shielded, gasoline engine

Monsanto Emergency Response Information Teams (Merit) -telephone number 467-2400

Is available with equipment and expertise and will respond on request.

Equipment available:

Drager tubes

Vapor tester

Oxygen analyzer

Drum patching materials

Drum pump

Vapor foam

H nu pho-ionizer organic vapor tester

Portable Ph meter

Glove and protective gear compatibility charts

Chemtrec 1-800-424-9300

CHEMTREC stands for Chemical Transportation Emergency Center, a public service of the Chemical Manufacturers Association, with offices in Washington, D.C.

CHEMTREC provides immediate advice for those at the scene of emergencies, then promptly contacts the shipper of the chemicals involved for more detailed assistance and appropriate follow up.

CHEMTREC operates around the clock -- 24 hours a day, seven days a week -- to receive direct-dial toll-free calls from any point in the continental United States through a wide area telephone service (WATS) number, 800-424-9300.

O. NOTIFICATION & REQUEST FOR ASSISTANCE (continued) Rev. 1/90

An emergency reported to CHEMTREC is received by the communicator on duty, who records details in writing and by tape recorder. The Communicator then attempts to determine the essentials of the problem. This is to enable him to provide the best available information on the chemical(s) reported to be involved, thereby giving specific indication of the hazards and what to do (as well as what not to do) in case of spills, fire, or exposure as the immediate first steps in controlling the emergency. Information on the various chemicals, as furnished by the producers, is within easy reach. Trade names and synonyms of chemical names are cross-referenced for ready identification by whatever name is given.

CHEMTREC's Communicators are not scientists. They are chosen for their ability to remain calm under emergency stresses. To preclude unfounded personal speculation regarding a reported emergency, they are under instructions to abide strictly by the information prepared by technical experts for their use.

Although proceeding to the second stage of assistance (contacting the shipper) becomes more difficult where the shipper is unknown, the Communicator is armed with other resources to fall back on. For example, concerning radioactive materials, CHEMTREC can call on the Department of Energy.

CHEMTREC is also responsible for notifying the Pesticide Safety Team Network (PPTN.) if response by their team is indicated.

National Response Team

The National Response Team will respond to large scale emergencies with a fully equipped team and backed by private cleanup contractors funded through the Superfund.

An important immediate resource is the information available through the "Oil and Hazardous Materials - Technical Assistance Data Systems" (OHM-TADS).

O. NOTIFICATION & REQUEST FOR ASSISTANCE (continued) Rev. 1/90

OHM-TADS computer stores information about the properties of over 1000 substances and can help identify materials when given information about the physical characteristics of an unknown substance. OHM-TADS can be accessed through CHEMTREC.

P. FLAMMABLE AND/OR COMBUSTIBLE LIQUID INCIDENTS

The main operational problems with flammable liquids are:

Extinguishment

Ignition Prevention

Disposal of Spills

All of these may be involved in the same incident.

Spills must be protected to prevent ignition until they can be picked up or removed.

Unless absolutely necessary, personnel shall not work in a spill area. When it becomes necessary to enter a spill area to perform a rescue or control a leak, the spill must be covered with AFFF and all possible precautions against ignition must be taken. Attempt to determine hazardous area with the use of explosimeters. The number of exposed personnel must be kept to a minimum. Concentrated vapors are toxic, wear SCBA. Vapors from flammable liquids are heavier than air (vapor density > 1.0), will accumulate in low areas and/or move along ground possibly reaching an ignition source.

If flammable liquid/gas is leaking from burning tank car or cylinder keep clear of tank ends. If the whistling sound from the pressure relief valves on the tank becomes louder, evacuate area, explosion is imminent. (NOTE: it is not necessary to wait until whistling sound becomes louder if other conditions warrant immediate withdrawal). In the case of a tank fire, streams must be used to cool the vapor area of the tank (area above liquid level).

Do not extinguish cylinder fires unless shut-off can be effected.

Isolate spills by the use of dikes and absorbent materials.

P. FLAMMABLE COMBUSTIBLE LIQUID INCIDENTS (CONTINUED) Rev. 1/90

Unless immediate hazard to life is involved, any efforts to remove spill by flushing into any drainage system should be restricted. If a spill is flushed, it will have to be picked up downstream.

Q. NATURAL GAS INCIDENTS

Natural gas is much lighter than air (0.55 vapor density) and will dissipate rapidly outside. Inside buildings, however, it tends to pocket, particularly in attics and dead air spaces. The flammable limits are approximately 4.5% to 15% in air.

Burning natural gas should not normally be extinguished, since this changes the hazard from visible to invisible and creates an explosion hazard. Fires should be controlled by stopping the flow.

When responding to a possible gas leak approach as a potentially dangerous situation. A minimum number of personnel should be allowed to enter the area to size-up the situation using explosimeters.

Evacuate any civilians in the area of escaping gas.

Attempt to locate the source and any shut-off devices available.

In any gas leak situation within a building, control ignition sources, shut off electrical power from an outside breaker, and ventilate. The gas supply shall be shut off and red-tagged until repairs are completed.

Closing of main line valves shall be done by C. G. & E. employees only. Fire Division members may close a gas valve serving a building when necessary.

R. LPG INCIDENTS

Rev. 1/90

Do not commit personnel within 300 of tank ends.

If whistling from pressure relief valve becomes progressively louder, explosion is imminent. Use unmanned streams to cool vapor area of tank. Do not extinguish unless flow of gas can be shut-off. Use fog streams to protect personnel working to control flow of gas. Vapors are heavier than air.

S. TRANSPORTATION INCIDENTS

Transportation Incidents are often more difficult than those at fixed locations.

The product(s) involved may be unknown.

Placards may be missing or obscured by smoke and/or debris.

The driver may not be able to contribute information.

The vehicle may be damaged and/or in a peculiar position.

DOT placarding regulations cannot be relied upon up to 1,000 pounds of some Hazardous Materials do not require a placard, or combinations of products may be involved with only a "Dangerous" placard showing. Sometimes only the most evident hazard is identified, while additional hazards are not labeled. "Empty" placards may be misleading.

T. RADIOLOGICAL INCIDENTS

This procedure is for peace time radiological emergencies and does not specifically apply to nuclear warfare radiological contamination.

Actual cleanup and overhaul operations will not normally be a Fire Division function, although the Fire Division will be responsible for seeing that such operations are completed.

If there is no life hazard, rescue situation or fire, there is no reason to expose Fire Division personnel.

If the immediate commitment of personnel is necessary, Zone procedures shall be implemented to minimize exposure and contain the spread of contamination.

T. RADIOLOGICAL INCIDENTS (continued)

Rev. 1/90

Any commitment of personnel to the Red Zone shall include at least one survey instrument and dosimeter per team to monitor radiation hazard levels.

Treatment of Contaminated Patients:

Do not delay field treatment of injuries. Radiological contamination, itself, is not a medical emergency. Treatment of contaminated patients should proceed with the following precautions:

1. All contaminated patients should be placed in one Treatment Area, separate from non-contaminated patients, within the Yellow Zone perimeter.
2. Before transporting, all contaminated patients must be wrapped in blankets or sheets to completely cover them in order to limit the spread of contamination. Only the face should be left exposed.
3. Re-use of contaminated ambulance/rescue units for contaminated patient transportation may need to be considered. If all available vehicles become contaminated, they can be out of service for long periods of time awaiting decontamination.
4. Before personnel can be released from the scene, they must be decontaminated. All equipment used in patient treatment must also be decontaminated.

Treat radiological fires in the same manner as fires involving toxic chemicals. If the material is involved in fire consider evacuation of the nearby areas, avoiding exposure to smoke.

Radiation Emergencies

A radiation emergency is a hazardous materials incident and is to be handled as such.

T. RADIOLOGICAL INCIDENTS (continued)

Rev. 1/90

Protecting Emergency Response Personnel and the public are somewhat different, as are the roles of Local, State and Federal Agencies in a Radiation Emergency.

Isolate and Evacuate

Isolation and Evacuation in a Radiation Incident are much the same as in any other Hazardous Materials accident. The source and type of radiation determine the method of delineating the Red, Yellow, and Green Zones.

A. Radiation Source Emitting Rays

1. Zones are delineated by using the Survey Meters.
 - a. The Red Zone is the immediate danger area, detectable or suspected radiation exposure area.
 - b. The Yellow Zone will, if at all possible, be free of detectable radiation. However, in the case of a high yield source or nuclear detonation could be located in an area with a dose rate not exceeding 100MR.
 - c. The Green Zone will be beyond the Yellow Zone and beyond detectable Radiation Levels.
 - d. Victims and/or Emergency Response Personnel exposed to External radiation source rays do not present a cross contamination risk to Emergency Response Personnel.

Radiation in the form of contaminated dust or liquids

- A. The dispersion pattern will be the same as other hazardous gases, vapors, liquids, or solids. Contaminated materials will be in motion, with the direction determined by wind and topography.

T. RADIOLOGICAL INCIDENTS (continued)

Rev. 1/90

- B. Survey meters will aid in determining zones. Generally, any area where readings are obtained is considered the Red Zone should be expanded to include areas where contaminated materials are likely to spread.
- C. The Yellow and Green Zones will be established upwind, uphill, and beyond the Red Zone.
- D. Victims and/or Emergency Response Personnel exposed to smoke, dust or liquid DO PRESENT a definite cross contamination risk to Emergency Response Personnel.

Guidelines for Handling a Radiation Incident

1. Follow the procedures outlined in this subject.
2. If there is any indication or reason to believe that radioactive material is involved in a fire, accident or other emergency to which you respond, notify the Fire Alarm Dispatcher at once that Radiation Monitoring assistance is needed and make the best possible use of the Radiological Monitoring Equipment in the District Chief's car and Squad 52.
3. Segregate and retain those who have had possible contact with radioactive material until they can be examined further. Obtain names and addresses of those involved.
4. Remove injured from area of accident with as little contact as possible and hold at the Yellow Zone. Take any measures necessary to save life, but carry out minimal first-aid, and move victim just outside of the suspected contaminated area where first-aid work can be completed and victim turned over to Rescue Company for transportation to hospital. Rescue Company should make every effort to avoid contaminating themselves and their equipment. This can be done by having personnel in the area perform all work requiring contact with the victim and placing stretchers on uncontaminated surfaces. The rubber sheet used directly under the victim will help contain contamination and can be decontaminated more easily than woven material. A check with the radiation meter should be made, and will be of value if Gamma or Beta radiation is present. However, a negative meter

T. RADIOLOGICAL INCIDENTS (continued)

Rev. 1/90

indication should not be taken as conclusive evidence that there is no contamination unless it can be ascertained that there are no Alpha-emitting chemicals present. Squad 52 carries an Alpha Measuring Meter. Consider the use of a scout vehicle or police car for transportation as they would be easier to decontaminate.

In all cases of suspected or known contamination, the hospital must be notified in advance.

Do not take contaminated victims into hospital emergency rooms. University Hospital has a set procedure using a Radiation Safety Team and Radiation center in Pavilion J.

5. Upon arrival, the Health Commissioner or his representative will assume responsibility for the disposition of persons being retained or others who may have been affected.
6. After the initial emergency period has expired, the Health Department will assume responsibility for the supervision of the decontamination of any persons involved and not otherwise disposed of and the area and buildings affected. Clearance for reoccupation will be the responsibility for the Health Department.
7. The fear attendant on the word radiation, and the relatively few who really understand the health implications of any particular radiation exposure, make it imperative that the public be given accurate information which will not create unnecessary alarm.

The Health Department representative will be responsible for making the statements as to the seriousness and any other facts which are necessary for public dissemination. Persons making the initial response to the call will limit statements to the fact that radioactive materials are involved.

T. RADIOLOGICAL INCIDENTS (continued)

Rev. 1/90

The factors of Time, Distance, and Shielding are the primary means of protection from radiation, to take advantage of these protective factors, Emergency Response Personnel must first recognize that a radiation hazard exists by using monitoring equipment, looking for placards and labels, and knowing the businesses that have radiation sources on their premises.

The maximum exposure limit for Cincinnati Fire Division members is 25 Roentgens.

Literature from the Nuclear Regulatory Commission points out the fact that although high level Gamma radiation source material is shipped with all practical precautions and safety measures, there is always a possibility that such source of radiation could become involved in a serious fire that would destroy the shielding and expose fire fighters to high level radiation.

They estimate the shielding could be destroyed by 30 minutes exposure to severe fire temperatures.

Should a fire fighter closely approach a 2,000-Roentgen source of Gamma radiation, he would receive serious - if not fatal exposure. (Refer to Time, Distance and Dosage Charts.)

To prevent this, and because it is practically impossible to know each and every material involved, either during or after a serious fire, the Officer in charge will see that the radiation monitoring equipment carried in the District Chiefs car and Squad 52 is used to check for radioactivity in any fire in Commercial Carriers, Truck Depots, Warehouses, etc., that has been identified with a radiation placard.

The Chart on pages 41, 42, and 43 will aid you in understanding the application of the time and distance protective factors. Simply stated, the less time spent in the hazard area, the less exposure and the further away from the source, the less exposure.

T. RADIOLOGICAL INCIDENTS (continued)

Rev. 6/96

Shielding is very effective in the case of Alpha or Beta Radiation. With Gamma Radiation, shielding is usually considered impractical in emergency operations; however, staying behind an earthen wall or other such barrier, can be effective.

At least one person operating in each team in the Red Zone, must be equipped with a dosimeter. The Health Department has several dosimeters available for our use. Dosimeters are also carried in the District Chiefs car and Squad 52.

U. KNOWN RADIATION SOURCES

If anyone concerned has knowledge of additional sources, please report them to the Cincinnati Fire Department, Training Bureau, 352-2340.

The following is a list of radioactive materials stored or used inside the Cincinnati city limits. This list was compiled from the latest State of Ohio and Cincinnati Health Department radiation registration. The list is in alphabetical order by company name:

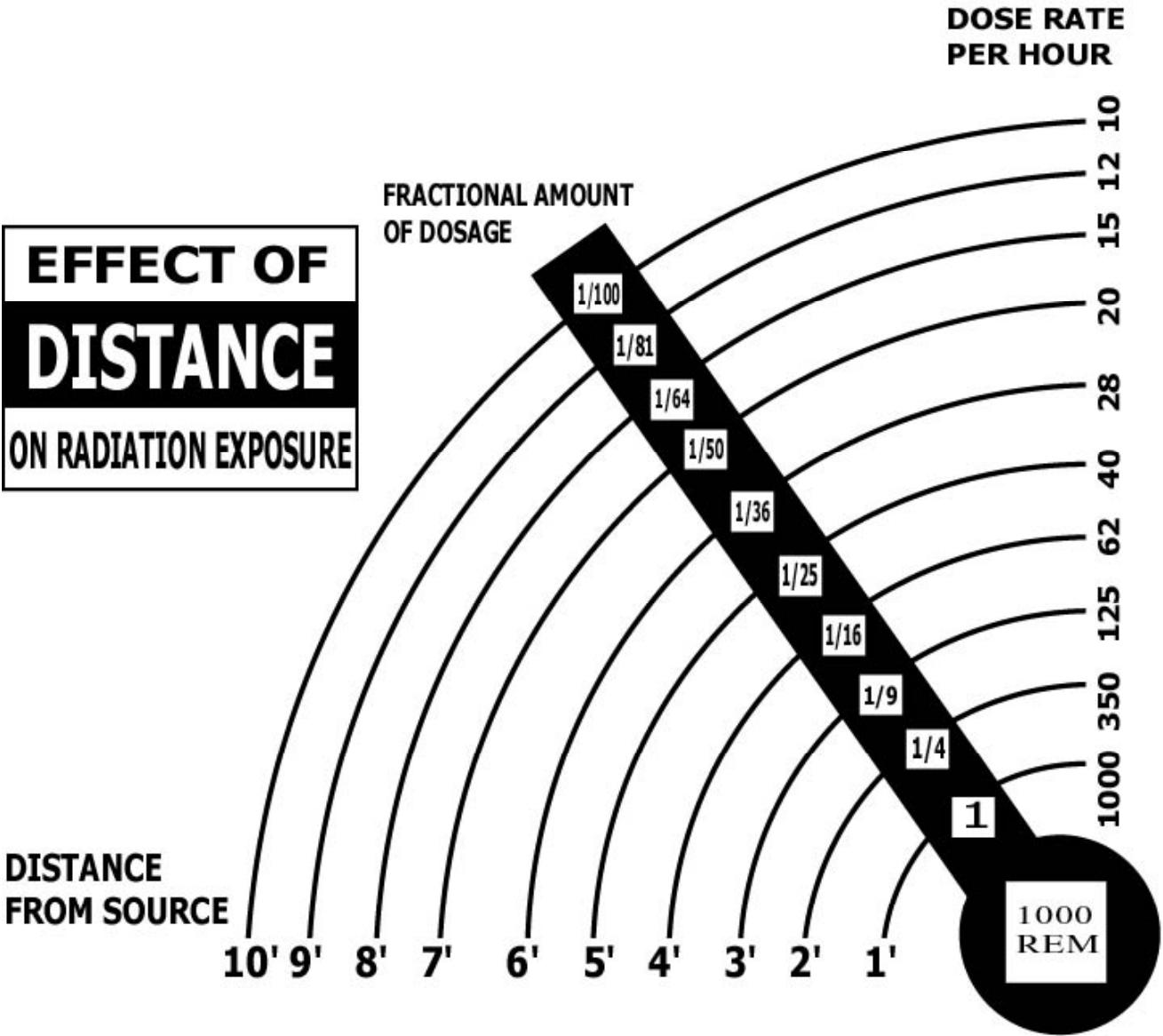
COMPANY NAMEADDRESS

Bethesda N. Hosp. Nuclear Medicine	10500 Montgomery Rd., Cinti, OH 45242
Bethesda Oak Hosp. Nuclear Medicine	619 Oak St., Cinti, OH 45206-1690
Bruck Hartman Environmental Inc.	4055 Executive Park Dr., Cinti, OH 45241
Cardiology Consultants, Inc.	10525 Montgomery Rd., Cinti, OH 45242
Christ Hosp. Blue Ash Testing Center Nuclear Medicine	4747 Lake Forest Dr., Cinti, OH 45242
Christ Hospital Nuclear Medicine	2139 Auburn Ave., Cinti, OH 45219
Cincinnati Health Dept.	3101 Burnet Ave., Cinti, OH 45229
Cinti. Metro Housing Authority	1041 Cutter St., Cinti, OH 45203
Deaconess Hospital Nuclear Medicine	311 Straight St., Cinti, OH 45219
Dosimeter Corporation	6106 Interstate Cr., Cinti, OH 45242
General Electric Co.	One Neumann Way, Cinti, OH 45215
Good Sam. Hospital Nuclear Medicine	375 Dixmyth Ave., Cinti, OH 45220
Greater Cinti. Cardiovascular Consult.	2990 Mack Road, Fairfield, OH 45014
Greater Cinti. Cardiovascular Consult.	415 Straight St., Ste. 300, Cinti, OH 45219
Hamilton County Park District	10245 Winton Rd., Cinti, OH 45231

HC Nutting Company	4120 Airport Rd., Box C Cinti, OH 45226
Jewish Hosp. Kenwood Nuclear Med.	8000 Kenwood Rd., Cinti, OH 45236
Jewish Hospital Nuclear Medicine	3200 Burnet Ave., Cinti, OH 45229
Medi-Physics, Inc.	344A Gest St., Cinti, OH 45203
Mercy Hosp. Anderson Nuclear Med.	7500 State Rd., Cinti, OH 45230
Merrell Pharmaceuticals, Inc.	2110 E. Galbraith Rd., Cinti, OH 45215
Midwest Nuclear	46 E. Hollister St., Cinti, OH 45219
Mobile Radon Diagnostics, Inc.	3975 Erie Ave., Cinti, OH 45208
Providence Hosp. Nuclear Medicine	2446 Kipling Ave., Cinti, OH 45239
St. Francis-St. George Hosp. Nuclear Med.	3131 Queen City Ave., Cinti, OH 45238
Shriners Burns Institute	3229 Burnet Ave., Cinti, OH 45267
Syncor International Corp.	2300 Wall St., Ste. R, Cinti, OH 45212
UC Childrens Hospital Medical Center	Elland & Bethesda Avenues Cincinnati, OH 45229-2899
UC Radiation Safety Laboratory	231 Bethesda Ave., Box 670591 Cinti, OH 45267
UC Radiation Safety Laboratory	234 Goodman Ave., Cinti, OH 45267

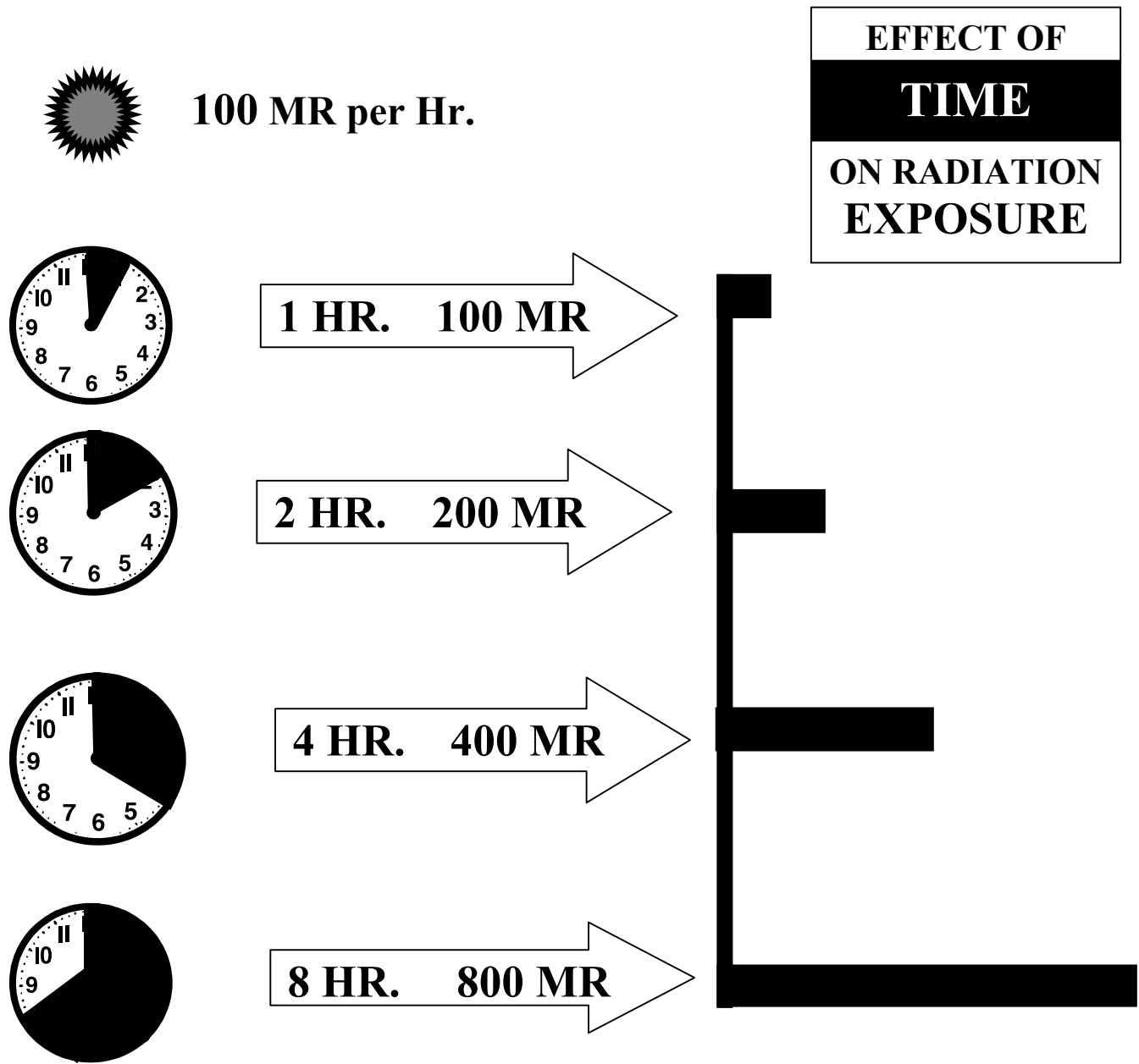
(SEE CHART FOR EFFECT OF DISTANCE)

Rev. 1/90



(SEE CHART FOR EFFECT OF TIME)

Rev. 1/90



Rev. 1/90

(SEE CHART FOR UNSHIELDED)

1000 CURIE (1 - KILOCURIE)**UNSHIELDED****1 CURIE COBALT ₆₀ = 1.59 /HR. AT 3 FT.**

Distance	r/HR. (APPROX)	Approx. Time to receive 25 emergency dose
3 Ft.	1590	56 Sec.
9 Ft.	176	8 Min.
15 Ft.	63	24 Min.
24 Ft.	25	60 Min.
30 Ft.	16	94 Min.
60 Ft.	4	375 Min.
90 Ft.	2	833 Min.