



## FESHM 6016: HAZARD MAP PROGRAM

### Revision History

| Author              | Description of Change                       | Revision No. & Date      |
|---------------------|---------------------------------------------|--------------------------|
| C. Kuhn & J. Priest | New Chapter from 6010 Technical Appendix B. | Revision 0<br>April 2013 |
|                     |                                             |                          |
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## 1.0 INTRODUCTION

This chapter provides the criteria necessary for developing Hazard Maps on designated facilities at Fermilab.

## 2.0 POLICY

This program is to provide a level of pre-fire planning in order to facilitate response by the Fermilab's Fire Department 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. The basic Hazard Map (HazMap) consisting of key information in a standardized and manageable format.

## 3.0 REFERENCE GUIDANCE

- 29 CFR 1910.1200 Hazard Communication
- NFPA 704, Standard System for the Identification of Hazards of Materials for Emergency Responders
- U.S. DOT (PHMSA) Emergency Response Guidebook (2012).

## 4.0 ROLES & RESPONSIBILITIES

These responsibilities are supplement to the FESHM 6010, Section 4.0.

### 4.1 Laboratory Director

- For the overall fire protection program by assuring that adequate resources are available to carry out the elements of the fire protection program as delineated in this chapter.

### 4.2 ESH&Q Fire Protection Engineer (ESH&Q-FPE)

- Conducts periodic assessments of the Fermilab Fire Protection Program, including the Hazard Mapping Program.

### 4.3 Division/Section/Center (D/S/C) Heads

- Designating personnel --- one primary and one backup --- to participate in the project, and to maintain the program's integrity.
- Developing the plan for data collection, production, review and issuance of Hazard Maps to designated locations.
- Assigning property utilized by other tenants.
- Obtaining approval of the D/S/C ES&H on initial maps.
- Issuing two 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 (maximum 2 years if no changes of any sort have taken place).
- Resolving the known/reported deficiencies in a prompt manner.

#### **4.4 Senior Safety Officer (SSO)**

- Facilitating the Hazard Map Program within their Division/Section/Center.
- Facilitating yearly updates to maps based on time, significant usage, change or requests from the Fermilab's Fire Department or ESH&Q-FPE.

#### **4.5 Fermilab's Fire Department (FFD)**

- Acting as project coordinator/overseer.
- Reviewing and approving initial maps, developed by the Divisions/Sections.
- Promulgating standards and guidelines for hazard maps.
- Establishing and maintain map templates and icon database.
- Communicating any format or usage changes.
- Educating Mutual Aid Box Alarm System (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 command vehicle.
- 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 Senior Safety Officers and a copy to the Emergency Management.

## **5.0 PROGRAM**

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 permitted on the HazMaps and therefore, any modification of the icon/symbols is prohibited. Usage of any new symbols must be pre-approved by Fermilab's Fire Department.


### 5.1 Principal Components of a Hazard Map

- The Hazard map should be posted at the facilities fire alarm control panel. Buildings without a fire alarm panel should be posted on the interior wall at the main entrance which is adjacent to the nearest road and fire hydrant.
- The basic hazard map is a simple near scale drawing made to fit in a standard three-ring binder. HazMaps standard drawing size shall be 11" x 17". Multi-story building floors should be on individual sheets, unless they can be clearly represented on a single sheet, consult FFD for further guidance. Fundamental components of the map should include:
  1. The basic structure.
  2. Building information: name, location, and FIMS numbers.
  3. Overall dimensions.
  4. The orientation of the map with an arrow pointing north.
  5. Entrance and exit points, walkways.
  6. Key utilities and controls (shut off points, fire suppression controls, fire alarm control panel(s), etc.)
  7. Hazards and emergency response information.
  8. Location of nearest road and fire hydrant.
  9. Use of standardized symbols.
  10. Preparer's initials and date map was approved for posting.
  11. If entry/exit doors are numbered, include on Hazard Map.
  12. If skylights or smoke hatches are present, include approximate location on Hazard Map.
  13. If present, area electrical switch, such as an EPO, which shuts off all power to a given area.
  14. Aisle ways.
  15. If present, indicate the Automated External Defibrillators (AED).
  16. Compressed (Inert or Flammable Gas Bottles.

### 5.2 Map Uniformity & Minimum Requirements

- Uniformity is essential to this program; therefore, the following criteria should be followed.
- **Capacitor Bank Icon** should be used to reflect a single capacitor or a bank of capacitors.



- **Compressed (Inert/Flammable) Gas Bottles**
  - 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 the number of bottles in the area.
- **For Flammable Compressed Gas**
  - 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.
- **Doors and gates** normally "open" in the direction of travel. Overhead doors drawn to approximate scale. All doors indicated with "slanted hash-mark" pattern:  If Door numbers are required in accordance with FESHM 6020.4, then the door numbers should be added to the HazMaps
- **Duress Alarm:** Upon the request of the Fermilab's 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.
- **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.
- **Experiments that have 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.
- **Fire Department connection "Y"** should have the upper (double) wings facing away from the building, the stem will be attached to the building.
- **Floor grates** to be treated and drawn as part of the standard floor, without any special notice or treatment.



- **Gates and fences** indicated with shaded line: .....
- **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.
- **Hidden stairs** drawn with dashed line.
- **HVAC units** (or other large devices) 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.
- **Interior, non-roof ladders** are identified by the word ladder with an arrow pointing to its location.
- **Identify/draw experiments, beam lines,** or other items which hinder movement in a facility must be reflected on the Hazard Map.
- **Listing of 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.
- **Oxygen** (compressed gas) bottle 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, compress 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.
- **Partitions, wall lockers forming** walls/ individual cubicles/work areas are to be reflected on the Hazard Map.
- **Multiple Electrical Panels 480V** as a general rule reflect the actual number and physical location of the 480V Electrical Panels on the Hazard Map. However, if in your opinion would render a particular portion of the map unreadable then place a single 480V electrical panel icon at what would be considered the center of the bank of these panels. Next to it place the letter X followed by a number to represent the number of panels present in this immediate area. The X and number must be large enough to be easily read and in a bold font.



- **Oxygen Deficient Hazards (ODH)** These areas are applicable and should be reflected on the HazMap and it is recommended that the appropriate icon be used, in accordance with FESHM 5064:



DANGER  
ODH 4

- **Partitions, Devices or other Obstructions** as a general rule of thumb for partitions, devices or other obstructions, they should be reflected on the HazMap as they would impede the movement of emergency responders. Partitions should be drawn using a gray line. A solid black line would indicate a fixed wall assembly.
- **RAD Materials** Icon is to be used for special or designated areas where non-restrictive access is permitted. The symbol is to 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.
- **Ramps** should have shading and the word “ramp” displayed within the rectangle. A direction arrow and orientation (up/down) of the ramp should also be included.
- **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.
- **Sliding Doors/Gates** are to be presented in the “closed” position with an arrow indicating the direction that the door/gates slide to open.
- **Shielding blocks** should be shaded using a light shading pattern. This will ensure that these blocks are not mistaken for cubicles, lockers, walls, etc.
- **Smoke/Skylights** Vents should be indicated on the HazMap.
- **Stairways** indicate "up" or "down." With an arrow and word (up or down) relative to where reader is standing.
- **The triangle HAVC 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 HAVC icon. Underneath the HAVC 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, e.g. (PHP NL6 Ckt. 20). A small shaded box reflecting the actual position of the electrical panel is to be positioned in the drawing area.
- **Telephone Locations:** Only as specifically requested by the Fermilab’s 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.
- **Use English Units** to identify location and elevation difference. At a location where there is a radical change of elevation, annotate with: (5 foot drop)
- **UN number for Trade Name Products:** In the event the chemical is a trade name product, review the MSDS for the UN number. Under the Transportation Information the





DOT Proper Shipping Name and UN number may be present. Use this as the reference number for this product.

- **Vents/fans:** 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 HazMaps.

### 5.3 Scale & 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, and seconds).
- 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. 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 HazMaps. Multi-story building floors should be on individual sheets, unless can be clearly represented on a single sheet, consult with the FFD for further guidance.

### 5.4 Drawing Size

- 11" x 17" (folded) document to fit in a standard three-ring binder. The left 11 inch border of the document will be used to secure the map into the binder.

### 5.5 Text Size & Font

- Times or similar font, 6 or 7 pt, depending on available space.

### 5.6 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. The legend keys will be placed along the right hand border of the map, this is to maintain uniformity and so the sheet can be folded to fit in a standard three-ring binder.

### 5.7 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.



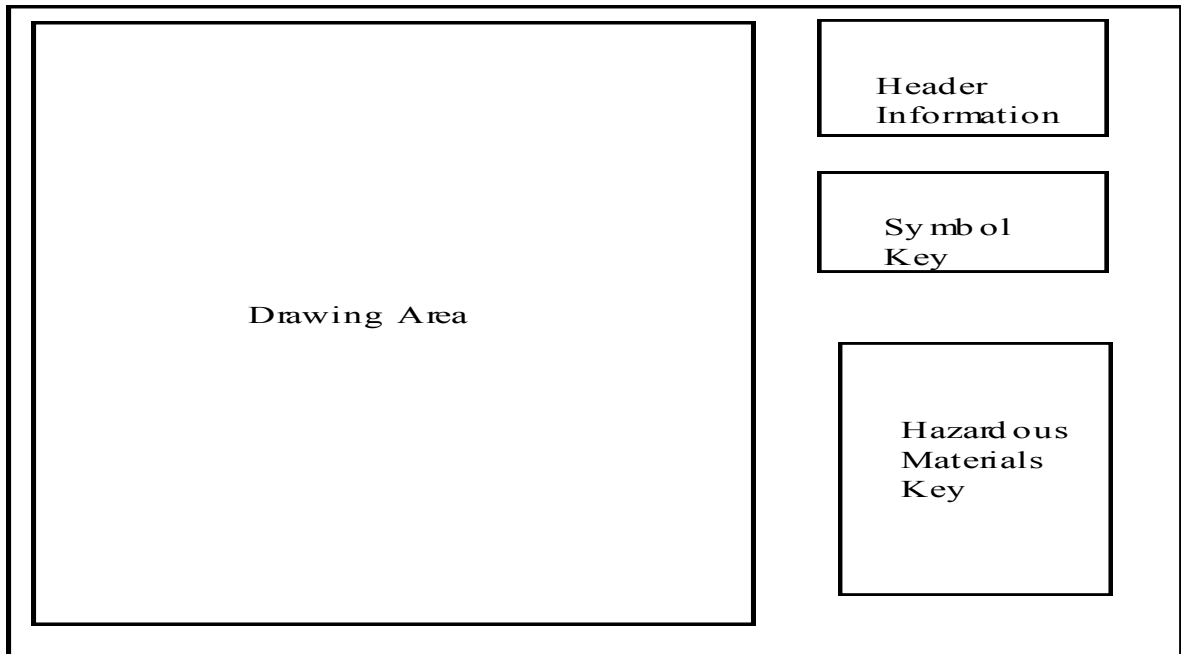
- Standardized icons shall be placed on the map at a location corresponding to their position in the building. For hazardous materials, the icon, chemical name, DOT UN number and quantity are added to the Hazardous Materials key. The DOT UN numbers aid emergency responders in determining how to approach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

### 5.8 Computer/Software Requirements

- Any computer and drawing software may, e.g., AutoCAD and/or CorelDraw, be used to meet the requirements of this program, provided that the final product adheres to the requirement for layout and FFD Approved icons.

### 5.9 Hazard Map Information (Layout)

- **Hazard Map Outline**



*Refer to Sample Drawing for detailed example.*



• **Header Information**

|                                        |           |             |
|----------------------------------------|-----------|-------------|
| <b>BSS Warehouse 1</b>                 |           |             |
| Hazard Map                             |           | Page 1 of 1 |
| Address (or Location)                  |           |             |
| RECEIVING ROAD                         |           |             |
| FIMS No.                               | 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*

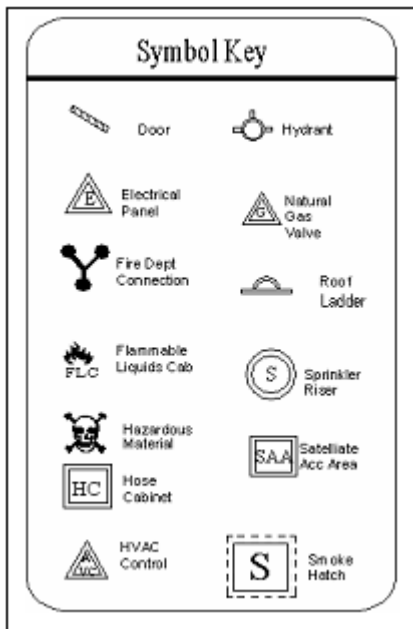
*Common Address of Building*

*FIMS number; Average Occupancy; Type of Roof*

*Scale used on this drawing*

• **Overall dimensions of this building**

Symbol Key Box



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<br>FLC<br>Liquids Cabinet          |
|  | Hydrochloric Acid<br>1 UN 1789 3-55 gal drum |
|  | Sodium 100 gal tank<br>2 Hypochlorite        |
|  | Sodium Bisulfate<br>3 UN 2693 500 gal tank   |
|  | Sodium Hydroxide<br>4 UN 1824 3-55 gal drum  |
|  | Liq Bromine<br>5 UN1744 400 gal              |
|  | Sulfuric Acid<br>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.

**NOTE:** Check the MSDS, or Safety Product Data Sheet, or Transportation Information DOT Proper Shipping Name with UN can be used to Identify the product. 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 this Section. These are the only FFD approved 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 Flammable liquid Icon




To identify the location of a Flammable Liquids Cabinet the  symbol Should be used.



Example: Hazardous Material Icon with Subscript




Select the Hazardous Materials icon  and place a subscript number underneath. The number correlates with the Hazardous Materials Box. For Example:



This icon would also be located in the Hazardous Materials Box with the description “Methyl Ethyl, 1 drum”.

Example: Valve icon

Valves  are the most likely candidate for an explanatory acronym.

|        |                            |
|--------|----------------------------|
| DWSV   | Domestic Water Shut-off    |
| GAS    | Natural Gas Shut-off Valve |
| 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 FFD approved icons 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. Examples: 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.

**NOTE:** Hazard Maps must be updated, reprinted, distributed and reposted whenever and as often there is a significant change to the facility. A significant change can be defined as a more than incidental modification to the layout, contents, mission or function of



the facility. A significant change is NOT the addition of 1 or 2 compress gas cylinders to an existing rack of 6 or, adding product inside an existing flammable liquids cabinet, or the minor rearrangement of the workspace that does not impact egress.



Sample Drawing

**PPD/SeaQuest Hall**  
Hazard Map Page 1 of 2

Address: 40100  
Road C (West of Road A)  
Road D (West of Road A)

PLUMBING: Road, Water, Sewer, Gas, Electric, Fire, TV, Cable, etc.

SCALE: 1" = 100' (1:12000)

Overall Dimensions: 281' x 100' (H, Long)

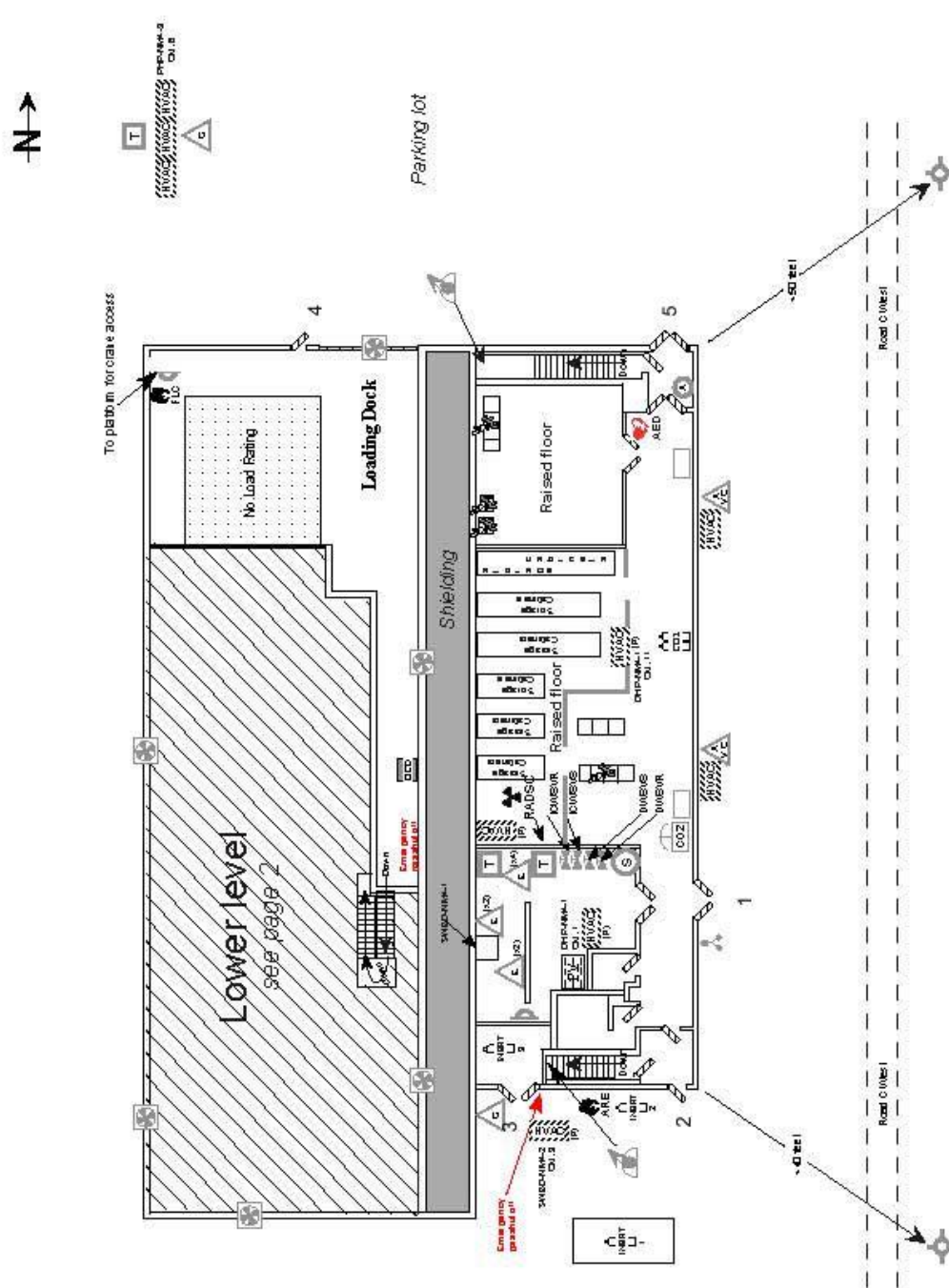
**SYMBOL KEY**

|                 |                         |                 |                  |                  |                 |                  |                  |                 |                  |                  |
|-----------------|-------------------------|-----------------|------------------|------------------|-----------------|------------------|------------------|-----------------|------------------|------------------|
| Warning Control | Car Vehicle (Hazardous) | Flammable Gas   | Flammable Liquid | Flammable Solid  | Flammable Gas   | Flammable Liquid | Flammable Solid  | Flammable Gas   | Flammable Liquid | Flammable Solid  |
| Flammable Gas   | Flammable Liquid        | Flammable Solid | Flammable Gas    | Flammable Liquid | Flammable Solid | Flammable Gas    | Flammable Liquid | Flammable Solid | Flammable Gas    | Flammable Liquid |
| Flammable Gas   | Flammable Liquid        | Flammable Solid | Flammable Gas    | Flammable Liquid | Flammable Solid | Flammable Gas    | Flammable Liquid | Flammable Solid | Flammable Gas    | Flammable Liquid |

**HAZARDOUS MATERIALS**

|               |                  |                 |               |                  |                 |
|---------------|------------------|-----------------|---------------|------------------|-----------------|
| Flammable Gas | Flammable Liquid | Flammable Solid | Flammable Gas | Flammable Liquid | Flammable Solid |
| Flammable Gas | Flammable Liquid | Flammable Solid | Flammable Gas | Flammable Liquid | Flammable Solid |
| Flammable Gas | Flammable Liquid | Flammable Solid | Flammable Gas | Flammable Liquid | Flammable Solid |































04/15/2013 MKS







# CONTROL ICONS

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



# HAZARD ICONS



Flammable Material



Mechanical Hazard



Methanol  
UN 1230



Argon Ethane Mixture



Transformer



Lead  
UN 2291



Ethane  
UN 1035



Capacitor



PCB's  
UN 2315



Flammable Gas  
System



High Voltage



Triethylamine  
UN 1296



Flammable Liquids  
Cabinet



UPS unit



Trimethylamine



Hydrogen  
UN 1049



Hazardous Material



1,2,4 Trimethylbenzene



Hydrogen Target



Beryllium  
UN 1566



Scintillation Oil



Isobutane  
UN 1969



Cyanide Plating Mtrl



Uranium



Propane  
UN 1075



Chemical Storage  
Cabinet



Radioactive Hazard



Laser Class 3+



Ethylene Glycol  
UN 1153



Radioactive Material



Cryogenic Material



Mercury  
UN 2809



Radioactive Water  
System



Compressed Gas Bottles



Lithium  
UN 1415



Radioactive Source  
Cabinet



Inert Gas Bottle



Methylal  
UN 1234



Radioactive Source

## Layout



11"x17" Sheet

**Div/Sec / Bldg Name**

Hazard Map Page 1 of

Address (or Location)

HMS Nos Occupancy Roof Type

|                      |                      |                      |
|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> |
|----------------------|----------------------|----------------------|

SCALE

Overall Dimensions: ft wide x ft long

**Symbol Key**

This box may be expanded or contracted as needed.

**Hazardous Materials**

| Icon | Material Name<br>UN No. | Description<br>Quantity |
|------|-------------------------|-------------------------|
|------|-------------------------|-------------------------|

This box may be expanded or contracted as needed.

Preparers Initial and Date of Map



### 5.10 Hazard Material Reporting Thresholds

- This following table 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.
- 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. 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.
- 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.
- 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.



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

- 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. All high pressure gas (≥ 200 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.