



## **M&A Safety Services**

512 Viaulet Road  
Youngsville, Louisiana 70592  
Main: 337-451-4685  
Fax: 337-451-5847  
[www.masafetyservices.com](http://www.masafetyservices.com)

### **Lockout Tagout (LOTO) Piping and Vessel Isolation Course Outline**

**Prerequisites:** This course shall have no formal pre-requisite.

**Course Length:** 2-3 hours - Course length shall vary depending on the number of delegates.  
Total course time includes breaks.

**Class Size:** The maximum number of delegates that may be trained and tested per instructor shall be thirty-five (35) in the classroom session.

#### **Course Objective**

- ) Delegates will be able to define the purpose of lockout/tagout.
- ) Provide delegates with the understanding of when LOTO is required and its uses.
- ) Provide delegates with knowledge in proper isolation of process equipment and piping during repair, service or maintenance.
- ) Delegates should be able to identify situations where injury to employees or damage to property or the environment could occur.

#### **Course Design**

- ) Power Point© / Lecture / Audio Video / Visual Aids

#### **Successful Course Completion**

- ) Requires a minimum score of 75% or better.
- ) Delegates will have no more than thirty (30) minutes to complete the exam.
- ) Grades shall be calculated by dividing the number of questions answered correctly by the total number of exam questions.

#### **Course Content Summary**

- ) Classroom

**Breaks:** 10 minutes (approximately every hour)

**Lunch:** 1 Hour (if applicable)



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### Course Outline

#### LOTO Safety

- ) Why is Controlling Hazardous Energy Important
- ) The Fatal Five
- ) What is LOTO?
- ) Definitions
- ) Zero Energy State
- ) The 4 E's to Energy Control
  - o Energy
  - o Engineering
  - o Education
  - o Enforcement
- ) Energy
  - o Kinetic
  - o Potential
- ) Hierarchy of Controls
  - o Elimination and Substitution
  - o Engineering
  - o Administrative
  - o Personal Protective Equipment
- ) Employer/Employee Responsibilities
- ) Training

#### Lockout Devices

- ) Defined
- ) Requirements
- ) Circuit Breaker Lockout
- ) Valve Lockout
- ) Plug Lockout
- ) Pneumatic Plug Lockout
- ) Wall Switch Lockout
- ) Adjustable Cable Lockout
- ) Hasp Lockout
- ) Group Lock Box

#### Tagout

- ) Tagout Device
- ) Requirements
- ) Unlockable Devices
- ) Limitations of Tags
- ) General Rules

#### Lockout Tagout Procedures



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- ) Who can Lock Equipment?
- ) Group LOTO
- ) Outside Personnel
- ) Shift or Personnel Changes
- ) How to Perform LOTO Safely
- ) Six Steps for Lockout/Tagout
  - o Step 1 – Prepare for Shut Down
  - o Step 2 – Shut Down the Equipment
  - o Step 3 – Operate All Isolating Devices
  - o Step 4 – Attach All LOTO Devices
  - o Step 5 – Release All Stored Energy
  - o Step 6 – Verify That Equipment Energy Isolation Has Been Accomplished
- ) Restoring Equipment to service
- ) Temporary Removal
- ) Start-up Guidelines

### Process Equipment and Piping Isolation Procedures

- ) Purpose/Scope
- ) Applications
- ) Hazards
- ) Responsibilities
- ) Isolation Procedures
  - o Double Block and Bleed
  - o Slip Blind or Spectacle Blind
  - o Blind Flange
- ) General Requirements

### Summary

### Practical Session

- ) None

### Training Center Provided Material

- ) Course Materials

### Delegate Requirements

- ) None

### Reference Material / Documents

- OSHA 29 CFR 1910.147
  - o The control of hazardous energy (lockout/tagout).