

Memorandum

February 26, 2007

To: Bruce Chrisman

From: William Griffing *WGriff*

Subject: Revised Technical Appendix B to FESHM Chapter 6010 – Hazard Map Program

Technical Appendix B to FESHM chapter 6010 describes the Hazard Map process and provides instructions in creating Hazard Map for use by the Fire Department in an Emergency Response. The appendix was posted for site wide review. No comments were received.

After final approval, please return this approval page to Elizabeth Bancroft at MS119 for posting on the web.

Encl.

Recommended for Approval:



Bruce Chrisman

2/28/07

Date

Approved:



Piermaria Oddone

3/1/07

Date

Technical Appendix B Hazard Map Program

INTRODUCTION

This appendix provides the criteria necessary for developing Hazard Maps (HazMaps) for selected facilities at FNAL. This Technical appendix takes the original Hazard Map tasking document and formally incorporates it into FESHM 6010 as part of the Fire Protection Program.

POLICY

This program is to provide a level of pre-fire planning in order to facilitate response by the responding Fire Department(s) to emergencies. Having knowledge of the facility and its contents has proven useful during emergency response sufficient to help minimize losses from fire and related emergencies.

STANDARDS

Expert input has been drawn upon from Senior Safety Officers, ES&H Fire Protection Engineer, Fire Department personnel, Emergency Responders, NFPA and others. Their valuable input helped develop the hazard communication tool discussed here.

Each building/structure excluding residential units, are required to have a basic HazMap consisting of key information in a standardized and manageable format.

RESPONSIBILITIES

The Laboratory Director is responsible for

- Overall responsibility for the fire protection program
- Assuring that adequate resources are available to carry out the elements of the fire protection program as delineated in this chapter.

The ES&H Section Emergency Planner is responsible for

- Overseeing development of HazMaps
- Reviewing and approving initial maps, as developed by the Divisions/Sections
- Promulgating standards and guidelines for hazard maps
- Establishing and maintaining map templates and the icon database
- Communicating any format or usage changes.

- Assisting Division/Section in map preparation, answer questions.

The Division/Section (D/S) Head is responsible for

- Designating personnel, one primary and one backup, to participate in the project, and to maintain the program's integrity.
- Developing a plan for data collection, production, review and issuance of Hazard Maps to designated locations, for all area for which he/she is the Landlord
- Obtaining approval of the ES&H on initial maps.
- Issuing three copies of the completed and approved maps to Fire Department.
- Posting a copy of the completed maps at fire alarm panels.
- Providing for internal distribution of maps, as deemed necessary.
- Developing an internal inspection program to check the accuracy of the HazMaps on a periodic basis.
- Resolving known/reported deficiencies in a prompt manner.

The D/S Senior Safety Officer (SSO) is responsible for

- Facilitating the Hazard Map Program within their Division/Section.
- Facilitating updates to maps based on time, usage change or requests from the Fire Department or ESH-Emergency Planner.

The Fermilab Fire Department (FFD) is responsible for

- Educating MABAS members and other off-site responders on how to use maps as appropriate.
- Posting completed maps in Fire Department Response Map three-ring binder.
- Carrying completed maps in Fermilab Fire Department's primary response vehicles.
- Maintaining one set of HazMaps at the Fermilab Fire Station for the availability and use of an off-site fill-in company.
- Conducting random checks of the HazMaps accuracy during regularly scheduled FFD inspections of the facilities/building
- Reporting HazMap program deficiencies to the respective SSO and a copy to the ESH-Emergency Planner

PROGRAM ELEMENTS

The purpose of this document is to establish criteria that lead to a uniform method of identifying and communicating hazard information in Fermilab buildings and structures.

Chemicals, flammable gases, cryogenic fluids, and radioactive materials are some of the hazards that exist at Fermilab. Emergency responders must be aware of a variety of hazards.

Obsolete information in an emergency can be fatal. Hazards must be conveyed in a brief, graphic manner. Verbal communication during odd hours and wordy documents are too risky when time is crucial. Hazards must be understood at a glance. Emergency responders need "instant knowledge."

Since its inception, the Hazard Map was viewed as a method to convey hazards at a glance. Standard symbols (icons) are adopted to speed production, quick recognition of hazard type, aid interpretation and above all, provide uniformity.

Icons chosen for this task stem from internationally recognized symbols. Only certain icons are required on the HazMaps. To protect the integrity of the program, any modification of the icon/symbols is strictly forbidden. Usage of any new symbols must be pre-approved by the ESH-Emergency Planner.

Principal Components Of The Basic Hazard Map

The basic hazard map is a simple near scale drawing made to fit in a standard three-ring binder. The example in Appendix A represents a map on an 8-1/2" x 11" page. An 11" x 17" drawing may also be used, but is considered the maximum useful size. Fundamental components of the map include:

1. The basic structure
2. Building information: name, location, and FIMS numbers
3. The orientation of the map with an arrow pointing north
4. Entrance and exit points, walkways
5. Key utilities and controls (shut off points, fire suppression controls)
6. Hazards and emergency response information
7. Location of nearest road and fire hydrant
8. Use of standardized symbols
9. Preparer's initials and date map was approved for posting

Scales and Measures

The scales and measures system that is to be used in the basic hazard map program will be the United States Units of Measurement (foot, pounds, seconds). Given the probability that off-site emergency responders will use these maps, it is necessary to ensure everyone understands the values, measures and quantities associated with each item.

Map Uniformity

Uniformity is essential to this project. Therefore, the following criteria must be followed. A detailed document layout with coordinates of key components is attached in Appendix C.

Drawing Size

8-1/2" x 11" document to fit in a standard three-ring binder (an 11" x 17" folded, will also work, but is the maximum useful size). The left 11 inch border of the document will be used to secure the map into the binder.

Text Size and Font

Times Roman or similar font, 6 or 7 pt, depending on available space, is to be used.

Scale

Scale should provide best mix between a useful level of detail and available drawing area. Some diagrams may not fit on one page. In these instances, the diagram should be divided at sensible locations and so indicated with match lines. Every attempt should be made to fit the sections on one page, but this isn't always possible. When it's not, and more than one page is necessary, the "Page x of x" keys located at the top and bottom of each page shall indicate the page and numbers of pages to the HazMap.

Orientation

Utilize the available drawing space to optimize the drawing. Use an arrow oriented to reflect north. Ensure the nearest road is identified on the drawing. If drawn on an 11" x 17" sheet, the legend keys will be placed along the right hand border of the map, this to maintain uniformity and so the sheet can be folded to fit in a standard three-ring binder.

Hazard Communication

The sole purpose of this program is to produce a near-scale drawing of a building identifying key controls, processes and hazards within the area. This map is NOT to reflect non-hazard information (i.e. FIRUS connection, emergency light, tornado shelter, etc).

In addition to the information on the map being current, the Emergency Responders need some sense of the "age" of this information. Place at the bottom right hand corner of the map, the Preparer's initials and date the map was approved.

As a general rule of thumb, control icons are to reflect significant control points. It is from this location the emergency responder has the ability to control the item. It is the natural gas valve on the outside of the building that is to be identified on the map and not the gas valves located at individual water heaters and furnaces.

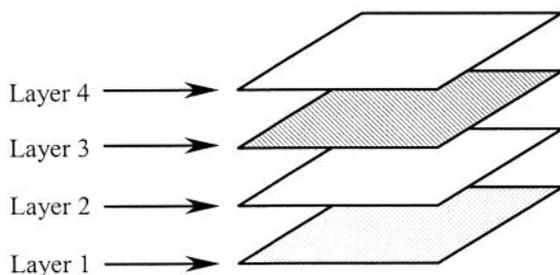
Standardized icons shall be placed on the map at a location corresponding to their position in the building. For hazardous materials, the icon, chemical name, DOT UN number and quantity are added to the Hazardous Materials key. The DOT UN numbers aid emergency responders in determining how to approach an emergency situation involving this material. The UN number may be obtained from the MSDS sheet or from the current DOT Emergency Response Guidebook (2004).

Computer/Software Requirements

Any computer and drawing software may be used to meet the requirements of this program, provided that the final product adheres to the requirement for layout and authorized icons.

It has been found that software programs that permit "layering" of information provides for the maximum versatility of efforts. It was found that drawing the building and using it as a foundation, layers can be added or removed based on the intent of the map.

Information is "layered" in each HazMap file. A layer is similar to a transparency, and can be placed on top of another. The more layers, the more information is contained in the file:



Information stored on one layer can be changed without affecting data on others. Additional layers can be added or hidden from view as desired. This way effort spent on creating the HazMap is further leveraged as it becomes the basis for other uses like escape maps, Ethernet diagrams, or VESDA maps.

Hazard Map Information

Layer 1: Document Layout Layer (illustrated in Appendix C)
Contains all information necessary to construct a HazMap.

Layer 2: Structural Layer
Contains General Information key, building structure, system controls, equipment and attached fixtures.

Layer 3: Hazard Layer
Contains only the required hazard information.

For In-house Administrative use only-not to be included on the Hazard Map

Layer 4: Building Manager Layer
Reserved for information specific to building management needs.

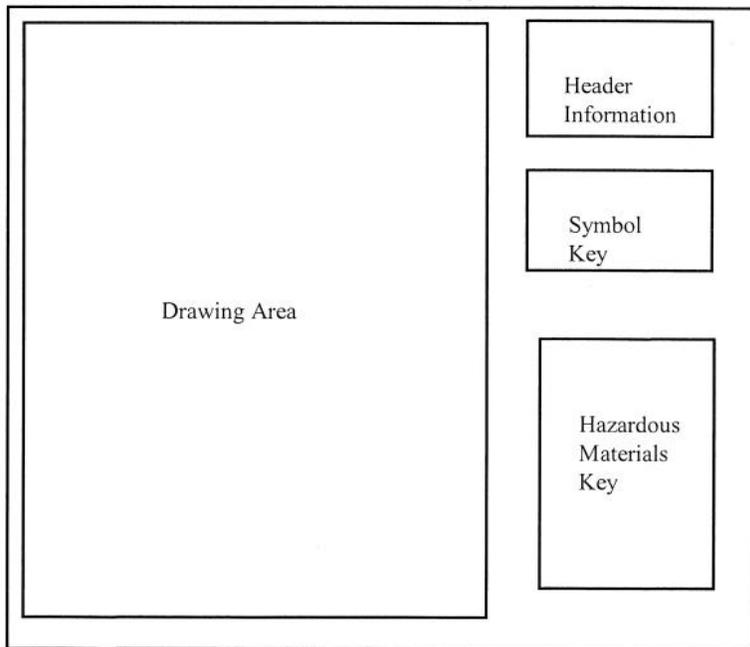
Layer 5: E S & H Layer
Reserved for ES&H information, like fire detection equipment, etc.

Other Layers:

May be added as needed for locally generated information maps.

NOTE: Most of the building sketches are available from FESS.

Hazard Map Outline



Refer to Appendix A for detailed drawing example.

Header Information

BSS Warehouse 1

Hard Map Page 1 of 1

Address (or Location)
RECEIVING ROAD

FIMS Nos	Occupancy	Roof Type
938	20	Metal

Scale 0 20 40'
SCALE

Overall Dim: 100 ft Wide x 400 ft Long

Division/Section and Name of Building

Page 1 of X

Common Address of Building

FIMS number; Average Occupancy; Type of Roof

Scale used on this drawing

Overall dimensions of this building

Symbol Key Box

Symbol Key

 Door	 Hydrant
 Electrical Panel	 Natural Gas Valve
 Fire Dept Connection	 Roof Ladder
 Flammable Liquids Cab	 Sprinkler Riser
 Hazardous Material	 Satellite Acc Area
 Hose Cabinet	
 HVAC Control	 Smoke Hatch

This box is used to identify the generic icons used on this drawing. Starting in the upper left hand corner, arrange the icons in alphabetical order, top to bottom, left to right. Based on the number of generic and hazard icons used, this box may be one or two columns in width

Hazardous Materials Box

	Flammable
FL C	Liquids Cabinet
	Hydrochloric Acid
1	UN 1789 3-55 gal drum
	Sodium 100 gal tank
2	Hypochlorite
	Sodium Bisulfate
3	UN 2693 500 gal tank
	Sodium Hydroxide
4	UN 1824 3-55 gal drum
	Liq Bromine
5	UN1744 400 gal
	Sulfuric Acid
6	UN 2796 400 gal

Within the Hazard Box, the selected hazard icon, the Common Name for this material, DOT UN number and the quantity of material present at the specific location. In some cases the product will not have a UN number.

Scientific annotations are not to be used.

For buildings that do not have any special hazards, then the word "NONE" is to be typed into the Hazard Legend Box in large, bold font.

Icon Placement Rules

Icons are used to identify the "item of interest" to the emergency responder. The use and placement of an icon will identify its location and provide generic information. In the case of a hazardous material, the icon is used to provide specific information about the material to the responder.

A complete list of all the icons is located in Appendix C of this document. These are the only authorized icons for use on a Hazard Map.

Icon Within the Drawing Area

There are three icons that may be used in this area, the basic icon, the icon with attached subscript number or the icon requiring an explanatory acronym.

Example: Basic Icon



To identify the location of a Flammable Liquids Cabinet the ^{F L C} symbol is to be used.

Example: Hazardous Material Icon with Subscript

A hazardous material has been identified and it does not appear on the Icon List.

DO NOT invent your own symbol and acronym



Select the Hazardous Materials icon  and place a subscript number underneath.



This will now stand for "Hazardous Material A" and represent 1 drum on this drawing alone. Where ever this Icon is used on this drawing this product and quantity is present.

If there is a radical difference in quantity (1 drum Vs 10 drums) of this material in the building then a second icon with another subscript will be required.



This icon will now represent "Hazardous Material A" and will represent 10 drums.

Example: Icon requiring an explanatory acronym



Valves  are the most likely candidate for an explanatory acronym.

DWSV	Domestic Water Shut-off
ICWSVS	ICW Supply
ICWSVR	ICW Return
LCWSVS	LCW Supply
LCWSVR	LCW Return



DWSV Domestic Water Shut-off

Icon Within the Symbol Key

This key gives a quick overview of the items identified on the map.

Use only the generic icon and the written definition of the icon. An example is use of the Flammable symbol and word flammable to identify that flammable icons are in use in the map.

Icon Within the Hazard Key

This key is to provide emergency responders with specifics on the hazards identified on the map. Here specific icons are required in addition to the product name, UN number (if applicable) and quantity information.

Single Product Location

- Place the icon within the drawing area.
- In the Symbol Key use only the generic symbol for this product.
- In the Hazardous Materials Key use the same icon as in the drawing area. Fill in the technical information (name, UN number) and quantity.

Generic Icon with Multiple Products

This technique is used whenever a generic icon is used to reflect a variety of products that may belong to this chemical family.

Example, the facility contains barrels of Nitric Acid, Sulfuric Acid, and Hydrochloric Acid. The icon that should be used is the generic hazardous materials (skull and crossbones).

- Identify the location of each product and place a sequential number in parenthesis beneath the icon.
- In the Symbol Key use only the generic symbol for this product.

- In the Hazardous Materials Key position each icon used in the drawing area to include the attached number. Fill in the technical name, quantity, series numbers and description.

Multiple Locations for a Single Product

If all details of the material are identical.

- Place the icon within the drawing area, underneath each icon place in parenthesis a sequential number.
- In the Symbol Key use only the generic symbol for this product.
- In the Hazardous Materials Key use the same icon as in the drawing area. Fill in the technical information (name, UN number) and quantity.

Normal Office/household/User level quantity of material

Products fitting this description will NOT be reflected on the HazMap. The intent of the HazMap is to reflect dangers that are of an immediate life/health concern to the Emergency Responder.

Examples:

Window cleaner, white out, cleaning supplies, etc.

Products Stored or Used from Type Accepted Storage Cabinet

Products utilized in this manner will be reflected as the storage method and not the component parts.

Example:

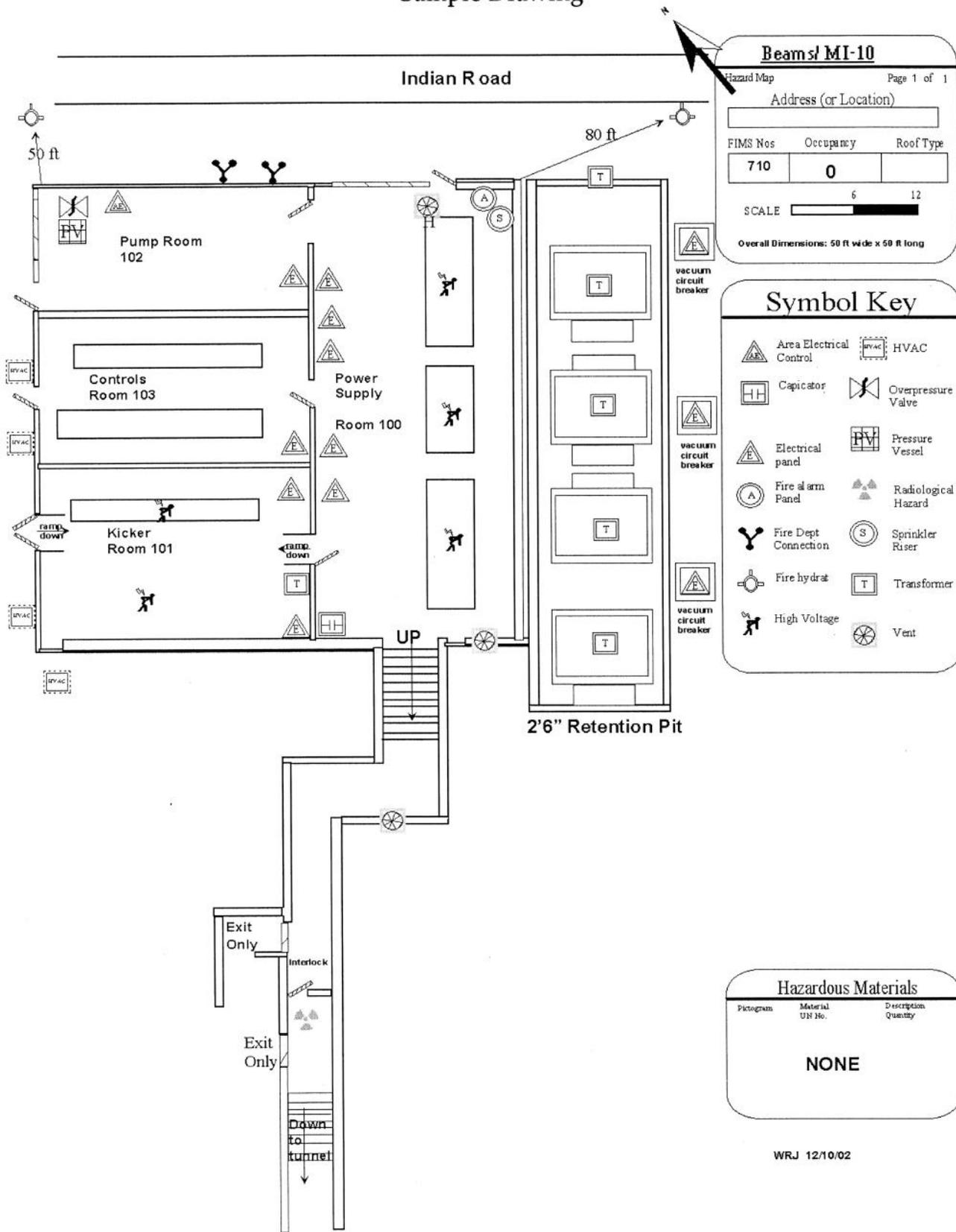
Paint, thinners, solvents stored/used from a flammable liquids cabinet will be reflected as a FLAMMABLE LIQUIDS CABINET utilizing the FLC icon.

Radioactive sources used for testing/calibration but are stored in a secured cabinet will be reflected as RADIOACTIVE SOURCE CABINET utilizing the RADSC icon.

Multiple products in a Confined Area

To prevent congestion, place one icon in its use location. Then place the other icons beyond the immediate area with a connecting line and arrow to its actual use location.

Appendix A Sample Drawing



APPENDIX B
Approved Icons

CONTROL ICONS

	Electrical Panel 480V		Satellite Acculumation Area		Halon Abort Switch
	Gas Valve (natural gas)		Control Valve		Halon Bottle Storage
	Electrical Panel 480V	Domestic Shut off = DWSV ICW Sply = ICWSVS ICW Rtn = ICWSVR LCW Sply = LCWSVS LCW Rtn =LCWSVR			Halon Activation Switch
	Experiment Flammable Gas Valve		Pressure Vessel > 6" dia		Inergen Abort Switch
	Area Ventilation Control		Overpressure Relief Valve		Inergen Activation Switch
	Overhead Crane Disconnect		Vacuum Vessel > 12" dia		Inergen Bottle Storage
	Smoke Hatch		Vacuum Window		Carbon Dioxide Abort Switch
	Equipment Hatch		Vent Location		Carbon Dioxide Activation Switch
	Roof Hatch Personnel		Fire Alram Panel		Carbon Dioxide Bottle Storage
	Standpipe Dry		Sprinkler Riser		North
	Standpipe Wet		Fire Hydrant		Ladder
	Fire Dept Connection				Fence
					Gate Oriented dir of travel
					Door Oriented dir of travel

HAZARD ICONS



Flammable Material



Mechanical Hazard



Hazardous Material



Flammable Material



Transformer



Lead
UN 2291



Ethane
UN 1035



Capacitor



PCB's
UN 2315



Flammable Gas
System



High Voltage



Hazardous Material



Flammable Liquids
Cabinet



Confined Space



Hazardous Material



Hydrogen
UN 1049



Hazardous Material



Hazardous Material



Flammable Material



Hazardous Material



Hazardous Material



Flammable Material



Hazardous Material



Hazardous Material



Propane
UN 1075



Chemical Storage
Cabinet



Radioactive Material



Laser Class 3+



Ethylene Glycol
UN 1153



Radioactive Material



Cryogenic Material



Mercury
UN 2809



Radioactive Material



Compressed Gas Bottles



Lithium
UN 1415



Radioactive Material



Inert Gas Bottle

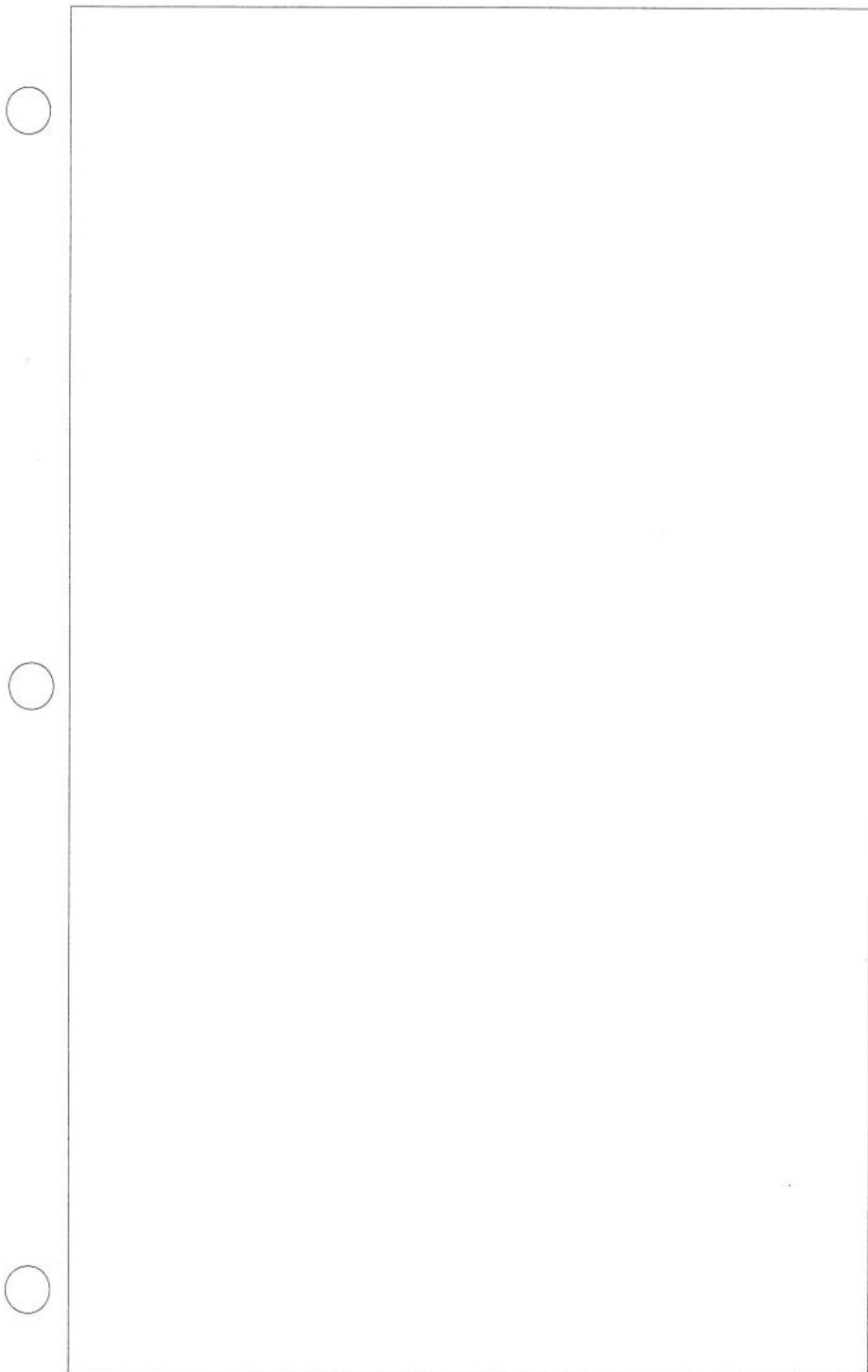


Hazardous Material



Radioactive Material

APPENDIX C Layout



Div/Sec / Bldg Name		
Hazard Map	Page 1 of	
Address (or Location)		
<input type="text"/>		
FIMS Nos	Occupancy	Roof Type
<input type="text"/>	<input type="text"/>	<input type="text"/>
SCALE <input type="text"/>		
Overall Dimensions: ft wide x ft long		

Symbol Key
This box may be expanded or contracted as needed.

Hazardous Materials		
Icon	Material Name UN No.	Description Quantity
This box may be expanded or contracted as needed.		

Preparers Initial and Date of Map

APPENDIX D

Hazardous Material Reporting Thresholds

This Appendix is a reference guide in determining which products, under what storage, usage and quantity conditions should be reflected on the HazMap. This in turn reduces the burden on HazMap developers while ensuring appropriate information is obtained for emergency responders. This document does not supersede any regulatory requirements concerning hazardous material storage or usage.

This document provides additional guidance to HazMap developers that should be used when applying Appendices B or D of the Hazard Map Project. Appendices B and D identify hazards and hazardous materials that are typically encountered at the lab.

1. Quantities of hazardous materials equal to or in excess of the following reporting thresholds in one area should be included on the HazMaps for products used or stored outside of approved storage cabinets other than for dispensing purposes.
2. Household items (window cleaner, toilet bowl cleaner, etc.) are reportable if they exceed the limits listed below and are stored in bulk quantities (cases, pallets, etc) outside of metal cabinets. These reporting thresholds are not required by any specific regulation. They serve to inform emergency responders of the potential hazards that may be encountered in a work area.

To use the following table, find the hazard characteristic of the material in the first column, then find the associated decision level in the second column. If the quantity of material exceeds the level shown in the third column then the material must be listed on the HazMap, provided other storage or use conditions have not been previously met, i.e. product stored in an authorized cabinet. All units shown on the HazMaps should be expressed in U.S. standard units.

3. Materials having an NFPA 704 Identification of Fire Hazards of Materials rating of 3 or 4 in any of the following categories: Health Hazard, Flammability Hazard, Reactivity Hazard or having a Special Hazard of OX or W will be reflected on the Hazard Map. Exception to this rule is if the product is stored in an approved storage cabinet or the quantity of the product falls below the reporting thresholds listed below.

Reporting Thresholds Table

Hazard Characteristic	Decision Level	Reporting Threshold
Ignitability	Flammable / Combustible liquids, flashpoint < 200 °F (Class 1 A -III-A) (NFPA 2-4)	≥ 1 gallon Note: If used continuously or stored outside approved flammable liquid storage cabinets
	Combustible Liquid ≥ 200 °F < 300 (Class III-B) (NFPA 1)	≥ 5 gallons Note: If used continuously or stored outside approved flammable liquid storage cabinets
	Combustible Liquid > 300 F (NFPA ≥ 3)	> 30 gallons
Corrosivity	pH ≤ 2 or pH ≥ 12.5 (NFPA ≥ 3)	≥ 32 ounces
Reactivity	Normally unstable, reacts violently with water, or forms potential explosive mixture with water. See 40 CFR 261.23 (NFPA ≥ 3)	≥ 8 ounces
Hazard Characteristic	Decision Level	Reporting Threshold
Health	NFPA ≥ 3	≥ 8 ounces
	NFPA > 2	≥ 64 ounces
	NFPA ≥ 1	≥ 1 gallons
Radioactivity	Any radioactive material	Class 1 or greater Note: If used continuously or stored outside approved radiation source storage cabinets

4. All approved storage cabinets for flammable liquid, corrosive material,

toxic substances, and radioactive materials should be shown on the HazMaps regardless of the quantity of material that is stored in the cabinet.

5. All high pressure gas (≥ 2000 psig) flammable gas and cryogenic systems, and storage areas should be identified on the HazMaps. A chemistry laboratory having numerous small quantities of chemicals present, which collectively poses a danger to the Responder should be described by the generic icon of the most likely danger; flammable, hazardous materials or radioactive) and the phrase Chemistry Lab . In the Hazard Description describe the chemicals as "assorted chemicals".

If a material does not meet the above listed criteria and in your opinion poses a significant hazard to employees or emergency responders, by all means, include it on the map using the procedures described within the HazMap guidance document.

APPENDIX E

Frequently Provided ANswers

The field application of the HazMap program has resulted in the need for additional guidance, clarification of stated procedures or the introduction of new information requirements.

Placement of Hazard Maps

Hazard maps are to be placed next to building fire alarm panel. Buildings not having a fire alarm panel, should have the map posted at the primary entrance to the building.

Multiple page maps may be consolidated into a single notebook/folder and placed/posted next to the buildings alarm panel.

Aisleways

As best as practical, indicate aisle ways. Building shall be drawn to scale or near scale.

Doors and Gates

Doors and gates should "open" in the direction of travel. Overhead doors are to be drawn to scale. All doors indicated with "slanted hash-mark" pattern: 

Gates and Fences

Gates and Fences are to be indicated with shaded line: 

Stairways

Stairways are to indicate "up" or "down", with an arrow and word (up or down) relative to where reader is standing.

Hidden stairs

Hidden stairs are to be drawn with dashed line.

HVAC units (or other large devices)

HVAC units may be found mounted on the roof, hung from the ceiling or mounted on the ground. Beneath the HVAC symbol place the letter "R" for units mounted on the roof of the facility, "H" for units suspended from the ceiling or "F" for units mounted on the floor.

Fire Department connection "Y"

The "Y" should have the upper (double) wings facing away from the building, the stem will be attached to the building.

Compressed (Inert/Flammable) Gas Bottles

For Inert compressed gases:

- If there are a few bottles in the area and can be specifically identified, then do so if it does not overwhelm the map.
- Identification will include the use of the Inert icon, with an underscore number for each material identified in the drawing area. The Inert icon will be placed in the

symbol legend and the phrase inert gas will be used. In the Hazard key each icon identified with a subscript number will include: specific product name, UN number and quantity of material.

- For more than 2 bottles-in a small area, use inert bottle icon in the drawing. In the symbol key insert the inert bottle icon and the phrase inert gases . In the hazard legend include the icon, the phrase INERT and number of bottles in the area.

For Compressed Flammable gases:

- If there are a few bottles in the area and can be specifically identified, then do so if it does not overwhelm the map. Identification will include the use of the flammable icon, an underscore number (as appropriate) in the drawing area. The flammable icon will be placed in the symbol legend. and the phrase flammable gas. In the Hazard key position the icon with the specific product name, UN number and quantity of material.
- If the flammable gas product is not specified on R list use the flammable icon with an underscore number. (as appropriate) If there are a few bottles in the area, then specifically identify the product if it does not overwhelm the map. Identification will include the use of the icon in the drawing area. The icon and phrase flammable material, specific name, UN and quantity of material.
- If there is large number of bottles, of same flammable family in small area use flammable icon, with underscore number to identify the location of the product. Use this icon in the symbol key with the phrase flammable material. In the hazard key position the icon and identify the product as flammable compressed gases and number of bottles present.

Partitions

Partition or wall lockers forming walls/ individual cubicles/work areas are to be reflected on the Hazard Map.

The triangle AVC icon

The AVC icon represents any switch, lever, knob used to turn on or off the HVAC. This icon is not to be used for thermostats. If a circuit breaker inside of an electrical panel is the control, use the AVC icon. Underneath the AVC icon, identify the unit being controlled (HVAC, VLOC, etc). Beneath this line, using the times font, size 5 or 6, identify the panel and circuit breaker by number (PHP NL6 Ckt. 20). A small shaded box reflecting the actual position of the electrical panel is to be positioned in the drawing area.

Vents/fans

Vents/fans greater than 18+ inches in diameter should be reflected on the map. These are considered to be MAJOR air handling devices. Small fans found in bathrooms or are a couple of inches in diameter are not considered major and will not be reflected on the Hazard Maps.

Capacitor Bank Icon

Icon should be used to reflect a single capacitor or a bank of capacitors.

Relay Racks.

If the rack contains a dangerous item (i.e. high voltage) it must be identified on the map. If the racks form a permanent or near permanent wall and it does not overwhelm the map, identifying the racks on the map is authorized.

Listing of icons

Icons should be in alphabetical order within the symbol key, starting in the top left and working down the left column, returning to the top right as required. To use the work area most effectively, it is preferred to use two columns whenever possible.

Buildings Without A Fire Alarm Panel

Post the facility Hazmap on the interior wall at the main entrance of the building which is adjacent to the nearest road and fire hydrant.

Oxygen

Oxygen (compressed gas) is classified by DOT as an oxidizer. This product promotes the combustion process, may cause instantaneous combustion when combined with oils, solvents, etc. Further, this product is a cryogenic. For the purpose of the HazMap program, compressed gas bottles of oxygen should be reflected using the hazardous materials icon using a subscript number and providing detailed information in the description column of the hazard key.

Shielding blocks

Shade using a light shading pattern. This will ensure that these blocks are not mistaken for cubicles, lockers, walls, etc.

Ramps

Ramps should not have shading and the word "ramp" displayed within the rectangle. A direction arrow and orientation (up/down) of the ramp should also be included.

Interior, Non Roof Ladders

Ladders are to be identified by the word ladder with an arrow pointing to its location.

Plain English

Use common terms to identify location and elevation difference. At a location where there is a radical change of elevation, annotate with: (5 foot drop)

RAD Materials

Icon is to be used for special or designated areas where non-restrictive access is permitted the symbol of be used at the designated locations where such material is stored.

RAD Hazard

Icon is to be used for restricted areas (i.e. enclosures). This symbol will be placed at the entrances to the facility.

Floor Grates

Grates are to be treated and drawn as part of the standard floor, without any special notice or treatment.

Experiments or Beam Lines

Anything that could hinder movement in a facility must be reflected on the Hazard Map.

Exit Only Doors:

Doors that are used exclusively for exiting in an emergency will be identified using the door icon, modified to a closed position. Adjacent to the closed door the phrase "EXIT ONLY" in bold caps will be positioned.

Area Electrical Switch

Device which shuts off ALL power to a given area.

Experiments Using Flammable Gas

The Experiment Flammable Gas icon is to be used. The guidelines for using the Natural Gas icon will be used anytime a gas line has a regulator and shut off valve and it enters a building or serves multiple HVAC units outside a building.

Hand Rails

Use a dotted or slashed line to indicate hand rails on a mezzanine. Other hand rails are indicated by a solid line. Both types require text stating "hand rail" and an indication of "fall" elevation.

Sliding Doors/Gates

Present sliding doors/gates in the "closed" position with an arrow indicating the direction that the door/gates slides to open.

Telephone Locations

Only as specifically requested by the Fire Department, identify telephone location and extension. Normally this request will be made for underground enclosures. Place the generic telephone icon in alpha/numeric order in the symbol key of the map legend. At the appropriate location on the map place the telephone icon. Underneath the phone icon, in a larger and bold type, list the extension number. If the area is congested, or the placement of the icon would interfere with the understanding of the map, it is permissible to offset the icon having a direction line/arrow specifying the phone's location.

Uninterrupted Power Supply (UPS) Units.

Identify significantly large or large number of clustered UPS units (i.e. racks). This is not intended for the single UPS associated with individual units or components. Icon is a box with the letters UPS.

Duress Alarm

Upon the request of the Fire Department, Fixed Duress Alarms are to be noted at the appropriate location using the capital letter "D" in at least a 15 point font in bold. Within the legend column of the map, this icon and the description "Duress Alarm" is to be placed.