



Control of Hazardous Energy

Lockout/Tagout



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CFR 1910.147

The Standard Covers the Servicing and Maintenance of Machines & Equipment in Which the Unexpected Energization or Start Up of the Machines or Equipment , or Release of Stored Energy Could Cause Injury to Employees.



Provisions Of The Standard

Requires Employers to Establish Procedures for Isolating Machines or Equipment From Their Source of Energy and Affixing Appropriate Locks or Tags to Energy Isolating Devices



Employer Responsibilities

- ◆ Establish Energy Control Program
- ◆ Establish Energy Control Procedures for Machines and Equipment
- ◆ Provide Employee Training
- ◆ Conduct Periodic Inspections of the Energy Control Program

Application Of The Standard



- ◆ An Employee Is Required to Remove or Bypass a Guard or Other Safety Device
- ◆ An Employee Is Required to Place Any Part of Their Body in Contact With the Point of Operation of the Operational Machine or Piece of Equipment
- ◆ An Employee Is Required to Place Any Part of Their Body Into a Danger Zone Associated With a Machine Operating Cycle

Exceptions To The Standard



- ◆ Work on Cord and Plug Connected Electric Equipment Controlled by Unplugging of the Equipment. The Plug Under Exclusive Control of the Employee Performing Maintenance
- ◆ Hot Tap Operations Involving Transmission and Distribution Systems for Substances Such As Gas, Steam, Water, or Petroleum Products



Minor Servicing Tasks

Employees Performing Minor Tool Changes and Adjustments That Are *Routine, Repetitive, and Integral* to the Use of the Equipment and That Occur During Normal Operations Are Not Covered by the Lockout/Tagout Standard, Provided the Work Is Performed Using Alternative Measures That Provide Effective Protection.



Definitions

- ◆ Authorized Employee-- a Person Who Locks Out or Tags Out Machines or Equipment in Order to Perform Servicing or Maintenance
- ◆ Affected Employee-- a Person Whose Job Requires Him to Operate or Use a Machine or Equipment on Which Servicing or Maintenance is Being Performed Under Lockout or Tagout



Definitions

- ◆ Energy Isolating Device-- the Mechanism That Prevents the Transmission or Release of Energy and to Which Locks Or Tags Are Attached. Includes Manually Operated Circuit Breakers, Disconnect Switches, Line Valves, Blocks, Etc.

Definitions

- ◆ Lockout-- the Placement of a Lockout Device on an Energy Isolating Device to Ensure That the Equipment Being Controlled Cannot Be Operated Until the Lockout Device Is Removed
- ◆ Tagout-- the Placement of a Tagout Device on an Energy Isolating Device to Indicate the Equipment Being Controlled May Not Be Operated Until the Tagout Device Is Removed

Deenergizing Equipment

- ◆ Prepare for Shutdown
- ◆ Shut Down the Machine or Equipment
- ◆ Isolate the Machine or Equipment From the Energy Sources
- ◆ Apply the Lockout or Tagout Device(s) to the Energy Isolating Device(s)
- ◆ Safely Release All Potentially Hazardous Stored or Residual Energy
- ◆ Verify the Isolation of the Machine or Equipment Prior to the Start of Servicing Work



Stored Energy

- ◆ If There Is a Possibility of Reaccumulation of Stored Energy to a Hazardous Level, Verification of Isolation Shall Be Continued Until the Possibility of Such Accumulation No Longer Exists



Reenergizing Equipment

- ◆ Ensure That Machine or Equipment Components Are Operationally Intact
- ◆ Ensure That All Employees Are Safely Positioned or Removed From Equipment
- ◆ Ensure That Lockout or Tagout Devices Are Removed From Each Energy Isolation Device by the Employ Who Applied the Device



Lockout/Tagout Requirements

- ◆ If an Energy Isolating Device Is Not Capable of Being Locked Out, the Employer's Energy Control Program Shall Utilize a Tagout System
- ◆ After January 1990, Whenever Replacement, Major Repair, or Modification of a Machine Is Performed, or Whenever New Machines or Equipment Are Installed, They Must Be Designed to Accept a Lockout Device

Requirements for Lockout/Tagout Devices

- ◆ Durable--Lockout and Tagout Devices Must Withstand the Environment to Which They Are Exposed for the Maximum Duration
- ◆ Standardized--Both Lockout and Tagout Devices Must Be Standardized According to Either *Color, Shape, or Size*. Tagout Devices Must Also Be Standardized According to *Print and Format*

Requirements for Lockout/Tagout Devices

- ◆ Substantial--Lockout and Tagout Devices Must Be Substantial Enough to Minimize Early or Accidental Removal
- ◆ Identifiable--Locks and Tags Must Clearly Identify the Employee Who Applies Them. Tags Must Also Include a Legend Such As: Do Not Start, Do Not Open, Do Not Close, Do Not Energize, Do Not Operate



Periodic Inspections

The Employer Shall Conduct a Periodic Inspection of the Energy Control Procedure at Least Annually.

- ◆ Shall Be Performed by an Authorized Employee Other Than the One(s) Utilizing the Energy Control Procedure Being Inspected

Periodic Inspections

- ◆ Shall Be Conducted to Correct Any Deviations or Inadequacies Identified
- ◆ Where Lockout Is Used, the Inspection Shall Include a Review Between the Inspector and Each *Authorized* Employee
- ◆ Where Tagout Is Used, the Inspection Shall Include a Review Between the Inspector and Each *Authorized and Affected* Employee

Periodic Inspections



The Employer Shall Certify That the Periodic Inspections Have Been Performed.

- ◆ Identify the Machine or Equipment on Which the Energy Control Procedure Was Utilized
- ◆ The Date of the Inspection
- ◆ The Employees Included in the Inspection
- ◆ The Person Performing the Inspection

Training and Communication



Each *Authorized* Employee Shall Receive Training:

- ◆ In the Recognition of Applicable Hazardous Energy Sources
- ◆ The Type and Magnitude of the Energy Available in the Workplace
- ◆ The Methods and Means Necessary for Energy Isolation and Control



Training and Communication

- ◆ Each *Affected* Employee Shall Be Instructed in the Purpose and Use of the Energy Control Procedure
- ◆ All *Other* Employees Shall Be Instructed About the Prohibition Relating To Attempts to Restart or Reenergize Machines or Equipment Which Are Locked Out or Tagged Out



Training and Communication

The Employer Shall Certify That Employee Training Has Been Accomplished and Is Being Kept up to Date. The Certification Shall Contain Each Employee's Name and Dates of Training.



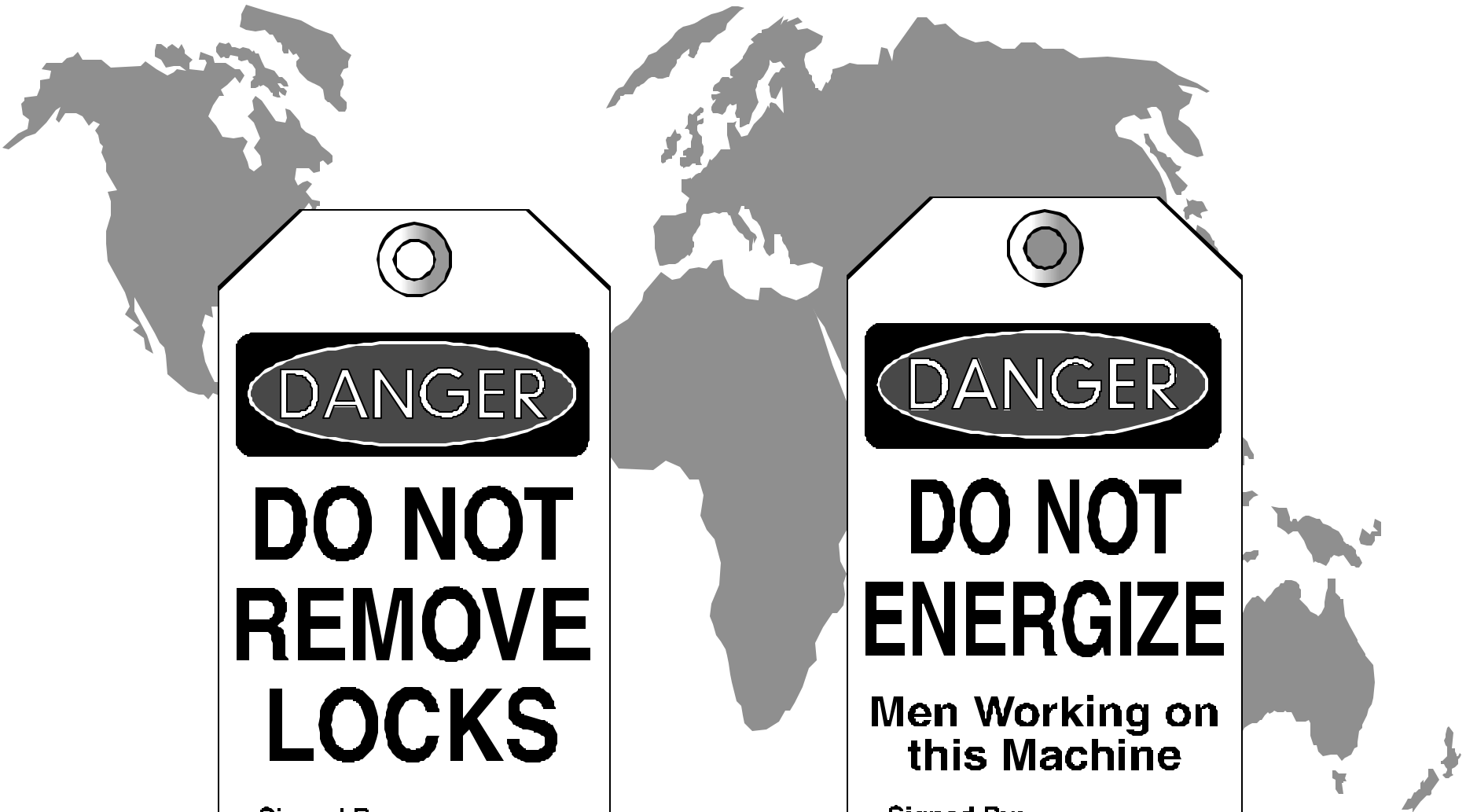
Group Lockout or Tagout

- ◆ Primary Responsibility Is Vested in an *Authorized* Employee for a Set Number of Employees Working Under the Protection of a Group Lockout or Tagout Device
- ◆ Each *Authorized* Employee Shall Affix a Personal Lockout or Tagout Device to the Group Lockout Device



Outside Personnel

Whenever Outside Servicing Personnel Are Engaged in Activities Covered by Lockout/Tagout, the On-site Employer and the Outside Employer Shall Inform Each Other of Their Respective Lockout or Tagout Procedures



DANGER

**DO NOT
REMOVE
LOCKS**

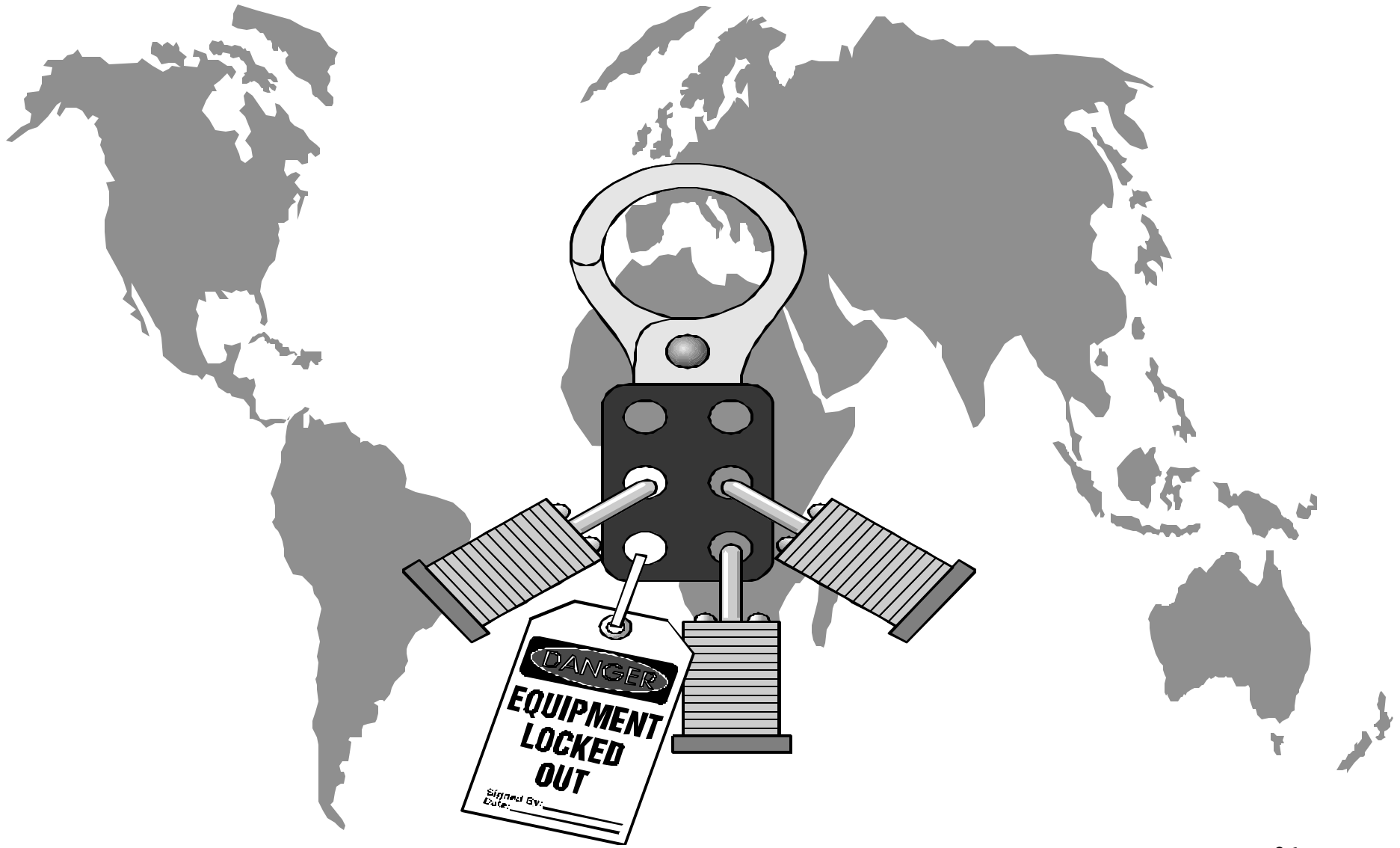
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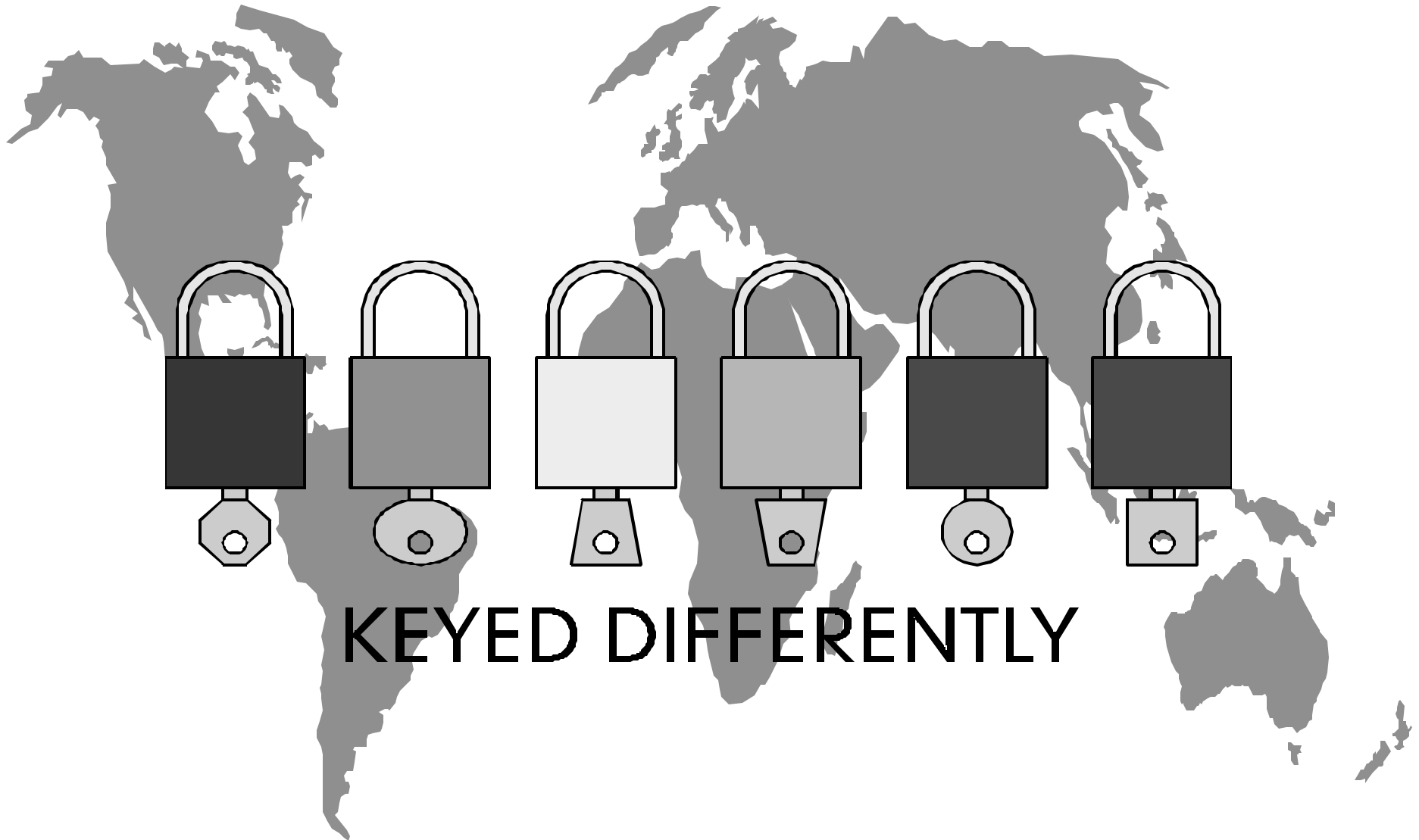
DANGER

**DO NOT
ENERGIZE**

**Men Working on
this Machine**

Signed By: _____
Date: _____





KEYED DIFFERENTLY



DANGER

**THIS LOCK
TO BE
REMOVED
ONLY BY:**

Signed By: _____
Date: _____

Use Lockout Devices



**MACHINE
LOCKOUT
POINT**