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# SUBJECT AREA CONTENT

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## Signs, Placards, and Labels for Environmental, Safety and Health (ESH) Hazards Subject Area

Effective Date: **Apr 5, 2016** ([Rev 4.0](#))

Periodic Review Due: **Nov 1, 2017**

Introduction

Signs and Placards

Piping Systems

Labels and Tags

Temporary Barricades

### Introduction

BNL selects the type of accident prevention sign to be used on a workplace hazard based on the degree of hazard associated with the workplace condition. The sign selected will identify the workplace hazard and convey the severity of the hazard and any accident prevention instruction to the employees.

This subject area provides details on posting signs, placards, tags, temporary barricades, labels, and piping identification to warn of environmental, safety, and health (ESH) hazards. It sets forth the elements to implement the OSHA requirements in 29 CFR 1910.145, *Accident Prevention Tags*.

Use this subject area to determine

- whether a sign, placard, label or temporary barricade is required,
- what it should look like, and
- where to place it.

Many requirements for signs are incorporated into other subject areas. The exhibit [Required ESH Signs, Placards, and Labels](#) provides a tool to help you find the information you need.

Everyone at BNL (employees, contractors, users, guests, students, visitors, etc.) are required to comply with the warnings and area restrictions that are specified by signs, labels, placards, and barricades.

### This subject area does not cover the following

- Work control documents that are posted in areas. These postings are covered in the [Document Control](#) Subject Area.
- Vehicle traffic signage and road markings. These are covered in the [Traffic Safety](#) Subject Area.

The Section on **Area Signs and Placards** does not apply to:

- Areas during construction or renovation projects. Follow the [Construction Safety](#) Subject Area.
- For signs related to **radiological hazards**, contact the [Radiological Control Division Facility Support Representative](#) for assistance and determination of required signage.

The **Section on Piping Systems** does not apply to:

- Buried piping and electrical conduit
- Buildings which contain only domestic water, sanitary lines, storm lines, sprinkler lines, and building heating and distribution systems
- Existing piping above ceilings

The Section on **Labels and Tags** does not apply to labels and tags for

- Chemical containers, which are covered in the [Chemical Safety](#) Subject Area
- Lockout/Tagout of hazardous energy sources, which are covered in the [Lockout/Tagout](#) Subject Area
- Radioactive hazards, which are covered in the [Radiological Control Manual](#)
- Waste containers, which are covered in the [Hazardous Waste Management](#) Subject Area

The Section on **Temporary Barricades** does not apply to boundary markings relating to

- Radiological hazard area marking (refer to the [Radiological Control Manual](#))
- Static magnetic fields boundaries (refer to the [Static Magnetic Fields](#) Subject Area)
- Temporary boundary markers around experimental apparatus during maintenance and set-up (unless the boundary's purpose is to prevent injury)
- Crowd control barriers
- Vehicle traffic barriers

## Responsibilities

**Line supervisors** are responsible for ensuring that employees are trained to the hazard level to which they will be exposed. All line supervisors of employees who will post signs, labels, placards, and barricades must also be trained to properly apply these warnings. Supervisors should have knowledge on the sign, label, placard, and barricade systems so they can oversee the implementation of the requirements correctly.

The **Department Chair/Division Manager** is responsible for ensuring consistent implementation of this procedure for BNL and non-BNL workers.

**All BNL and non-BNL employees** are responsible for recognizing and complying with signs, placards, labels, and barricades.

## Cross-references

BNL uses the work planning and control processes to properly manage all work, as described in the [Work Planning for Experiments and Operations](#) Subject Area. Signs, labels, and placards are an integral part of work planning.

Violations of the signs, placards, and barricades fall under the purview of the [Disciplinary Actions](#) Subject Area.

## Standards of Performance

All staff and users shall identify, evaluate, and control hazards in order to ensure that work is conducted safely and in a manner that protects the environment and the public.

All staff and guests shall promptly report accidents, injuries, ES&H deficiencies, emergencies, and off-normal events in accordance with procedures.

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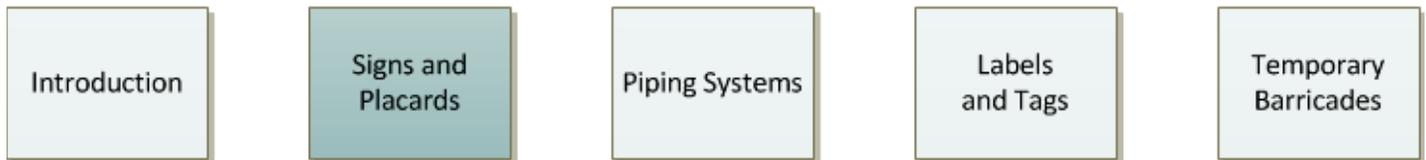
# SUBJECT AREA PROCEDURE CONTENT

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## Signs, Placards, and Labels for Environmental, Safety and Health (ESH) Hazards Subject Area

Effective Date: **Apr 5, 2016** ([Rev 4.0](#))  
Periodic Review Due: **Nov 1, 2017**



For responsible occupants (e.g., Principal Investigators, Space Managers, supervisors) or designees of areas and activities where signs, placards, or postings are required relating to environment, safety, and health hazards that can result in injury or death.

This section **does not** apply to areas during construction or renovation projects. Follow the [Construction Safety](#) Subject Area.

For signs related to **radiological hazards**, contact the [Radiological Control Division Facility Support Representative](#) for assistance and determination of required signage.

## Signs and Placards

Use this section to determine

- whether a sign or placard is required (Step 1),
- what it should look like (Step 2),
- where to place it (Step 3 and [Hazard Information Placard/Emergency Information Example](#)),
- and when to review and update the information (Step 3).

Someone else will help you acquire the sign or placard and install it.

1. Determine what signs and postings are required by:
  - Reviewing the exhibit [Required Environmental, Safety and Health \(ESH\) Signs, Placards, and Labels](#), which contains requirements about signs described in other subject areas;
  - Observing equipment and operations in areas to determine the hazards; and
  - Reviewing sources, such as:
    - [Work Planning and Controls for Experiments and Operations](#) Subject Area documents,
    - Facility Risk Assessments,
    - Job Risk Assessments,
    - Occupational Readiness Review documents,
    - Operating manuals, instruction sheets, and Safety Data Sheets.

- Determine what the sign or placard should look like by reviewing the [Design Specifications for Environmental, Safety and Health \(ESH\) Signs, Placards, and Labels](#). Ensure the signs and/or postings comply with these requirements.
- For a [Hazard Information Placard/Emergency Information](#) placard **at an entrance** to an area with hazards (such as a laboratory, shop, warehouse, and accelerator facility): use the [Hazard Validation Tool](#) to prepare the placard. If the area-based Personal Protective Equipment (PPE) information is not of a class already pre-determined in the [Personal Protective Equipment and Respirators](#) Subject Area, contact the [PPE Subject Matter Expert](#) for certification of the area.

**Note:** When printing a Hazard Information Placard/Emergency Information that will be posted **outdoors**, a waterproof, fade resistant paper, such as 3M FP3712 Print to Last Paper®, Rite in the Rain® paper 8511, or Revlar®, will improve durability. Standard cellulose-based copier/printer paper can be used for most **indoor** locations.

Review the content of the Hazard Information Placard/Emergency Information at least annually for accuracy. Update the placard if

- Owner or contact information changes;
  - Areas change in use or function;
  - Area-based Personal Protective Equipment (PPE) requirements change;
  - Hazards are introduced or removed from the area;
  - Utilities isolation processes change.
- Contact the responsible occupant or [ESH Coordinator](#) who will make arrangements for acquiring and installing permanent signs.

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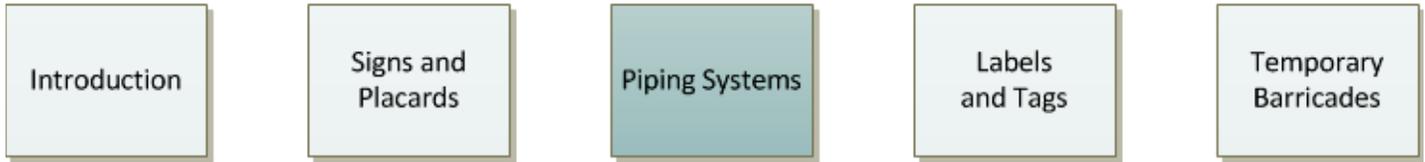
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### Signs, Placards, and Labels for Environmental, Safety and Health (ESH) Hazards Subject Area

Effective Date: **Apr 5, 2016** ([Rev 4.0](#))

Periodic Review Due: **Nov 1, 2017**



For BNL staff and contractors who install new piping systems or need to label systems already in service.

The piping identification requirements in this section **do not** apply to:

- Buried piping and electrical conduit
- Buildings which contain only domestic water, sanitary lines, storm lines, sprinkler lines, and building heating and distribution systems
- Existing piping above ceilings

## Piping Systems

This section describes a uniform system for identifying hazardous liquids and gases conveyed in piping systems. All new piping systems require positive identification by legends (text identifying the contents), directional flow arrows, and color coding.

1. Provide specific identification of piping contents. Acceptable methods for applying legends and direction arrows are paint stencil, labels, sleeves, or self-adhesive tape. Determine the labeling needs for the piping based on these requirements:

**What:**

- Identify the content of the system.
- Use arrows to indicate directional flow.
- For systems with temperatures above 120 °F (49 °C), indicate the temperature on the legend.
- For systems with pressures more than 40 PSIA, indicate the pressure on the legend.
- When pipes have electric or steam heat tracing (to prevent freezing) or are vacuum jacketed, identify the pipe content on the tracing's jacket.

**Exceptions:**

- Flow direction arrows are not required on single pass distribution systems when there is no ambiguity of the supply and use locations.
- Temperature and pressure values are not required if the temperature or pressure is controlled from a single source (such as chilled water and steam).

**Where:**

- When pipes are located above the normal line of vision, place lettering below the horizontal centerline of the pipe.
- Apply legends close to valves and adjacent to places where pipes change direction, branch, or pass through walls, floors, or roofs.
- On straight runs, repeat the legend at intervals of =25 ft (7.6 m).

**How:**

- Use bold letters. Acceptable lettering styles are: Arial, Gothic, Helvetica, and Universe. Examples of labeling are provided on the Safety and Health Services Division, [Pressure and Vacuum System Safety Website](#), [Radiological Control Manual, Part 4, Posting Requirements](#), magenta is preferred, black text is acceptable.
- Use maximum practical contrast between the legend and color field.
- For pipes less than 3/4 inches (19 mm) in diameter and for valve fitting identification, use a permanently legible engraved or embossed metal tag with block lettering not less than 1/2 inch (12.7 mm) high.
- For experimental distribution systems, alternate means of content identification are permitted when work for installing new piping systems or labeling systems already in service is controlled by the [Experimental Safety Review](#) (ESR) process. The alternate means chosen need to be agreed to and controlled by the line organizations.
- Ensure that paints and labels are made of a material that will withstand work environment conditions.

2. When practical, color the piping using either continuous color for the length of the pipe or intermittent colored labels/displays. Determine the color coding to be used based on this guidance:

Designation of Colors (ANSI ASME A13.1)		
Fluid Service	Background	Lettering
Fire Quenching	Red	White
Toxic & Corrosive	Orange	Black
Flammable	Yellow	Black
Combustible	Brown	White
Potable, cooling, boiler feed, and other water	Green	White
Compressed air	Blue	White
Radiological	Yellow	Magenta

3. On building systems, place a [work order](#) through the Facility Operations Center to have piping identification labels and color coding installed. On process piping, the system owners install or order piping identification.

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**SUBJECT AREA PROCEDURE CONTENT**

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# Signs, Placards, and Labels for Environmental, Safety and Health (ESH) Hazards Subject Area

Effective Date: **Apr 5, 2016** ([Rev 4.0](#))

Periodic Review Due: **Nov 1, 2017**



For personnel who engage in activities where labels or tags are required relating to environment, health and safety hazards that can result in injury or death. This can apply to anyone who works with containers and equipment.

The information in this section **does not** apply to labels and tags for

- Chemical containers, which are covered in the [Chemical Safety](#) Subject Area
- Lockout/Tagout of hazardous energy sources, which are covered in the [Lockout/Tagout](#) Subject Area
- Radioactive hazards, which are covered in the [Radiological Control Manual](#)
- Waste containers, which are covered in the [Hazardous Waste Management](#) Subject Area

## Labels and Tags

1. Determine what labels or tags for containers and equipment are required by
  - Consulting the exhibit [Required Environmental, Safety and Health \(ESH\) Signs, Placards, and Labels](#);
  - Evaluating the hazards based on sources, such as operating manuals and instruction sheets.
2. Review the [Design Specifications for Environmental, Safety and Health \(ESH\) Signs, Placards, and Labels](#). Ensure the labels comply with these requirements.
3. Ensure labels and tags are made of a material that will withstand work environment conditions.
4. Obtain labels and tags from the BNL store room, or, if not available, follow the [Procuring Supplies and Services](#) Subject Area for the proper mechanism to obtain the labels and tags.
5. Install labels and tags in a prominent location on the equipment.

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## SUBJECT AREA PROCEDURE CONTENT



### Signs, Placards, and Labels for Environmental, Safety and Health (ESH) Hazards Subject Area

Effective Date: **Apr 5, 2016** ([Rev 4.0](#))

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Introduction

Signs and Placards

Piping Systems

Labels and Tags

Temporary Barricades

For staff, contractors, guests, users, students, and the public, who install barricades or who encounter barricades.

This section **does not** apply to boundary markings relating to

- Radiological hazard area markings (refer to the [Radiological Control Manual](#))
- Static magnetic fields boundaries (refer to the [Static Magnetic Fields](#) Subject Area)
- Temporary boundary markers around experimental apparatus during maintenance and set-up (unless the boundary's purpose is to prevent injury)
- Building roofs designated area warning lines
- Crowd control barriers
- Vehicle traffic barriers

### Temporary Barricades

Barricades are used to alert unauthorized individuals of temporary environmental, safety or health hazards. A barricade is only one tool in an arsenal of warning devices, which includes placards, signs and labels.

- Placards, signs and labels are less restricting of pedestrian traffic and operations, and should be used if they can adequately warn unauthorized individuals of the hazards of an area.
- Barricades are particularly useful for hazards with many routes of access and hazards that cannot be continuously guarded or would require many signs or placards.

Barricades are mandatory only when specifically required in a subject area published in SBMS or by a regulatory requirement.

Those installing barricades for planned work need to complete the training *Barricades: Installing &*

*Maintaining (TQ-Barricades)* in order to ensure that barricades are appropriately selected and installed. However, personnel without TQ-Barricade training may install barricades during emergencies or at accident scenes.

Unauthorized entry into barricaded areas will be subject to disciplinary action as a safety violation as specified in the [Discipline Policy](#).

1. **Plan:** Determine when barricades are appropriate or when required using the processes described in the [Work Planning and Control for Experiments and Operations Subject Area](#) [i.e., [Section 1](#): Experimental Safety Review; [Section 2.3](#): Prescribed Work; [Section 2.4](#): Permit Planned Work; or [Section 3](#): Worker Planned Work].

2. **Select:** Choose the proper signal word, instructions, and color.

**Note:** The signal words DANGER and CAUTION are reserved for environmental, safety or health hazards and are not to be used in non-hazardous situations (such as wet paint on walls).

- Use the wording and colors specified in a regulation or subject area, if required
- When not specified in a regulation or subject area, choose:



For immediate hazards: DANGER DO NOT ENTER on a red background, or



For potential hazards: CAUTION ENTRY REQUIRES PERMISSION on a yellow background.

3. **Install:** Use barricades in a manner to alert unauthorized individuals to ESH hazards.

Ensure the barricade:

- Controls access to the space where the hazard exists;
- Covers all reasonably accessed entrances;
- Is clearly visible to people as they approach (e.g., at an appropriate height and not blocked by equipment or vegetation).

4. **Comply:** To ensure your safety, do not enter a barricaded area unless authorized.

- Entry into areas barricaded with the words DANGER DO NOT ENTER and CAUTION ENTRY REQUIRES PERMISSION is authorized for those:
  - Wearing the proper PPE for the area and hazard(s) and
  - Covered in the work planning process of the person/group installing the barricade or those escorted by the person/group installing the barricade.
- Entry into areas barricaded during Fire, Police, accident investigations, or environmental spills is always limited to those authorized by the on-scene commander/authority.

Unauthorized entry into barricaded areas will be subject to disciplinary action as a safety violation as specified in the [Discipline Policy](#).

5. **Enforce:** Line organizations that have installed barricades enforce restricting unauthorized individuals from area hazards by:

- Orally alerting unauthorized individuals to leave the area immediately if encountered;
- Advising management of wilful violation of barricades;
- Ensuring barricades are properly installed and remain intact until removed.

## Guidance

When no other subject area or regulatory requirements apply, consult the generic recommendations for installing barricades in the [Recommendations & Guidance on Temporary Barricades](#) at the [ESH Guide: Signs, Labels and Placards for ESH](#) web site. This website also provides details on barricade supplies.

Line organizations can contact the Laboratory Protection Division at x 2238, on-site 911, or x 2222 for assistance in enforcing unauthorized entries.

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# REQUIREMENTS CONTENT

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## Signs, Placards, and Labels for Environmental, Safety and Health (ESH) Hazards Subject Area

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### Reporting Obligations

None

### External/Internal Requirements

BNL has to abide by all applicable Prime Contract clauses, DOE directives, industry standards, as well as Federal, state, and local laws. BNL develops its policies and procedures based on an evaluation of these external requirements. This Subject Area implements the following requirements:

Requirement Number	Requirement Title
<a href="#">29 CFR 1910</a>	Labor/Occupational Safety and Health Standards
<a href="#">BSA Contract No. DE-SC0012704 - Clause C.4</a>	Statement Of Work
<a href="#">BSA Contract No. DE-SC0012704 - Clause H.27 (ACT)</a>	Non-Federal Agreements for Commercializing Technology (Pilot) (ACT)
<a href="#">P 450.4A (Apr 25, 2011)</a>	Integrated Safety Management Policy

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# TRAINING CONTENT

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## Signs, Placards, and Labels for Environmental, Safety and Health (ESH) Hazards Subject Area

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and Tags

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### Training

Temporary barricades: Only those who have completed the training TQ-Barricades (or an SME approved equivalent) are permitted to install DANGER DO NOT ENTER or CAUTION ENTRY REQUIRES PERMISSION barricades.

Exception: Personnel without TQ-Barricade training may deploy temporary postings and barricades if responding to accident investigations or during emergencies.

Hazard Information Placards: Training is available to those who need assistance in preparing the Hazard Validation Tool's portion in order to generate the Hazard Information/Emergency Response Placard: [Area-Based PPE & Hazard Information Placarding](#) (TQ-AREA-PPE).

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# CHANGES CONTENT



## Signs, Placards, and Labels for Environmental, Safety and Health (ESH) Hazards Subject Area

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### Revision History

<a href="#">Revision Number</a>	<a href="#">Revision Type</a>	<a href="#">Revision Date</a>	Revision Description
4.0	Major	04/05/2016	The section on Barricades was revised to remove non-regulated practices. They were incorporated on the ESH Guides website.
3.0	Major	02/04/2015	<p>This was a major revision to the section Temporary Barricades and the following significant changes were made:</p> <ul style="list-style-type: none"><li>• Gray box - stronger language (“prohibit” replaces “deter”) was incorporated for emphasis: Barricades are used to “prohibit” bystanders from temporary safety or health hazards that can result in injury or death;</li><li>• Step 1, Plan - language was added as a reminder that other subject areas may have requirements on conditions, times, and signal word and warning message.</li><li>• Step 3, Install barricades<ul style="list-style-type: none"><li>• Adding a bullet for clarification: Ensure the barricade is clearly visible to people as they approach (e.g., at an appropriate height and not blocked by surroundings or vegetation)</li><li>• Adding instructions on attachment points for tape: A breakable, electrically non-conductive temporary barricade (such as plastic tape or breakable chain) may be attached to piping and conduit. Barricades created by rope, metal chain, or fences may not use these anchor points.</li></ul></li><li>• Step 4, Comply with barricades<ul style="list-style-type: none"><li>• Providing a method to temporarily allow persons into the area who</li></ul></li></ul>

			<p>are not on the work planning document (such as inspectors)</p> <ul style="list-style-type: none"> <li>• Providing a method to temporarily obtain authorization when the person installing the barricade cannot be reached in an emergency.</li> <li>• Step 6, Remove barricades - Providing a method to remove barricades when the person installing the barricade is no longer available (such as extended illness, death, retirement, or termination of employment.)</li> <li>• Guidance - adding a paragraph to incorporate more detail on how these barricades should be observed: The vertical plane created by a barricade should be observed as a barrier that arms, legs, trunk, and head do not cross. Some subject areas for hazards require the barricade be treated as non-penetrable barrier.</li> </ul>
2.0	Major	11/01/2014	The subject area was completely reviewed, revised, and published in a new layout. Specific requirements for using temporary barricade tapes were added. The subject area scope was modified to include piping systems identification. The separate subject area "Piping Systems, Identification of" was retired since a section on piping systems is now included in this subject area.
1.3	Minor	01/30/2014	This was a minor revision to clarify the process and guidance for acquiring and installing signs in the section Identifying and Installing Signs, Placards, and Labels for Environment, Safety and Health (ESH) Concerns.
1.2	Minor	03/11/2013	The exhibit Design Specifications for Environmental, Health and Safety (ESH) Sign, Placard, and Labels was revised to add "barricade tape" references and other changes were made to clearly mark what is recommended and what is required.
1.1	Minor	10/31/2012	This was a minor revision and significant changes were made for clarification to section 1. Identifying and Installing Signs, Placards, and Labels for Environment, Safety and Health (ESH) Concerns. These changes address requirements regarding the locations for posting placards and the frequency of reviewing the content of those placards at least annually. The exhibit Hazard Information Placard/Emergency Information Example was revised to reflect minor changes in the format of the placard. The exhibit Design Specifications for Environmental, Health and Safety (ESH) Sign, Placard, and Labels was revised to add ANSI Z535.5, Safety Tags and Barricade Tapes (For Temporary Hazards).
1.0	Major	07/28/2011	The Hazard Information Placard program and its requirements were transferred from the Emergency Preparedness Subject Area to the new Signs, Placards, and Labels for Environmental, Safety, and Health (ESH) Hazards Subject Area. This subject area describes the area placarding program; standardizes the format of Environmental, Safety, and Health (ESH) signs and labels; and provides links to requirements for signs, labels, and postings to protect workers from ESH hazards.

**NOTE:** The dates for "Major Revisions" match the Subject Area Effective Date. Major and/or Minor revisions may not always match with the "Last Modified Date", since this date could reflect changes to links or spelling. Records of changes are maintained in the SBMS documentation for each subject area.

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# DEFINITION CONTENT



## Signs, Placards, and Labels for Environmental, Safety and Health (ESH) Hazards Subject Area

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### Definitions

Term	Definition
hazard	A source of danger (i.e., material, energy source, or operation) with the potential to cause illness, injury, or death to personnel or damage to a facility or to the environment (without regard for the likelihood of a harmful event occurring or of consequence mitigation).
Hazard Information Placard/Emergency Information	A safety sign posted at an entrance to an area that identifies key contact information, PPE required for entry, hazards in the area, and isolation location for utilities.
label	A visual alerting device, usually on a piece of self-adhesive paper, affixed to equipment or containers which advises the observer of a hazard or the content of a container (e.g., box, vessel, bottle, case). It may advise the observer of the level of seriousness. May also provide directions to eliminate or reduce the hazard. It may advise of the consequences of the hazard.
OSHA signal word	A word that designates the level of hazard seriousness. In descending order: Danger, Warning, Caution, and Notice.
OSHA signal word: Caution	Signal word for a hazardous situation which, if not avoided, could result in minor or moderate injury. Used on signs and labels/tags.
OSHA signal word: Danger	Signal word for a hazardous situation which, if not avoided, will result in death or serious injury. Limited to the most extreme situations. Used on signs and labels/tags.

OSHA signal word: Notice	Signal word to address practices not related to personal injury. Do not include the safety alert symbol. Used on signs and labels.
OSHA signal word: Warning	Signal word for a hazardous situation which, if not avoided, could result in death or serious injury. Used on labels, tags, and selected signs.
personal protective equipment (PPE)	Clothing or equipment that is intended to protect the worker's body (including eyes, face, feet, hands, head, and hearing) from hazards capable of causing injury, illness, or impairment of any bodily function.
sign (safety)	A printed image or printed words placed at a highly visible location which advises the observer of a hazard which can cause an accident. It advises the observer of the level of seriousness. It may also provide directions to eliminate or reduce the hazard. It may advise of the consequences of the hazard.
tag	A visual alerting device, usually cardboard, paper, or plastic affixed to equipment or containers which advises the observer of a hazard or the content of a container (e.g., box, vessel, bottle, case). It may advise the observer of the level of seriousness. May also provide directions to eliminate or reduce the hazard. It may advise of the consequences of the hazard.

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# LESSONS LEARNED CONTENT

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## Signs, Placards, and Labels for Environmental, Safety and Health (ESH) Hazards Subject Area

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### Lessons Learned

BNL's Lessons Learned Program supports ongoing learning by collecting and sharing work experiences and good practices. This allows us to better understand risks and hazards and develop strategies to control them. Many managers share selected Lessons Learned with their staff at daily briefings and morning meetings to update everyone's knowledge and skills. The Program draws information from BNL, the DOE complex, and private industry. For more, [see the BNL Lessons Learned Program website](#).

Here is a selection of recent Lessons Learned related to this particular Subject Area:

Title	Date
<a href="#">Fume Hoods Accessed While Labeled "Out of Service"</a>	Dec 11 2013
<a href="#">Quick Read Lessons Learned - Confined spaces can be unrecognized if placards are missing</a>	Jan 22 2013
<a href="#">Quick Read Lessons Learned - From Hanford Facility: Lack of physical barriers can cause injuries</a>	Mar 28 2013

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Questions/Comments

**Design Specifications for Environmental, Safety and Health (ESH)  
Signs, Placards, Barricade Tapes, and Tags**

## A. Requirements and Guidance on the Use of Signs, Barricades, and Tags

	<p><b>Requirement:</b></p> <ul style="list-style-type: none"> <li>• <b>When an immediate hazard presents a threat of death or serious injury.</b></li> <li>• Color: Red background with white lettering. (Black lettering acceptable on barricade tapes).</li> <li>• To be used on Signs, Tags, and Barricades.</li> </ul> <p><b>Guidance</b> (typical scenarios):</p> <ul style="list-style-type: none"> <li>• A storm knocks down a power line and a live wire is on the ground. Use a <u>barricade</u> which states <b>DANGER DO NOT ENTER</b> around the downed wire to alert of the lethal hazard (electrocution).</li> <li>• A storm has uprooted a large tree but it is trapped in the branches of adjoining trees. When it falls it will kill or seriously injure anyone underneath. Use a <u>barricade</u> which states <b>DANGER DO NOT ENTER</b> to alert of serious injury (crushing).</li> <li>• A hazard with the potential for serious injury is present when the cover on a piece of equipment is removed. It is safe to be in the area when the cover is on the equipment. Use a <u>sign or label</u> on the equipment with <b>DANGER</b> and a message describing the hazard and consequences of contact with the equipment when the cover is removed.</li> </ul>
	<p><b>Requirement: None.</b> The <b>WARNING</b> signal word is optional when the hazard is between “Danger” and “Caution”.</p> <p>Color: Orange background with black lettering.</p> <p>To be used only on <u>tags</u>.</p>
	<p><b>Requirement:</b></p> <ul style="list-style-type: none"> <li>• <b>When non-immediate or potential hazards or unsafe practices present a lesser threat of employee injury</b></li> <li>• Color: Yellow background with black lettering.</li> <li>• To be used on Signs, Tags, and Barricades.</li> </ul> <p><b>Guidance</b> (typical scenarios):</p> <ul style="list-style-type: none"> <li>• The floor in an area has standing water because of flooding. It will take a few days to resolve. Use a barricade which states <b>CAUTION ENTRY REQUIRES PERMISSION</b> to alert of the moderate injury hazard (slip &amp; fall).</li> <li>• An area is to be marked off-limits to those with a particular medical condition, such as medical implants around magnetic field sources. Anyone that does not have that medical condition can safely enter. Use <b>CAUTION ENTRY REQUIRES PERMISSION</b> signs at access points that describe the exact entry conditions. Barricades, fencing, or lines on the floor may be used if necessary to demarcate the hazard area and reduce the number of signs needed.</li> <li>• A floor has been mopped and will be wet for several minutes. Use a <b>CAUTION ENTRY REQUIRES PERMISSION</b> sign or four-sided cone to alert people that they can enter, but need to be careful when walking across the surface.</li> </ul>
	<p><b>Requirement: None.</b> Use of this signal word is optional.</p> <p>Color: Blue background with white lettering.</p> <p>To be used on Signs.</p> <p><b>Guidance:</b></p> <ul style="list-style-type: none"> <li>• Use the Signal Word <b>NOTICE</b> and blue background with white lettering on signs or tags to alert of situations/practices not related to personal injury.</li> <li>• Example: <i>“Keep this door locked to prevent theft” or “Wet Paint”</i></li> </ul> <p>The walls of a hallway have been painted. Use a sign with <b>NOTICE</b> to alert passers-by of the chance of getting paint on clothes.</p>
	<p><b>Requirement: None.</b> Use of this color scheme is optional. No signal word is used.</p> <p>Color: Green background with white lettering.</p> <p>To be used on Signs.</p> <p><b>Guidance:</b></p> <ul style="list-style-type: none"> <li>• Use the green background with white lettering on signs or tags that provide general instructions and suggestions relative to safety.</li> <li>• Example: <b>Always think before you act</b> or location of safety equipment (such as: <b>Safety Showers</b>).</li> </ul>

## B. Guidance on Format and Content of Safety Messages

### Recommended Context of Messages

Text Content	Example of <u>Poor</u> Content	Example of <u>Good</u> Content
Signal Word →	<b>May be dangerous</b>	<b>DANGER</b>
“Hazard” Description →	HAZARDOUS VOLTAGE.	<b>High Voltage</b>
“How to Avoid” Description →	Contact should be avoided at all times. Keep the access door closed and do not enter this area.	<ul style="list-style-type: none"> <li>• Keep Out!</li> <li>• Keep Door Closed</li> </ul>
“Consequences” Description → (optional, unless not obvious)	High voltage may cause serious injury such as shock and arrhythmia that may lead to loss of consciousness or death	<ul style="list-style-type: none"> <li>• Causes Serious Injury or Death</li> </ul>

Recommended Format of Text	Example of <u>Poor</u> Format	Example of <u>Good</u> Format
<b>Do not capitalize all words.</b> Use “Title” case except for Signal Words. ALL CAPS is harder to read in long passages.	DO NOT CAPITALIZE ALL LETTERS USE “TITLE” CASE ALL CAPS IS HARDER TO READ IN LONG PASSAGES	Do Not Capitalize All Letters. Use “Title” Case All Caps is harder to read in long passages.
<b>Left Justify text</b>	Left Justify Text. Avoid Centering Text. Use one thought per line. Use bullets for text of equal importance	<ul style="list-style-type: none"> <li>• Left Justify Text.</li> <li>• Avoid Centering Text</li> <li>• Use one thought per line</li> <li>• Use bullets for text of equal importance</li> </ul>
<b>Use Black color</b>	Use the color <b>Black</b> for lettering. Black is most pronounced color. <b>Use one color only.</b> Do not <b>mix colors</b> for emphasis. Black lettering is required on <b>OSHA</b> <b>Danger</b> and <b>Caution</b> signs	Use the color Black for lettering. Black is most pronounced color Use one color only Do not mix colors for emphasis Black lettering is required on OSHA Danger and Caution signs

#### Keys to effective wording:

- Place important information first
- Eliminate non-essential words and pronouns.
- Use action statements (“Keep Out” instead of “Do not enter”)
- Use active voice (“Keep hands away” instead of “Your hands must be kept away”)

### C. Personal Protective Equipment Symbols (BNL)

Required for Hazard/Emergency Information Placards



**SAFETY GLASSES**



**SAFETY GLASSES IN  
DESIGNATED AREA**



**LAB COAT**



**LAB COAT IN  
DESIGNATED AREA**



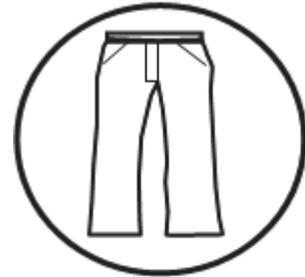
**FULLY ENCLOSED**



**IMPACT RESISTANT**



**FULLY ENCLOSED  
SHOE IN TRAFFIC**



**LONG PANTS**



**HARD HAT**



**HEARING  
PROTECTION**

## D. Symbols for Chemical Hazards (OSHA)

Required for Hazard/Emergency Information Placards

Required on original container labels on chemicals received from manufacturers/distributors **after June 1, 2015**. (Global Harmonization System aligned)

## E. Hazard Symbols Adopted by BNL

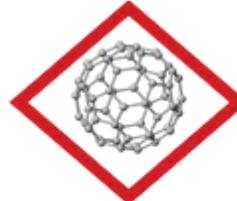
Required for Hazard/Emergency Information Placards



**BIOLOGICAL  
BSL1**



**BIOLOGICAL  
BSL2**



**NANOMATERIALS**



**CRYOGENS**



**MAGNETIC FIELD  
≥ 0.5 mT (5Gauss)**



**MAGNETIC FIELD  
≥ 60 mT  
(600 Gauss)**



**MAGNETIC FIELD  
≥ 2 Tesla**



**ULTRAVIOLET  
FIELD**



**INFRARED  
FIELD**



**SUB  
RADIOFREQUENCY  
FIELD**



**MICROWAVE  
FIELD**



**RADIO-FREQUENCY  
FIELD**



**OXYGEN  
DEFICIENCY**



**OXYGEN  
DEFICIENCY**



**NOISE**



**STARTLE HAZARD**



**LASER 3**



**LASER 4**

# Hazard Information Placard/Emergency Information Example

Use the Hazard Validation tool at <https://intranet.bnl.gov/esh/shsd/seg/HVT/> to prepare the Hazard Information Placard. Enter the following information on the placard:

**Building, Room, and Department:** Area designation from the Key Plan/F&O Space Database. Organization that is responsible for the area.

**Primary & Alternate Contact:** Person with primary responsibility for the area in the event of emergency. Include off-hours contact information and backup contact.

**Protective Equipment Required for Entry** based on PPE Area Classification in the [PPE and Respirators](#) Subject Area.

**Hazards of the Area** including: Accelerators; Biological Hazards; Chemical; Intermittent Energy Release/Startle Hazards; Lasers; Nanomaterials; Noise; Non-Ionizing Radiation; Oxygen Deficiency Hazards; Radiation Generating Devices; and, Radiation Areas/Materials.

**Additional Information:** Optional information helpful to entrants and emergency responders. May be used to provide locations of hazards. May be used to list hazards not otherwise listed. May be used to note special issues or exceptions regarding wording or symbols on the placard.

**Isolation Locations for Utilities:** Electric; Gas; Steam; Ventilation:

- Give location of any switches that cut off power to experimental equipment and space. Include specific information as needed.
- Identify any exposed, energized electrical conductors or circuit parts and the location of the disconnect, if not already posted.
- Give location of controls for special ventilation controls with space where the main controls would not shut down.
- Give location of gas shut-off valve, if the shut off valve is different than the main shut off.

HAZARD INFORMATION PLACARD/EMERGENCY INFORMATION Safety, Health & Environmental Information			
Bldg: 0120 Room: 1-30		Contact Information	
Dept: HP Safety & Health Services Division		Name	Work #
NO FOOD OR DRINK ALLOWED		Cell/Home	
Rev. Date: 08/30/12 2:33 PM		Alt. #1:	
ESR / SWP / RWP / PI:		Alt. #2:	
PROTECTIVE EQUIPMENT REQUIRED FOR AREA Area Designation: Warehouse			
 LONG PANTS		 IMPACT RESISTANT SAFETY SHOE	
HAZARDS OF THE AREA			
 GAS UNDER PRESSURE		 RADIO-FREQUENCY RADIATION HAZARD	
		 NO OPEN FLAME	
ADDITIONAL INFORMATION			
ISOLATION LOCATIONS FOR UTILITIES (IF APPLICABLE)			
Electric:			
Gas:			
Steam:			
Ventilation:			

HAZARD INFORMATION PLACARD/ EMERGENCY INFORMATION				
Safety, Health & Environmental Information				
Bldg:	Room:	Contact Information		
		Name	Work#	Cell/Home
Department/Division:		Primary:		
NO FOOD OR DRINK ALLOWED NO SMOKING		Rev Date: 11/30/10	Alternate:	
		Alternate:		
<b>PROTECTIVE EQUIPMENT REQUIRED FOR ENTRY</b>				
Area Designation: Chemical Laboratory				
				
SAFETY GLASSES	LAB COAT	LONG PANTS	FULLY ENCLOSED SHOE	
<b>HAZARDS OF THE AREA</b>				
MS Area Designation: <del>XX-XX</del>				
<i>Example</i>				
				
CARCINOGEN / HAZARD	REACTIVE & EXPLOSIVE	CORROSIVE SUBSTANCES		
				
NANOMATERIALS	MAGNETIC FIELD ≥ 0.5 mT (5 Gauss)	CRYOGENS	MICROWAVE FIELD	
ADDITIONAL INFORMATION				
<u>ISOLATION LOCATIONS FOR UTILITIES (IF APPLICABLE)</u>				
ELECTRIC: GAS: STEAM: VENTILATION:				

## Guidelines for the Placement of Hazard Information Placards

Install 8x10" plastic placard-holder mounted in the "portrait" alignment.



Placard should be mounted on walls or the stationary portion of double doors.

Two acceptable sites for the placard are shown to the right.



Acceptable locations concerning entry door

Avoid locating the placard on moving doors that are opened for access to the room and doors that may be propped open.



Placard moves with door into room, making viewing prior to entry difficult

Placards should be at eye level.

(Best height is the bottom edge of placard 55 to 60 inches from the floor).



Too low



Ideal height

## Required Signs, Placards and Labels for Environment, Safety, and Health (ESH)

Subject Area or Topic	Include on Hazard Information Placard / Hazard Validation Tool	Additional Sign, Label or Tag	Specific information on which additional Sign, Label, or Tag is required or optional
<a href="#">Accelerator Safety</a>	Yes	No	--
<a href="#">Asbestos</a>	Yes	Sign and Label	<a href="#">Warning Label and Sign Content</a>
<a href="#">Beryllium</a>	Yes	Sign and Label	<a href="#">Beryllium Warning Labels and Signs</a>
<a href="#">Biosafety In Research</a>	Yes	Sign and Label	<a href="#">Biohazard Label</a>
<a href="#">Bloodborne Pathogens</a>	Yes	Label	<a href="#">Biohazard Label</a>
<a href="#">Chemical Safety</a>	Yes	Label / Sign	Labels: <a href="#">BNL Hazard Communication Program for Industrial Areas: Step 7</a> Labels: <a href="#">Hazard Information for Laboratories: Step 7</a>
<a href="#">Compressed Gas Cylinders and Related Systems</a>	Yes	Sign	Sign: <a href="#">Storing Compressed Gas Cylinders</a>
<a href="#">Confined Spaces</a>	Yes	Sign	<a href="#">Confined Space Sign</a>
<a href="#">Cryogenics Safety</a>	Yes	Sign	Optional: <a href="#">ESH Guide: Cryogenic Safety</a>
<a href="#">Drinking Water</a>	No	Sign	Optional Sign: <a href="#">Recommendations for Periodic Cleaning of Water Coolers</a> (pdf)
<a href="#">Electrical Safety</a>	No	Label / Tag	<a href="#">Electrical Equipment Labels</a>
<a href="#">Emergency Preparedness</a>	No	Sign	<a href="#">Emergency Information Poster</a> <a href="#">Indoor Assembly Area Information Poster</a> <a href="#">Shelter-In-Place Area Poster</a>
Eyewash and Safety Shower	No	Sign	Sign: "Eye Wash" or "Safety Shower" at equipment location
<a href="#">Excavation Safety</a>	No	Sign	Sign: <a href="#">Pre-Planning for Excavation, Step 3</a>
<a href="#">Fire Safety</a>	Yes	Sign / Label	Multiple signs & labels: <a href="#">Fire Safety</a>

Subject Area or Topic	Include on Hazard Information Placard / Hazard Validation Tool	Additional Sign, Label or Tag	Specific information on which additional Sign, Label, or Tag is required or optional
<a href="#">Forklift Safety</a>	No	Sign	Sign: Freight Handling Capacity Sign on <a href="#">elevators</a>
<a href="#">Hazardous Waste Management</a>	No	Sign / Label	Multiple signs and labels: <a href="#">Hazardous Waste Management</a>
<a href="#">Industrial Waste</a>	No	Label	Multiple labels: <a href="#">Industrial Waste</a>
<a href="#">Laser Safety</a>	Yes	Sign	Sign: Contact: <a href="#">Laser Safety Officer</a>
<a href="#">Lead</a>	Yes	Sign	<a href="#">Lead Sign</a>
<a href="#">Liquid Effluents</a>	Yes	Sign	<a href="#">Sink-Releasable Chemical List</a>
<a href="#">Lockout/Tagout (LOTO)</a>	No	Tag	<a href="#">BNL Authorized LOTO Tag</a> <a href="#">LOTO Padlock for Contractors with associated tag</a>
<a href="#">Magnetic Fields, Static</a>	Yes	Sign	<a href="#">Safety Signs For Static Magnetic Fields</a>
<a href="#">Mixed Waste Management</a>	No	Sign / Label	Multiple signs and labels: <a href="#">Mixed Waste Management</a>
<a href="#">Nanoscale Particle ESH</a>	Yes	Label	<a href="#">Nanomaterial Safety Labels</a>
<a href="#">Noise And Hearing</a>	Yes	Sign	<a href="#">Noise Hazard Posting</a>
<a href="#">Non-Ionizing Radiation Safety</a>	Yes	Sign	<a href="#">Non-Ionizing Radiation Area Signs</a>
<a href="#">Non-Radioactive Airborne Emissions</a>	Yes	None	--
<a href="#">ODH System Classification and Controls</a>	Yes	Postings	<a href="#">ODH Postings</a>
Paper Shredder	No	Sign	Optional Operator Aid: <a href="#">Paper Shredder Warning - Operator Aid</a>
<a href="#">PCB Management</a>	Yes	Label / Sign	Multiple signs and labels: <a href="#">PCB Management</a>
<a href="#">Personal Protective Equipment and Respirators</a>	Yes	Sign	Hazard Information Placard/Emergency Information Placard created using the <a href="#">Hazard Validation Tool</a>
<a href="#">Pressure Safety</a>	Yes	Posting Label / Tag	Posting: <a href="#">Unexpected Energy Release Label/Tag</a> : <a href="#">Pressure and Vacuum Systems Safety</a>
<a href="#">Radiation-Generating Devices</a>	Yes	Sign / Label / Tag	Multiple signs and labels: <a href="#">Radiation-Generating Devices</a>

Subject Area or Topic	Include on Hazard Information Placard / Hazard Validation Tool	Additional Sign, Label or Tag	<b>Specific information</b> on which additional Sign, Label, or Tag is <i>required or optional</i>
<a href="#">Radioactive Waste Management</a>	No	Sign / Label	Sign: <a href="#">Radioactive Waste Accumulation Area Basic Rules</a> Label: <a href="#">Radioactive Waste Label</a>
Radiological: <a href="#">Entry And Egress For Areas Controlled For Radiological Purposes</a>	Yes	Sign	Multiple signs & lables: <a href="#">Entry And Egress For Areas Controlled For Radiological Purposes</a>
<a href="#">Radio Frequency (Spectrum) Management</a>	No	Sign	Sign: <a href="#">RF Authorization; DOE serial number; responsible individual contact info.</a> (The requirement to post a sign is in Section 2.3, Step 2. This is not an ESH requirement.)
<a href="#">Regulated Medical Waste Management</a>	No	Label	<a href="#">Biohazard Label</a>
<a href="#">Sealed Radioactive Source Control</a>	Yes	Label	Label: <a href="#">BNL-RCD Barcode Post Area</a> Label: source or its container
<a href="#">Signs, Placards, and Labels for ESH Hazards</a>	No	Label / Tag	Label/Tag: <a href="#">Specifications for Pipe Identification</a>
<a href="#">Walking and Working Surfaces</a>	No	Sign	Sign: <a href="#">Warning at slip and fall hazards</a> (ANSI Z535.3-1991)