

## **Section 9**

### ***Signs, Signals, and Barricades***

#### **9.1 Scope**

This section establishes requirements for the design, application, and use of signs, signals, and barricades; as well as specific tags and labels to indicate specific hazards which could harm workers, the public, or cause property damage. These requirements do not apply to bulletin boards or safety posters.

#### **9.2 General Requirements**

Signs, tags, signals, labels, and barricades shall be used to give warning and caution of hazards. These materials instruct and direct workers and the public. Warning systems shall be visible when the hazard or problem exists and removed or covered when it no longer exists.

#### **9.3 Responsibilities**

##### **9.3.1 First-Line Supervisors**

- 9.3.1.1** Shall identify potential hazards or risk exposures which require signs, signals, and barricades.
- 9.3.1.2** Shall ensure signs, signals, and barricades are in place and maintained in good working conditions.
- 9.3.1.3** Shall ensure and track employee's completed training per paragraph 9.4.

##### **9.3.2 Employees**

- 9.3.2.1** Shall complete required training programs per paragraph 9.4.
- 9.3.2.2** Shall install signs, signals, and barricades per requirements of the Job Hazard Analysis (JHA) or work plan.
- 9.3.2.3** Shall follow and obey the signs, signals, and barricades in the work area.
- 9.3.2.4** Shall report any problems with signs, signals, and barricades to the supervisor.

#### **9.4 Training Requirements**

##### **9.4.1 Initial**

Employees shall be trained on the meaning and demonstrate an understanding of the correct use of various signs, signals, tags, labels, and barricades throughout the workplace and any special precautions which may be required.

#### 9.4.2 Refresher

Additional employee training shall occur upon the following:

- changes at the worksite present a hazard about which an employee has not been previously trained;
- changes in types of scaffold, fall protection, falling object protection, aerial lift, or other equipment are implemented;
- changes in regulations pertaining to signs, signals, tags, labels, and barricades; and/or
- if the supervisor believes the employee lacks the necessary skill, understanding, or proficiency to work safely.

#### 9.4.3 Recordkeeping

Reclamation training records shall be kept in the Department of the Interior official repository.

### 9.5 Pre-job Briefing and Planning Requirements

Before starting work and while planning job tasks, employees shall be briefed on the JHA which identifies any signs, signals, tags, labels, and barricades to ensure they are appropriate for the identified hazard.

### 9.6 Safe Practices

#### 9.6.1 Signage Guidance

**9.6.1.1 Posting.** Required signs and signals shall be visible when work is performed and shall be removed or covered when the hazard no longer exists.

**9.6.1.2 Design and Application.** The design and application of signs must conform to the latest edition of the following standards: American National Standards Institute (ANSI) Z535, Occupational Safety and Health Administration (OSHA) 1910.145 – *Specifications for accident prevention signs and tags*, OSHA 1926 Subpart G – *Signs, Signals, and Barricades*, and The American Society of Mechanical Engineer (ASME) A13.1, *Scheme for Identification of Piping Systems*.

**9.6.1.3 Appearance.** Signs shall be furnished with rounded or blunt corners and shall be free from sharp edges, burrs, splinters, or other sharp projections. The ends or heads of bolts or another fastening device shall not constitute a hazard. The

wording shall be easily read and concise and contain enough information to be easily understood.

## 9.6.2 General Safety Signs

**9.6.2.1 Purpose.** Notices of general practice and rules relating to health, first aid, medical equipment, sanitation, housekeeping, and general safety.

**9.6.2.2 Design.** Shall have a signal word in white on a green background in the upper panel and a lower panel for additional wording or symbols in black or green on a white background. Alternatively, the entire sign may be white letters on a blue background.

## 9.6.3 Information Signs

**9.6.3.1 Purpose.** Provide information of a general nature, such as designation of facilities or services, to avoid confusion or misunderstanding.

**9.6.3.2 Design.** Shall have the signal word "NOTICE" in white on a blue background in the upper panel; the lower panel shall be used for additional wording or symbols in blue or black on a white background. Alternatively, the entire sign may be white letters on a blue background.

## 9.6.4 Danger Signs

**9.6.4.1 Purpose.** Indicate an imminently hazardous situation that, if not avoided, will result in death or serious injury. Danger signs indicate a specific, immediate, and grave danger; a hazard capable of producing irreversible damage or injury; and prohibition against harmful activity.

**9.6.4.2 Design.** Shall follow the specifications illustrated in Figure 1 to 13 of ANSI Z535.2-2011. Shall have the signal word "DANGER" in white letters at the top of the sign in a rectangular safety red background. The safety alert symbol shall be on the same horizontal level as the base of the letters of signal-word height equaling or exceeding the signal word height. Alternative OSHA or ANSI requirement calls for lettering to be black letters on a white background and the symbol/pictorial panel, if used, shall be square with black and safety red, or black and safety red symbol on a white background. Other approved danger signs shall have the message in white lettering on a red background.

## 9.6.5 Caution Signs

**9.6.5.1 Purpose.** Indicate a potentially hazardous situation that, if not avoided, may result in a minor or moderate injury. It may be used to alert against unsafe

practices which may result in property damage. Hazards may be the same as those associated with danger signs but have less significant consequences should an incident occur. Call attention to a specific potential hazard capable of resulting in severe, but not irreversible, injury or damage.

**9.6.5.2 Design.** Shall have "CAUTION" in yellow on black background and lower panel for additional sign wording in black on a yellow background. Caution signs shall follow the specifications illustrated in Figure 1 to 13 of ANSI Z535.2-2011.

### **9.6.6 Warning Signs**

Indicate a potentially hazardous situation that, if not avoided, could result in death or serious injury. The hazards may be similar to those associated with danger signs but are significantly less magnitude.

### **9.6.7 Exit Signs**

**9.6.7.1 Purpose.** Shall be posted to provide guidance to an exit or positioned so the follow-on exit sign is visible. Signs will indicate the direction of the exit with an arrow, or no arrow when exit path continues straight on.

**9.6.7.2 Design.** When required, shall be lettered in legible red or green letters, not less than 6 inches high, on a white field; the principal stroke of the letter shall be at least 3/4-inch in width. Each exit sign must be illuminated to a surface value of at least five foot-candles (54 lux) by a reliable light source (not battery powered) and be distinctive in color. Self-luminous or electroluminescent signs with a minimum luminance surface value of at least .06 footlamberts (0.21 cd/m<sup>2</sup>) are permitted.

### **9.6.8 Fire and Emergency Signs**

**9.6.8.1 Purpose.** Shall be used only to label or point to fire extinguishing equipment, fire escapes and exits, gas shutoff valves, sprinkler drains, and emergency procedures.

**9.6.8.2 Design.** Shall have the signal word in white on a red background in the upper panel, with the lower panel used for additional sign wordings or symbols in red on a white background.

### **9.6.9 Safety Instruction Signs**

Shall be white; the upper panel shall be green with white letters to convey the principal message. Additional wording shall be on the lower panel in black lettering.

### **9.6.10 Directional Signs**

Shall be white; the upper panel shall have a black panel with a white directional symbol. Additional wording shall be on the lower panel in black lettering. This does not include automotive traffic signs.

**9.6.11 Pipe Labels**

Label pipes to identify hazardous materials according to ASME 13.1, *Scheme for the Identification of Piping Systems*, with directional arrows and label spacing at branches of joints (elbows, t-joints, etc.) and on each side of a wall. This requirement does not apply to permanent installation of piping for potable water, cooling water, or compressed air; these labels are addressed in Reclamation design standards.

Basic labeling requirements must include:

- arrows to indicate flow direction;
- pipe content using a legend that is brief, informative, pointed, and simple;
- color to identify the primary characteristic of the contents (Table 9-1); and
- visible and legible legend letters no less than ½ inch height (Figure 9-1 and Table 9-2).

Table 9-1. Designation of Colors for Piping Systems

Fluid Service	Background Color	Letter Color
Fire quenching fluids	Safety Red	White
Toxic and corrosive fluids	Safety Orange	Black
Flammable and oxidizing fluids	Safety Yellow	Black
Combustible fluids	Safety Brown	White
Potable, cooling, boiler feed, and other water	Safety Green	White
Compressed air	Safety Blue	White

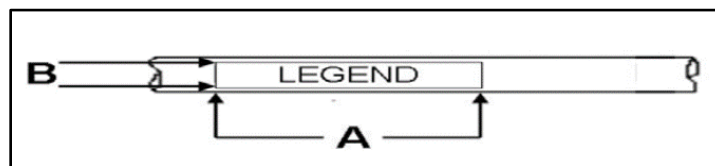


Figure 9-1. Pipe Label Legend for Piping System

Table 9-2. Identification of Piping System

Outside Diameter of Pipe	Length of Color Field "A"	Size of Letter "B"
¾ to 1 ¼ inches	8 inches	½ inch

Outside Diameter of Pipe	Length of Color Field "A"	Size of Letter "B"
1 ½ to 2 inches	8 inches	¾ inches
2 ½ to 6 inches	12 inches	1 ¼ inches
8 to 10 inches	24 inches	2 ½ inches
Over 10 inches	32 inches	2 ½ inches

Tags should be used for pipes less than ¾-inch diameter and should be hung from valves.

### 9.6.12 Temporary Traffic Control

- 9.6.12.1 Federal Guidance.** Shall be in accordance with the United States Department of Transportation Federal Highway Administration (FHWA) *Manual on Uniform Traffic Control Devices* (MUTCD) and shall be conducted in a manner as to offer the least possible obstruction to the safe and satisfactory movement of traffic over existing roads.
- 9.6.12.2 Local Department of Transportation (DOT) Guidance.** Barricades, warning signs, lights, temporary signals, other devices, flagger, and signal devices shall meet or exceed the minimum requirements of local DOT requirements.
- 9.6.12.3 Construction Areas.** Shall be posted with legible traffic control signs and protected by traffic control devices, at the point of hazard.
- 9.6.12.4 Design.** The design and use of all traffic control devices, including signs, signals, markings, barricades, and other devices for protection of employees shall conform to Part 6 of the MUTCD.
- 9.6.12.5 Flaggers.** Signaling by and the use of flaggers, including warning garments worn by flaggers, shall conform to Part 6 of the MUTCD.
- 9.6.12.6 Barricades.** Barricades for protection of employees shall conform to Part 6 of the MUTCD.

### 9.6.13 Accident Prevention Tags

- 9.6.13.1 Use.** Temporary means of warning employees of an existing hazard, such as defective tools, equipment, etc. (Figure 9-2, Table 9-3, and Table 9-4). They shall not be used in place of or as a substitute for locks, accident prevention signs, or special conditions tags as defined in Facilities Instructions, Standards & Techniques (FIST) 1-1, *Hazardous Energy Control Program*. For guidance on Lock out/Tag Out procedures, see Section 15, *Control of Hazardous Energy (Lockout/Tagout)*.

- 9.6.13.2 Specifications.** Employers shall follow specifications in Figures 1 - 8 of ANSI Z535.5-2011, *Safety Tags and Barricades Tapes (for Temporary Hazards)*.
- 9.6.13.3 General.** Employees shall be informed of the meaning of tags used throughout the workplace. Tags shall be affixed as close as safely possible to respective hazards by a positive means such as string, wire, or adhesive which prevents loss or unintentional removal.
- 9.6.13.4 Other Tags.** May be used in addition to those required by this section, or in other situations where this section does not require tags, if it does not detract from the impact or visibility of the signal word and major message of any required tag.

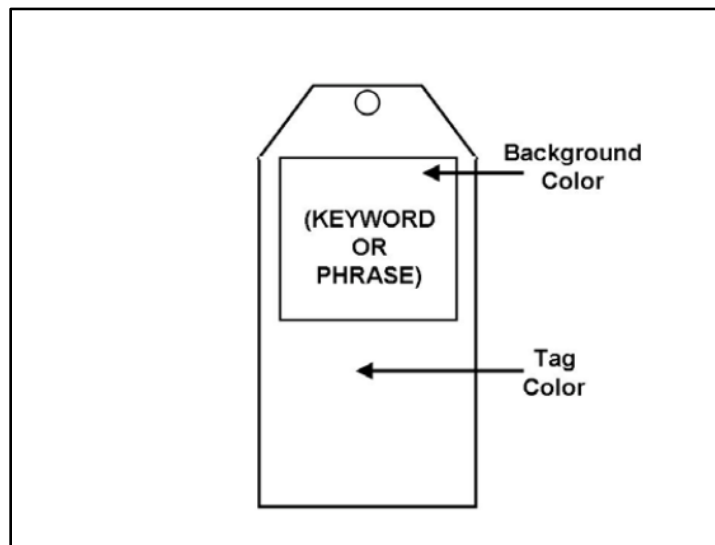


Figure 9-2. Accident Prevention Tag Legend

Table 9-3. Designation of Color for Accident Prevention Tags

Keyword/Phrase	Keyword/Phrase Print Color	Background Color	Tag Color
"DANGER"	White in red oval	Black	White
"CAUTION"	Yellow	Black	Yellow
"DO NOT OPERATE"	White	Red	White
"OUT OF ORDER"	White	Black	White
"DO NOT USE"	White	Black	White
Informational message or inspection	Black or green	N/A	Green and white or White and black

Table 9-4. Accident Prevention Color Coding

Tags Color	Purpose
Red	Used for identifying dangerous conditions, emergency controls, fire detection equipment and fire suppression systems, and containers of flammable liquids.
Orange	Used for designating dangerous parts of machines and energized equipment. Shall be used for temporary traffic control signs in construction zones.
Yellow	Used for designating conditions required to caution and marking dangerous chemicals, physical hazards, and ionizing radiation.
Green	Used for designating safety equipment and operator devices and the location of first aid and safety equipment (other than firefighting equipment).
Blue	Used for designating information of a non-safety nature.
Purple	Used to designate ionizing radiation hazards.

**9.6.14 Barrier Tape**

**9.6.14.1 Requirement.** Use to identify a temporary hazardous location. The employee in charge of the area must mark the tape with an accident prevention tag showing his/her name and phone extension.

**9.6.14.2 Red Plastic Tape.** Use to warn of dangerous locations and means “STOP”, “DANGER”, or “DO NOT ENTER.” Instruct personnel working inside the taped area on requirements of the JHA. The employee in charge of the area must provide a proper briefing and approval for other personnel requiring entry. Personnel must not cross over or under a red barrier tape without proper authorization.

**9.6.14.3 Yellow Plastic Tape.** Use to identify hazardous locations marking “CAUTION.” Using yellow plastic tape does not prevent employees from entering an area but does provide warning of a hazardous condition.

**9.7 Definitions**

**Accident Prevention Tags** Shall be used as a temporary means of warning employees of an existing hazard, such as defective tools, equipment, etc.

**Barricades** An obstruction to deter the passage of persons or vehicles.



<b>Caution</b>	Indicates a hazardous situation that, if not avoided, has the potential to cause a minor or moderate injury.
<b>Danger</b>	Indicates a hazardous situation that, if not avoided, will result in serious injury or death.
<b>Flaggers/Flagger</b>	A person who has successfully completed the American Traffic Safety Services Association (ATSSA) approved Flaggers/Flagger training in order to follow the safe work practices and requirements to keep motorists and road workers safe during temporary roadwork.
<b>Job Hazard Analysis (JHA)</b>	A technique which focuses on job tasks to identify hazards before they occur. It focuses on the relationship between the worker, task, tools, and work environment.
<b>Tags</b>	Attached to a piece of equipment or part of structure to warn of existing or immediate hazards.
<b>Special Condition</b>	An unusual or temporary condition pertaining to equipment or system.
<b>Signs (Safety Signs)</b>	The warning of hazard temporarily or permanently affixed or placed at location where hazard exists.
<b>Signals</b>	Moving signs provided by workers such as flagger or by devices such as flashing lights to warn of possible or existing hazards.
<b>Signal Word</b>	Portion of a tag's inscription which contains the word or words intended to capture the employee's immediate attention.
<b>Major Message</b>	Portion of a tag inscription more specific than a signal word and that indicates specific hazardous conditions or the instruction to be communicated to the employee. Examples include: "High Voltage," "Close Clearance," "Do not Start," or "Do Not Use," or a corresponding pictograph used with a written text or alone.
<b>Warning</b>	Indicates a hazardous situation that, if not avoided, could result in serious injury or death.
<b>Warning Tags</b>	Tags used to represent a hazard level between "Caution" and "Danger" instead of the required caution tag, a signal word of "Warning," and appropriate major message and otherwise meet the general tag criteria.

## 9.8 References

- American National Standards Institute (ANSI) Z35.1, *Specifications for Accident Prevention Signs*. <https://law.resource.org/pub/us/cfr/ibr/002/ansi.z35.1.1968.pdf>
- American National Standards Institute (ANSI) Z535, *Safety Alerting Standards*

- American National Standards Institute (ANSI) Z535.2, *Environmental and Facility Safety Signs*
- American Society of Mechanical Engineers (ASME) A13.1, *Scheme for Identification of Piping Systems*.
- Bureau of Reclamation. Facilities Instructions, Standards & Techniques (FIST) 1-1, *Hazardous Energy Control Program*. [https://www.usbr.gov/power/data/fist\\_pub.html](https://www.usbr.gov/power/data/fist_pub.html)
- Occupational Safety and Health Administration. 29 CFR 1910.145, *Specifications for accident prevention signs and tags*. <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.145>
- Occupational Safety and Health Administration. 29 CFR 1926 Subpart G, *Signs, Signals, and Barricades* <https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926SubpartG>
- Occupational Safety and Health Administration. 29 CFR 1926.200, *Accident prevention signs and tags*. <https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.200>
- Occupational Safety and Health Administration. 29 CFR 1926.201, *Signaling* <https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.201>
- United States Army Corps of Engineers. EM 385 1-1, *Safety and Health Requirements Manual*. Section 8. <https://www.usace.army.mil/Missions/Safety-and-Occupational-Health/Safety-and-Health-Requirements-Manual/>
- United States Department of Transportation Federal Highway Administration. *Manual on Uniform Traffic Control Devices (MUTCD)*. <https://mutcd.fhwa.dot.gov/>