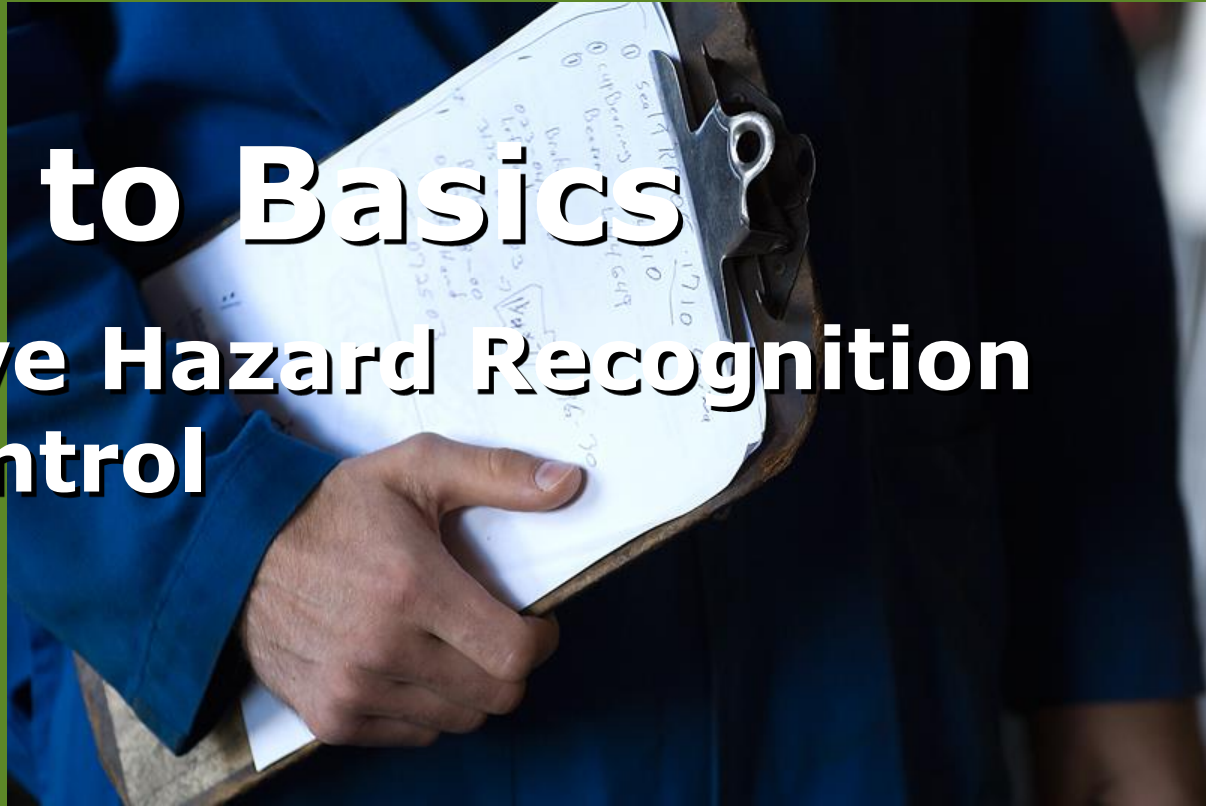


Back to Basics

Effective Hazard Recognition and Control



Pam Ahr
Sr Safety Management Consultant



Agenda

- Safety Committee Requirements
- Inspection Processes
- Hazard Identification
- The Control of Hazards
- Documentation & Follow Up

Hazard Definition

“Any existing or potential condition in the workplace which, by itself or by interacting with other variables, can result in deaths, injuries, property damage or other losses.”

- National Safety Council

Domino Theory (Modified)



The safety committee shall:

- (i) Establish procedures for workplace inspections by the safety committee inspection team to locate and identify safety and health hazards;
- (ii) Conduct workplace inspections at least quarterly; and
- (iii) Recommend to the employer how to eliminate hazards and unsafe work practices in the workplace;

OAR 437-001-0765 (d) (A)

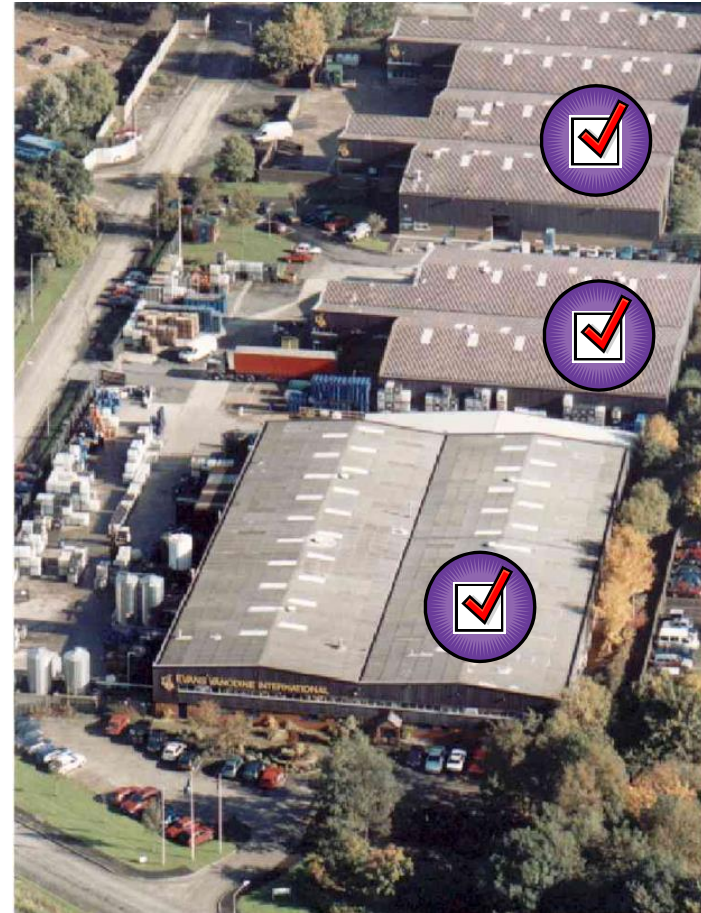
Safety Committee Inspection Team

- All safety committee members
- Some safety committee members
- Designated individuals in each department
- Specifically designated team



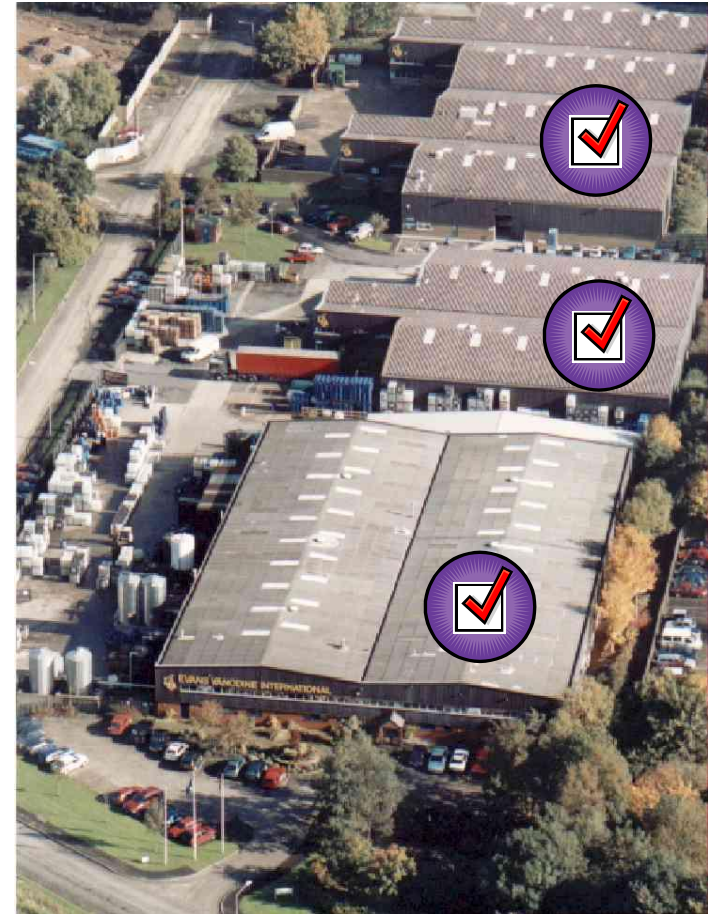
Quarterly Inspections

- All inspection team members
- All areas
- Every quarter



Quarterly Inspections

- Split up team
- Assigned areas
- Every quarter

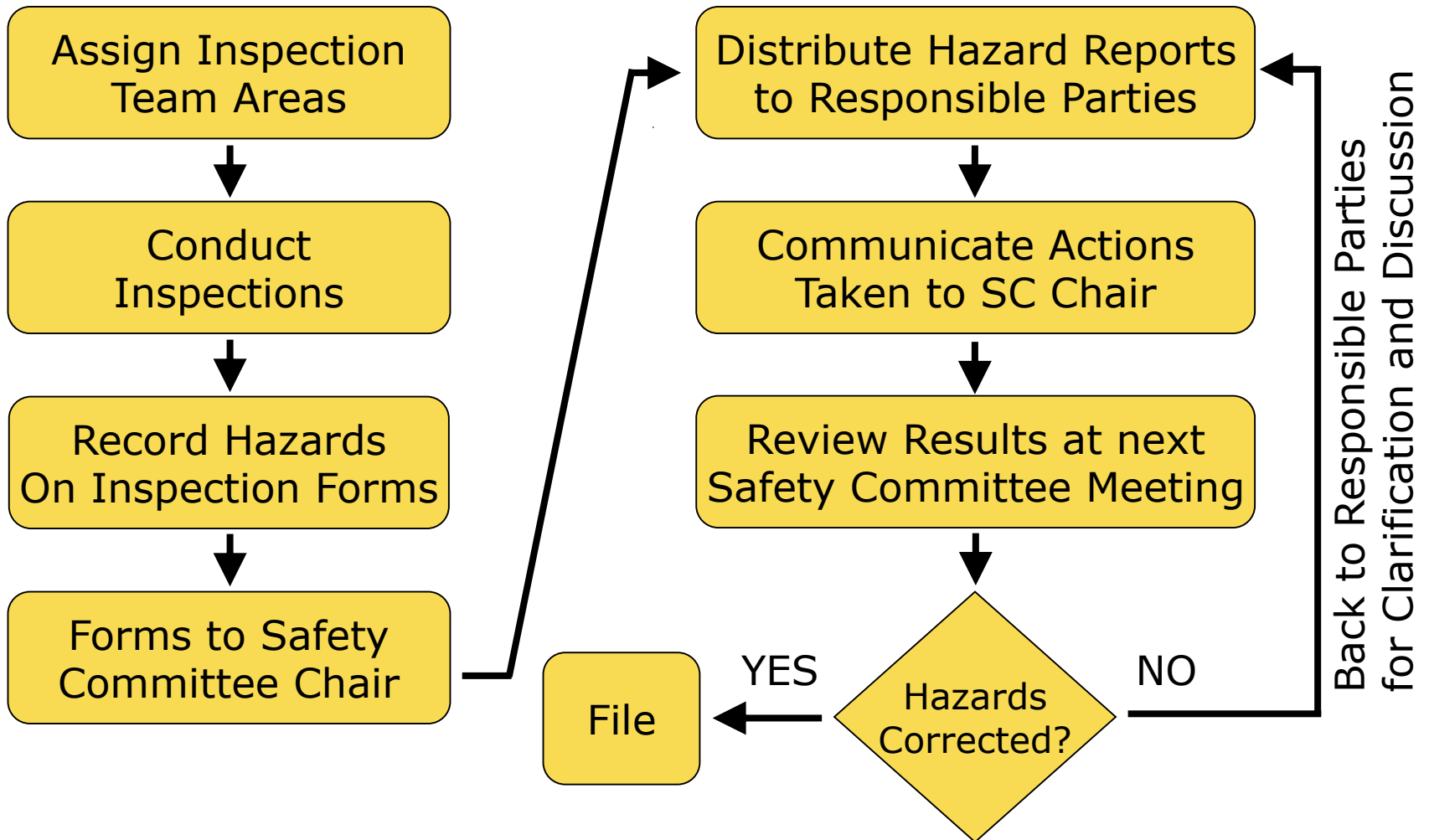


Quarterly Inspections

- Inspect 1/3 of facility each month



Conducting Inspections



What about Inspection Checklists?

Safety Inspection Checklist

Date: 1/5/2009 Department: Warehouse
 Person Performing Inspection: George F.

	YES	NO	N/A
Are exit ways clear of obstructions?			
Are extension cords ONLY used to supply temporary power to portable equipment (does not include power strips with built-in circuit breakers)?			
Are fire extinguishers charged with current (within 1 year) tags?			
Are first aid supplies readily available to employees in the area?			
Is storage well organized with adequate, clear aisles?			
Is there at least 18 inches of clearance between the ceiling and stored materials?			
Are stored materials clear (at least 24 inches) from lamps, heaters, hot pipes, etc.?			
Is furniture over 42 inches tall attached to the floor or wall to prevent tipping in an earthquake?			
Are emergency phone numbers posted prominently?			
Are power, telephone, and computer cables arranged and routed so as not to be a trip hazard?			
Are self-closing fire doors in good operating condition and not held open with wedges or other means?			
Are doors which are blocked on one side clearly marked on the opposite side: "No Access Through This Door"?			
Are doors, passageways or stairways, that are neither exits nor accesses to exits and which could be mistaken for exits, appropriately marked with, "Not An Exit", "To Storeroom", etc.?			
Other:			

- A good place to start an inspection program, but should be viewed as a learning tool.
- Easy and tempting to just mark "Yes"
- Usually provides little or no ability to elaborate or explain.
- Rarely addresses unsafe behaviors.
- Helps focus inspection effort, but may result in important hazards being missed.

A Better Procedure

Hazard Inspection Form
Maintenance Department

Date: 1/14/09 Responsible Manager: Don Anderson Inspection Team: _____

Key Nds Attn	KEY AREAS	DESCRIBE ANY DEFICIENCIES AND ACTIONS *** = HIGH PRIORITY
GENERAL <input type="checkbox"/> Housekeeping <input checked="" type="checkbox"/> Clearances <input checked="" type="checkbox"/> Aisles <input type="checkbox"/> Exits <input checked="" type="checkbox"/> Work Surfaces		Trash piled in front of S. window needs to be cleared. #2 <u>Exit</u> is obstructed with boxes.
<input checked="" type="checkbox"/> Condition <input type="checkbox"/> Cords <input checked="" type="checkbox"/> Storage		... was noted last time and has not been fixed! (***)
CHEMICALS <input checked="" type="checkbox"/> Arrangement <input type="checkbox"/> Flammable Storage <input type="checkbox"/> Labeling <input type="checkbox"/> Spilled or Leaking <input checked="" type="checkbox"/> Cylinders Secured		Lacquer in unmarked milk jug for brushes.
ELECTRICAL <input checked="" type="checkbox"/> Panels Clear <input type="checkbox"/> Circuits Marked <input checked="" type="checkbox"/> Extension Cords <input type="checkbox"/> Grounding Prongs <input checked="" type="checkbox"/> Lockout/Tagout Devices	OK	

Non Generic:
Customized for a specific process, area or department

Prioritization: Simple means of identifying high priority items.

Blank Space: Plenty of room to describe hazards identified.

Hazard Items: Broad categories, based hazards typical for the area.

Presumes a strong hazard identification training program.

A Better Procedure

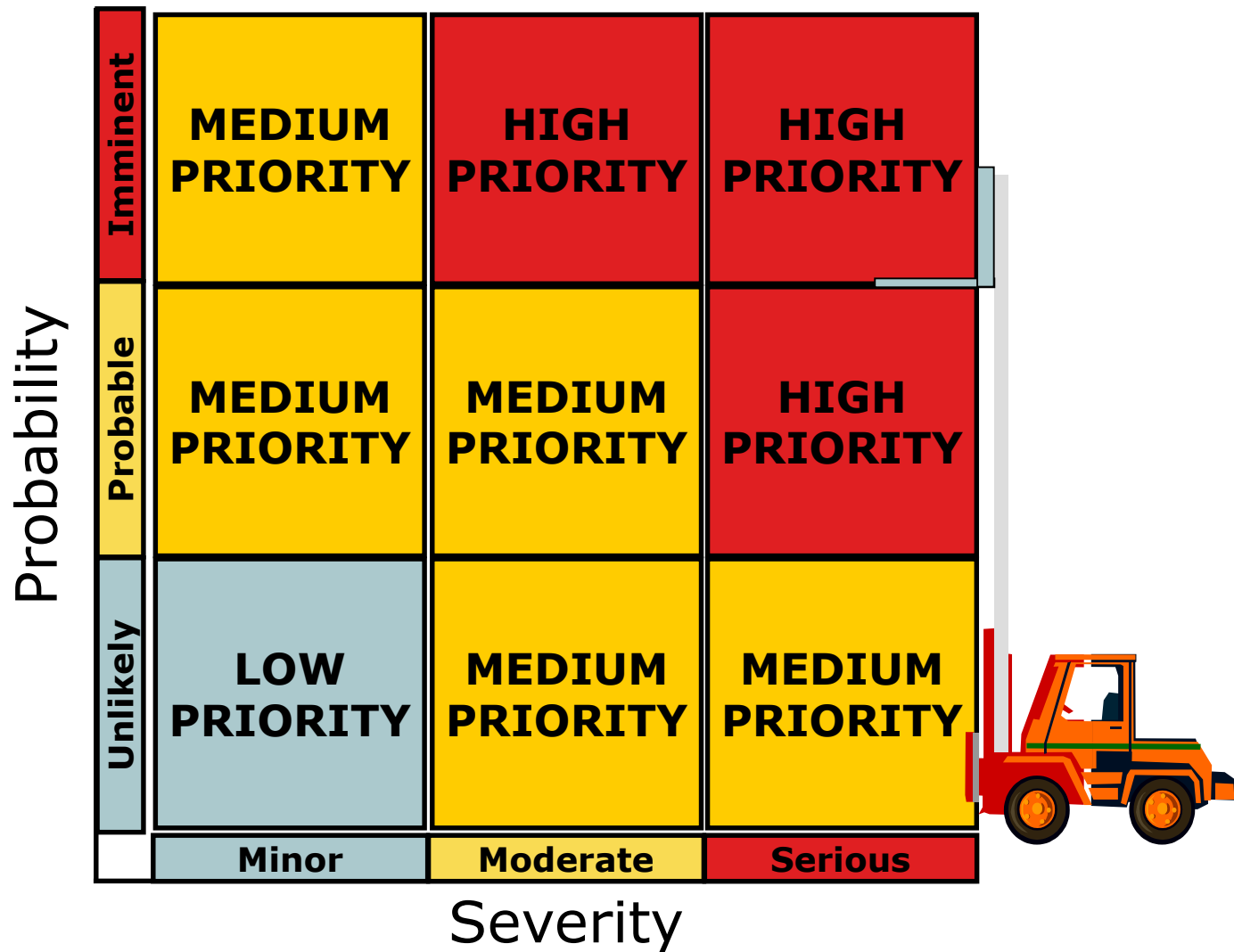
Hazard Inspection Form																																																																								
Date: <u>1/16/09</u> Resp																																																																								
<table border="1"> <thead> <tr> <th>+</th> <th>KEY AREAS</th> </tr> </thead> <tbody> <tr> <td> <table border="1"> <thead> <tr> <th>OK</th> <th>Needs Attn</th> </tr> </thead> <tbody> <tr> <td colspan="2">GENERAL</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> Housekeeping</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Clearances</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Aisles</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> Exits</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Work Surfaces</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Stairs & Ladders</td> </tr> <tr> <td colspan="2">MACHINERY</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> Guarding</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Barriers/Gates</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Lockout/Tagout</td> </tr> <tr> <td colspan="2">HAND TOOLS</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Appropriate for Job</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Condition</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Cords</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Storage</td> </tr> <tr> <td colspan="2">CHEMICALS</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Arrangement</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Flammable Storage</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> Labeling</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Spilled or Leaking</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Cylinders Secured</td> </tr> <tr> <td colspan="2">ELECTRICAL</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Panels Clear</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Circuits Marked</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Extension Cords</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Grounding Prongs</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Lockout/Tagout Device</td> </tr> </tbody> </table> </td> </tr> <tr> <td> <table border="1"> <tbody> <tr> <td> Environment <input checked="" type="checkbox"/> <input type="checkbox"/> Airborne Contaminants <input checked="" type="checkbox"/> <input type="checkbox"/> Noise <input checked="" type="checkbox"/> <input type="checkbox"/> Temperatures <input type="checkbox"/> <input checked="" type="checkbox"/> Illumination </td> <td> <i>Bulbs out in NE corner.</i> </td> </tr> <tr> <td> ERGONOMICS <input checked="" type="checkbox"/> <input type="checkbox"/> Awkward Postures <input checked="" type="checkbox"/> <input type="checkbox"/> Repetitive Motion <input checked="" type="checkbox"/> <input type="checkbox"/> Forceful Exertions <input checked="" type="checkbox"/> <input type="checkbox"/> Contact Pressure <input type="checkbox"/> <input checked="" type="checkbox"/> Work Station Design </td> <td> <i>Drill pr</i> </td> </tr> <tr> <td> AREA SPECIFIC <input checked="" type="checkbox"/> <input type="checkbox"/> Ramp Free of Obase <input checked="" type="checkbox"/> <input type="checkbox"/> Rack Storage Neat <input checked="" type="checkbox"/> <input type="checkbox"/> Forklifts Using Horns <input checked="" type="checkbox"/> <input type="checkbox"/> Extension Cord Condition <input type="checkbox"/> <input checked="" type="checkbox"/> Using Earplugs <input checked="" type="checkbox"/> <input type="checkbox"/> Using Eye Protection <input checked="" type="checkbox"/> <input type="checkbox"/> Lifting Practices </td> <td> <i>One person using grinder without earplugs.</i> </td> </tr> <tr> <td> OTHER </td> <td> <i>Damaged pallet with long splinters. Ouch!</i> </td> </tr> </tbody> </table> </td> <td> <p>Area Specific: Specific behaviors and Hazards historically causing injuries.</p> <p>Other: Ample space for anything else.</p> </td> </tr> </tbody> </table>		+	KEY AREAS	<table border="1"> <thead> <tr> <th>OK</th> <th>Needs Attn</th> </tr> </thead> <tbody> <tr> <td colspan="2">GENERAL</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> Housekeeping</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Clearances</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Aisles</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> Exits</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Work Surfaces</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Stairs & Ladders</td> </tr> <tr> <td colspan="2">MACHINERY</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> Guarding</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Barriers/Gates</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Lockout/Tagout</td> </tr> <tr> <td colspan="2">HAND TOOLS</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Appropriate for Job</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Condition</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Cords</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Storage</td> </tr> <tr> <td colspan="2">CHEMICALS</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Arrangement</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Flammable Storage</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> Labeling</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Spilled or Leaking</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Cylinders Secured</td> </tr> <tr> <td colspan="2">ELECTRICAL</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Panels Clear</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Circuits Marked</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Extension Cords</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Grounding Prongs</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Lockout/Tagout Device</td> </tr> </tbody> </table>	OK	Needs Attn	GENERAL		<input type="checkbox"/>	<input checked="" type="checkbox"/> Housekeeping	<input checked="" type="checkbox"/>	<input type="checkbox"/> Clearances	<input checked="" type="checkbox"/>	<input type="checkbox"/> Aisles	<input type="checkbox"/>	<input checked="" type="checkbox"/> Exits	<input checked="" type="checkbox"/>	<input type="checkbox"/> Work Surfaces	<input checked="" type="checkbox"/>	<input type="checkbox"/> Stairs & Ladders	MACHINERY		<input type="checkbox"/>	<input checked="" type="checkbox"/> Guarding	<input checked="" type="checkbox"/>	<input type="checkbox"/> Barriers/Gates	<input checked="" type="checkbox"/>	<input type="checkbox"/> Lockout/Tagout	HAND TOOLS		<input checked="" type="checkbox"/>	<input type="checkbox"/> Appropriate for Job	<input checked="" type="checkbox"/>	<input type="checkbox"/> Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/> Cords	<input checked="" type="checkbox"/>	<input type="checkbox"/> Storage	CHEMICALS		<input checked="" type="checkbox"/>	<input type="checkbox"/> Arrangement	<input checked="" type="checkbox"/>	<input type="checkbox"/> Flammable Storage	<input type="checkbox"/>	<input checked="" type="checkbox"/> Labeling	<input checked="" type="checkbox"/>	<input type="checkbox"/> Spilled or Leaking	<input checked="" type="checkbox"/>	<input type="checkbox"/> Cylinders Secured	ELECTRICAL		<input checked="" type="checkbox"/>	<input type="checkbox"/> Panels Clear	<input checked="" type="checkbox"/>	<input type="checkbox"/> Circuits Marked	<input checked="" type="checkbox"/>	<input type="checkbox"/> Extension Cords	<input checked="" type="checkbox"/>	<input type="checkbox"/> Grounding Prongs	<input checked="" type="checkbox"/>	<input type="checkbox"/> Lockout/Tagout Device	<table border="1"> <tbody> <tr> <td> Environment <input checked="" type="checkbox"/> <input type="checkbox"/> Airborne Contaminants <input checked="" type="checkbox"/> <input type="checkbox"/> Noise <input checked="" type="checkbox"/> <input type="checkbox"/> Temperatures <input type="checkbox"/> <input checked="" type="checkbox"/> Illumination </td> <td> <i>Bulbs out in NE corner.</i> </td> </tr> <tr> <td> ERGONOMICS <input checked="" type="checkbox"/> <input type="checkbox"/> Awkward Postures <input checked="" type="checkbox"/> <input type="checkbox"/> Repetitive Motion <input checked="" type="checkbox"/> <input type="checkbox"/> Forceful Exertions <input checked="" type="checkbox"/> <input type="checkbox"/> Contact Pressure <input type="checkbox"/> <input checked="" type="checkbox"/> Work Station Design </td> <td> <i>Drill pr</i> </td> </tr> <tr> <td> AREA SPECIFIC <input checked="" type="checkbox"/> <input type="checkbox"/> Ramp Free of Obase <input checked="" type="checkbox"/> <input type="checkbox"/> Rack Storage Neat <input checked="" type="checkbox"/> <input type="checkbox"/> Forklifts Using Horns <input checked="" type="checkbox"/> <input type="checkbox"/> Extension Cord Condition <input type="checkbox"/> <input checked="" type="checkbox"/> Using Earplugs <input checked="" type="checkbox"/> <input type="checkbox"/> Using Eye Protection <input checked="" type="checkbox"/> <input type="checkbox"/> Lifting Practices </td> <td> <i>One person using grinder without earplugs.</i> </td> </tr> <tr> <td> OTHER </td> <td> <i>Damaged pallet with long splinters. Ouch!</i> </td> </tr> </tbody> </table>	Environment <input checked="" type="checkbox"/> <input type="checkbox"/> Airborne Contaminants <input checked="" type="checkbox"/> <input type="checkbox"/> Noise <input checked="" type="checkbox"/> <input type="checkbox"/> Temperatures <input type="checkbox"/> <input checked="" type="checkbox"/> Illumination	<i>Bulbs out in NE corner.</i>	ERGONOMICS <input checked="" type="checkbox"/> <input type="checkbox"/> Awkward Postures <input checked="" type="checkbox"/> <input type="checkbox"/> Repetitive Motion <input checked="" type="checkbox"/> <input type="checkbox"/> Forceful Exertions <input checked="" type="checkbox"/> <input type="checkbox"/> Contact Pressure <input type="checkbox"/> <input checked="" type="checkbox"/> Work Station Design	<i>Drill pr</i>	AREA SPECIFIC <input checked="" type="checkbox"/> <input type="checkbox"/> Ramp Free of Obase <input checked="" type="checkbox"/> <input type="checkbox"/> Rack Storage Neat <input checked="" type="checkbox"/> <input type="checkbox"/> Forklifts Using Horns <input checked="" type="checkbox"/> <input type="checkbox"/> Extension Cord Condition <input type="checkbox"/> <input checked="" type="checkbox"/> Using Earplugs <input checked="" type="checkbox"/> <input type="checkbox"/> Using Eye Protection <input checked="" type="checkbox"/> <input type="checkbox"/> Lifting Practices	<i>One person using grinder without earplugs.</i>	OTHER	<i>Damaged pallet with long splinters. Ouch!</i>	<p>Area Specific: Specific behaviors and Hazards historically causing injuries.</p> <p>Other: Ample space for anything else.</p>
+	KEY AREAS																																																																							
<table border="1"> <thead> <tr> <th>OK</th> <th>Needs Attn</th> </tr> </thead> <tbody> <tr> <td colspan="2">GENERAL</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> Housekeeping</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Clearances</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Aisles</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> Exits</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Work Surfaces</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Stairs & Ladders</td> </tr> <tr> <td colspan="2">MACHINERY</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> Guarding</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Barriers/Gates</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Lockout/Tagout</td> </tr> <tr> <td colspan="2">HAND TOOLS</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Appropriate for Job</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Condition</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Cords</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Storage</td> </tr> <tr> <td colspan="2">CHEMICALS</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Arrangement</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Flammable Storage</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> Labeling</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Spilled or Leaking</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Cylinders Secured</td> </tr> <tr> <td colspan="2">ELECTRICAL</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Panels Clear</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Circuits Marked</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Extension Cords</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Grounding Prongs</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/> Lockout/Tagout Device</td> </tr> </tbody> </table>	OK	Needs Attn	GENERAL		<input type="checkbox"/>	<input checked="" type="checkbox"/> Housekeeping	<input checked="" type="checkbox"/>	<input type="checkbox"/> Clearances	<input checked="" type="checkbox"/>	<input type="checkbox"/> Aisles	<input type="checkbox"/>	<input checked="" type="checkbox"/> Exits	<input checked="" type="checkbox"/>	<input type="checkbox"/> Work Surfaces	<input checked="" type="checkbox"/>	<input type="checkbox"/> Stairs & Ladders	MACHINERY		<input type="checkbox"/>	<input checked="" type="checkbox"/> Guarding	<input checked="" type="checkbox"/>	<input type="checkbox"/> Barriers/Gates	<input checked="" type="checkbox"/>	<input type="checkbox"/> Lockout/Tagout	HAND TOOLS		<input checked="" type="checkbox"/>	<input type="checkbox"/> Appropriate for Job	<input checked="" type="checkbox"/>	<input type="checkbox"/> Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/> Cords	<input checked="" type="checkbox"/>	<input type="checkbox"/> Storage	CHEMICALS		<input checked="" type="checkbox"/>	<input type="checkbox"/> Arrangement	<input checked="" type="checkbox"/>	<input type="checkbox"/> Flammable Storage	<input type="checkbox"/>	<input checked="" type="checkbox"/> Labeling	<input checked="" type="checkbox"/>	<input type="checkbox"/> Spilled or Leaking	<input checked="" type="checkbox"/>	<input type="checkbox"/> Cylinders Secured	ELECTRICAL		<input checked="" type="checkbox"/>	<input type="checkbox"/> Panels Clear	<input checked="" type="checkbox"/>	<input type="checkbox"/> Circuits Marked	<input checked="" type="checkbox"/>	<input type="checkbox"/> Extension Cords	<input checked="" type="checkbox"/>	<input type="checkbox"/> Grounding Prongs	<input checked="" type="checkbox"/>	<input type="checkbox"/> Lockout/Tagout Device														
OK	Needs Attn																																																																							
GENERAL																																																																								
<input type="checkbox"/>	<input checked="" type="checkbox"/> Housekeeping																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Clearances																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Aisles																																																																							
<input type="checkbox"/>	<input checked="" type="checkbox"/> Exits																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Work Surfaces																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Stairs & Ladders																																																																							
MACHINERY																																																																								
<input type="checkbox"/>	<input checked="" type="checkbox"/> Guarding																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Barriers/Gates																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Lockout/Tagout																																																																							
HAND TOOLS																																																																								
<input checked="" type="checkbox"/>	<input type="checkbox"/> Appropriate for Job																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Condition																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Cords																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Storage																																																																							
CHEMICALS																																																																								
<input checked="" type="checkbox"/>	<input type="checkbox"/> Arrangement																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Flammable Storage																																																																							
<input type="checkbox"/>	<input checked="" type="checkbox"/> Labeling																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Spilled or Leaking																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Cylinders Secured																																																																							
ELECTRICAL																																																																								
<input checked="" type="checkbox"/>	<input type="checkbox"/> Panels Clear																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Circuits Marked																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Extension Cords																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Grounding Prongs																																																																							
<input checked="" type="checkbox"/>	<input type="checkbox"/> Lockout/Tagout Device																																																																							
<table border="1"> <tbody> <tr> <td> Environment <input checked="" type="checkbox"/> <input type="checkbox"/> Airborne Contaminants <input checked="" type="checkbox"/> <input type="checkbox"/> Noise <input checked="" type="checkbox"/> <input type="checkbox"/> Temperatures <input type="checkbox"/> <input checked="" type="checkbox"/> Illumination </td> <td> <i>Bulbs out in NE corner.</i> </td> </tr> <tr> <td> ERGONOMICS <input checked="" type="checkbox"/> <input type="checkbox"/> Awkward Postures <input checked="" type="checkbox"/> <input type="checkbox"/> Repetitive Motion <input checked="" type="checkbox"/> <input type="checkbox"/> Forceful Exertions <input checked="" type="checkbox"/> <input type="checkbox"/> Contact Pressure <input type="checkbox"/> <input checked="" type="checkbox"/> Work Station Design </td> <td> <i>Drill pr</i> </td> </tr> <tr> <td> AREA SPECIFIC <input checked="" type="checkbox"/> <input type="checkbox"/> Ramp Free of Obase <input checked="" type="checkbox"/> <input type="checkbox"/> Rack Storage Neat <input checked="" type="checkbox"/> <input type="checkbox"/> Forklifts Using Horns <input checked="" type="checkbox"/> <input type="checkbox"/> Extension Cord Condition <input type="checkbox"/> <input checked="" type="checkbox"/> Using Earplugs <input checked="" type="checkbox"/> <input type="checkbox"/> Using Eye Protection <input checked="" type="checkbox"/> <input type="checkbox"/> Lifting Practices </td> <td> <i>One person using grinder without earplugs.</i> </td> </tr> <tr> <td> OTHER </td> <td> <i>Damaged pallet with long splinters. Ouch!</i> </td> </tr> </tbody> </table>	Environment <input checked="" type="checkbox"/> <input type="checkbox"/> Airborne Contaminants <input checked="" type="checkbox"/> <input type="checkbox"/> Noise <input checked="" type="checkbox"/> <input type="checkbox"/> Temperatures <input type="checkbox"/> <input checked="" type="checkbox"/> Illumination	<i>Bulbs out in NE corner.</i>	ERGONOMICS <input checked="" type="checkbox"/> <input type="checkbox"/> Awkward Postures <input checked="" type="checkbox"/> <input type="checkbox"/> Repetitive Motion <input checked="" type="checkbox"/> <input type="checkbox"/> Forceful Exertions <input checked="" type="checkbox"/> <input type="checkbox"/> Contact Pressure <input type="checkbox"/> <input checked="" type="checkbox"/> Work Station Design	<i>Drill pr</i>	AREA SPECIFIC <input checked="" type="checkbox"/> <input type="checkbox"/> Ramp Free of Obase <input checked="" type="checkbox"/> <input type="checkbox"/> Rack Storage Neat <input checked="" type="checkbox"/> <input type="checkbox"/> Forklifts Using Horns <input checked="" type="checkbox"/> <input type="checkbox"/> Extension Cord Condition <input type="checkbox"/> <input checked="" type="checkbox"/> Using Earplugs <input checked="" type="checkbox"/> <input type="checkbox"/> Using Eye Protection <input checked="" type="checkbox"/> <input type="checkbox"/> Lifting Practices	<i>One person using grinder without earplugs.</i>	OTHER	<i>Damaged pallet with long splinters. Ouch!</i>	<p>Area Specific: Specific behaviors and Hazards historically causing injuries.</p> <p>Other: Ample space for anything else.</p>																																																															
Environment <input checked="" type="checkbox"/> <input type="checkbox"/> Airborne Contaminants <input checked="" type="checkbox"/> <input type="checkbox"/> Noise <input checked="" type="checkbox"/> <input type="checkbox"/> Temperatures <input type="checkbox"/> <input checked="" type="checkbox"/> Illumination	<i>Bulbs out in NE corner.</i>																																																																							
ERGONOMICS <input checked="" type="checkbox"/> <input type="checkbox"/> Awkward Postures <input checked="" type="checkbox"/> <input type="checkbox"/> Repetitive Motion <input checked="" type="checkbox"/> <input type="checkbox"/> Forceful Exertions <input checked="" type="checkbox"/> <input type="checkbox"/> Contact Pressure <input type="checkbox"/> <input checked="" type="checkbox"/> Work Station Design	<i>Drill pr</i>																																																																							
AREA SPECIFIC <input checked="" type="checkbox"/> <input type="checkbox"/> Ramp Free of Obase <input checked="" type="checkbox"/> <input type="checkbox"/> Rack Storage Neat <input checked="" type="checkbox"/> <input type="checkbox"/> Forklifts Using Horns <input checked="" type="checkbox"/> <input type="checkbox"/> Extension Cord Condition <input type="checkbox"/> <input checked="" type="checkbox"/> Using Earplugs <input checked="" type="checkbox"/> <input type="checkbox"/> Using Eye Protection <input checked="" type="checkbox"/> <input type="checkbox"/> Lifting Practices	<i>One person using grinder without earplugs.</i>																																																																							
OTHER	<i>Damaged pallet with long splinters. Ouch!</i>																																																																							

Making Hazard Recommendations to Management

If you want your recommendations to be given due consideration, they must be legitimate and prioritized.



Probability vs. Severity



Probability vs. Severity

IMMINENT DANGER

“A Condition, Practice or Act which exists in any place of employment and could reasonably be expected to cause death or serious physical harm immediately or before the imminence of such danger can be eliminated through the enforcement procedures otherwise provided by the act.”

OR-OSHA Definition

**HIGH PROBABILITY
AND HIGH SEVERITY
POTENTIAL**

Recommendations to Control Hazards

More Effective

Engineer the Hazard Out – Change the process or material so a hazard no longer exists or is significantly reduced.

Guard the Hazard - Isolates the hazard so that employees cannot reach it.

Less Effective

Wear Protective Equipment – Isolate the employees so the hazard cannot reach them.

Train to Avoid the Hazard – Educate employees on how to safely perform the task.

Follow-Up

XYZ CORPORATION
Safety Committee Report

March 7, 2005

To: John Pullman
Re: Safety Inspection of 3/5/2005

During the safety committee inspection of your area on the above date, the following hazards and/or unsafe behaviors were observed. Please review and respond, noting actions or intended actions, by April 1, 2005.

Yours in safety

Alice Benton, Safety Manager

Item: 95-1 Improper lifting by sorting line workers.	
Actions:	Date Completed

Item: 95-2 Loose guard at end of inspection Line #1.	
Actions:	Date Completed

Item: 95-3 Broken rung on ladder to Batch Tank #3 CRITICAL ITEM	
Actions:	Date Completed

Date _____ Signature _____

- Submit identified hazards and recommendations to responsible management
- Establish a means for responsible personnel to provide the status of the items noted
- Safety Committee retains a running list of outstanding recommendations and follows up on them at subsequent meetings

Identifying Hazards

"What could happen if... ?"

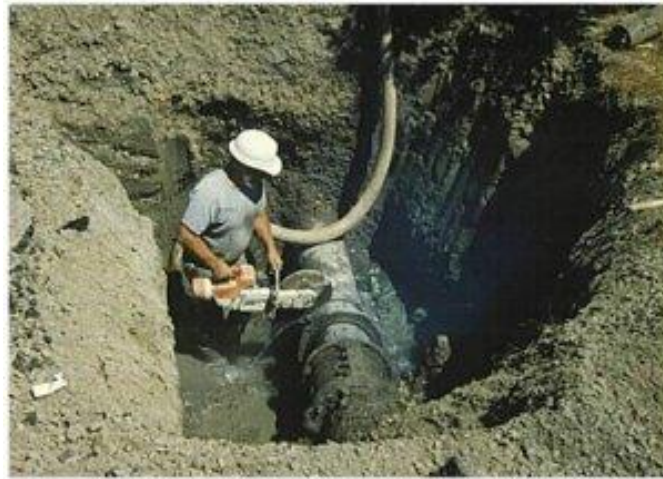
- Personal knowledge of the processes and hazards
- Industry Standards (ISO, Industry Associations)
- Regulatory requirements (OSHA, EPA etc.)
- Company accident history

Accidents



It takes a **hazard** and someone **exposed** to the hazard to produce an **accident**.

Hazard + Exposure = Accident



Types of Hazards

**Work Surfaces
& Walkways**

Machinery

Electrical

Chemical

Environmental

Ergonomic

Behavioral





Key Concerns for **Work Surfaces & Walkways**

- Obstructions
- Clutter
- Slipperiness
- Damage
- Falls from Elevations

**Work Surfaces
& Walkways**

Work Surfaces & Walkways

Obstructions & Clutter





Key Concerns for Machinery Hazards

- Guarding for any part of a machine that produces hazards from:
 - Point of operation
 - In-running nip points
 - Rotating motion
 - Flying chips & sparks
- Lockout/tagout

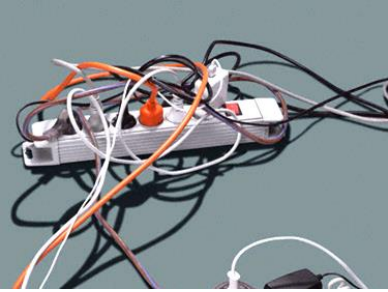
Machinery

Machinery Hazards

Lockout / Tagout

Energy Sources

- Electricity
- Hydraulic Pressure
- Pneumatic Pressure
- Spring Pressure
- Hot Water & Steam
- Chemicals in Lines
- Gravity (elevated objects)



Key Concerns for **Electrical Hazards**

- Clear Access to Electric Panels
- Labeling of Electric Circuits
- Condition/Use of Extension Cords
- Grounding of Cords & Devices

Electrical

Electrical – Hazards

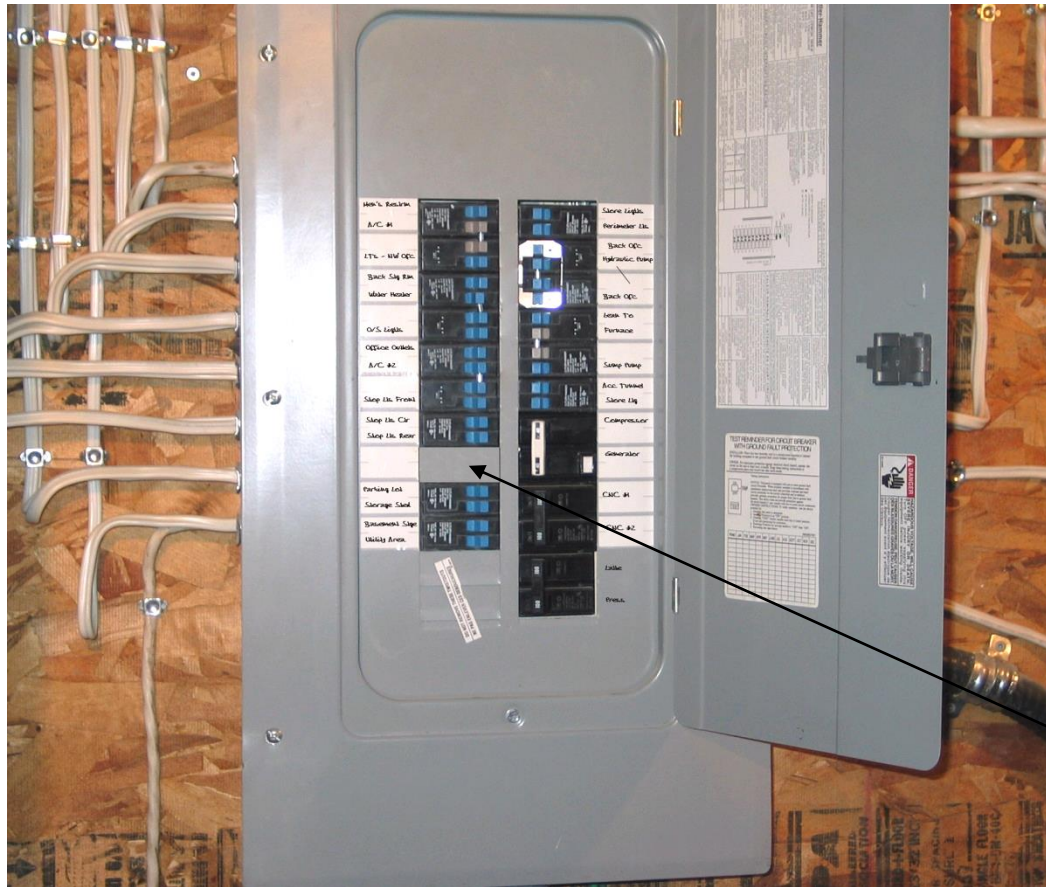
Blocked Electrical Panels



Electrical panels need to have direct access and at least 30" clear space in front of them

Electrical Hazards

Electrical Panel Labeling

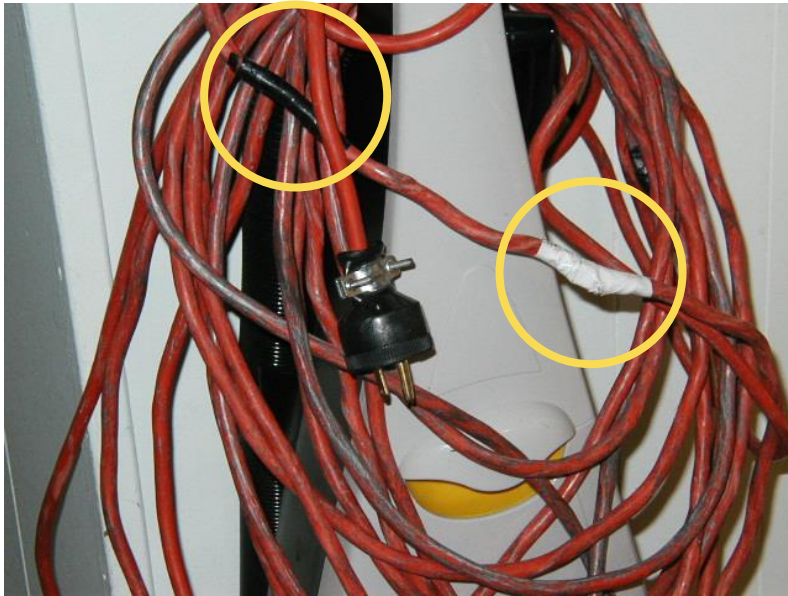


Each Circuit Clearly Labeled

Any open slots covered with "blanks"

Electrical - Hazards

Extension Cords



Cords should be free of damage and splices



Never used for permanent power source



Key Concerns for Chemical Hazards

- Material Safety Data Sheets
- Container Labeling
- Storage of Chemicals

Chemical

Chemical Hazards

Material Safety Data Sheets (MSDS)



MSDS's need to be available for all hazardous substances in the workplace

HC-12a/HC-22a
MATERIAL SAFETY DATA SHEET
(Complies with OSHA Communication Standard 29 CFR 1910.1200 Department of Labor)

IDENTITY: HC-12a HC-22a		Compressed Gas - Flammable NOS Liquefied Petroleum UN 1854 Class 2	24-Hour Emergency Telephone Number (208) 755-3087		
Section I:					
Manufacturer's Name OZ Technology, Inc.		Emergency Telephone Number (208) 687-7000			
Address 10278 N. Church Rd. Rathdrum, ID 83858, U.S.A.		Telephone Number for Information (208) 687-7000			
		Date Prepared April 11, 2002			
		Signature of Preparer (Optional) Not Applicable			
Section II: Hazardous Ingredients / Identify Information					
Hazardous Components (Specific Chemical Identity; Common Name(s)) Trade Secret - HC-12a/HC-22a Compressed Hydrocarbon Mixture		OSHA PEL TWA/PEL	ACGIH OSHA	Other Limits Recommended 1800 Mg	% (Optional) 100%
		Asphyxiant			
Section III: Physical / Chemical Characteristics					
Boiling Point HC-12a: -29.0°F / HC-22a: -40°F		Specific Gravity (H₂O = 1) 0.552			
Vapor Pressure (PSIG) HC-12a: 72 @ 70° F. / HC-22a: 110 @ 70° F		Melting Point Not Applicable			
Vapor Density (Air = 1) 1.770		Evaporation Rate (Butyl Acetate = 1) Not Available			
Solubility in Water Soluble		Ignition Temperature (Method used: Heated Metal Surface) 1490° F.			
Appearance and Odor Colorless gas with natural gas odor		Auto-Ignition Temperature 1627° F.			
Section IV: Fire and Explosion Hazard Data					
Flash Point (Method Used) Not Determined		Flammable Limits % Upper 8.5; % Lower 1.8	LEL N/A	MEL N/A	
Extinguishing Media Use a water spray to cool fire-exposed containers, structures, and to protect personnel.					
Special Fire Fighting Procedures Shut off source of flow. Do not extinguish fire if gas source cannot be shut off. Use water spray to disperse gas or vapor and to protect personnel attempting to stop a leak.					
Unusual Fire and Explosion Hazards Heavy concentrations of vapor may form flammable mixtures with air. Heavy concentrations of vapor or gas may spread to distant ignition sources and flash back. Vapor or gas may accumulate in low or confined areas. Dangerous when exposed to flame or high temperature sparks. Containers may rupture when heated above their rated pressure values.					

Page 1



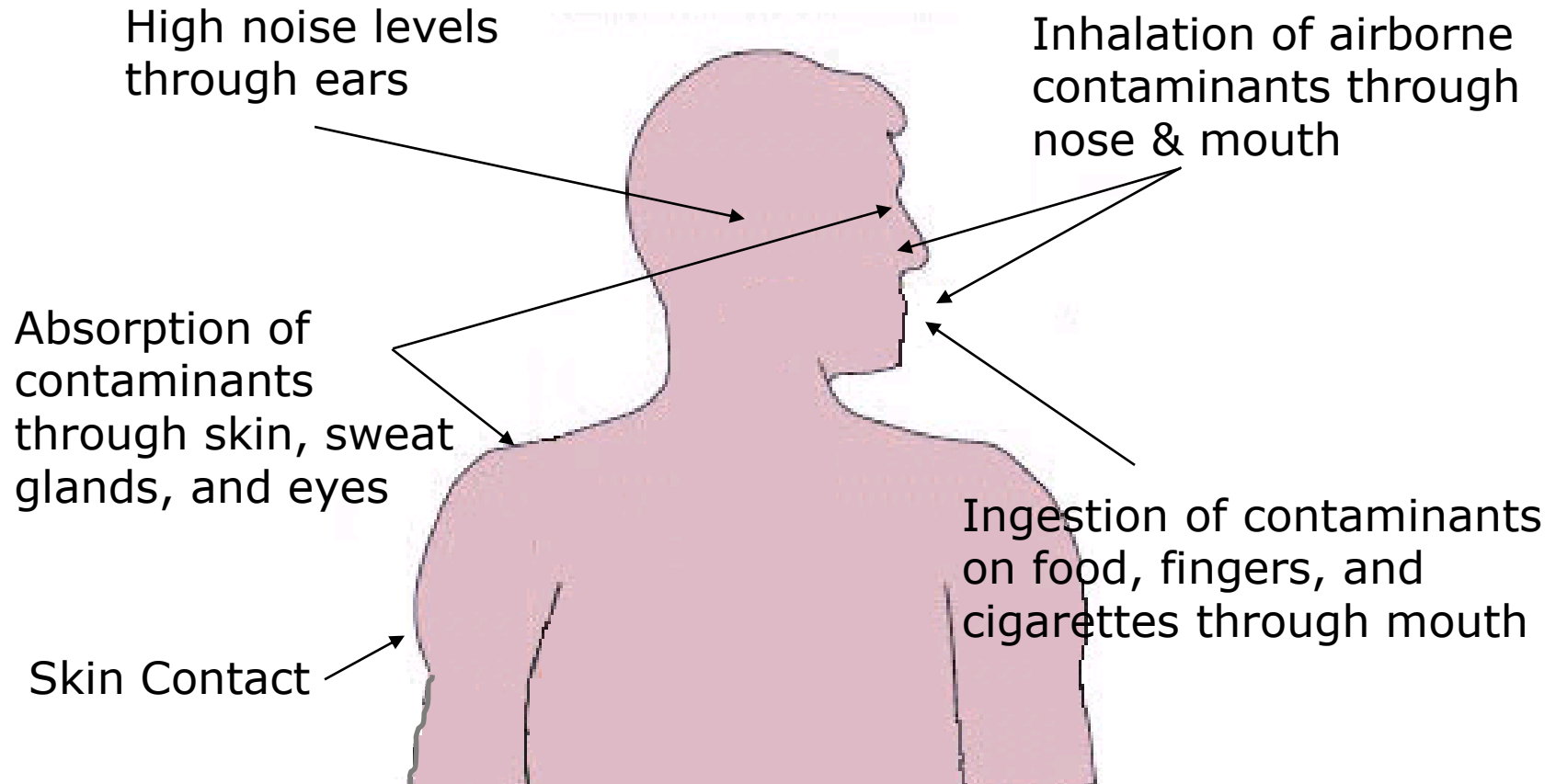
Key Concerns for **Environmental Hazards**

- Routes of Exposure
- Types of Contaminants
- Noise & Other Contaminants
- Environmental Controls

Environmental

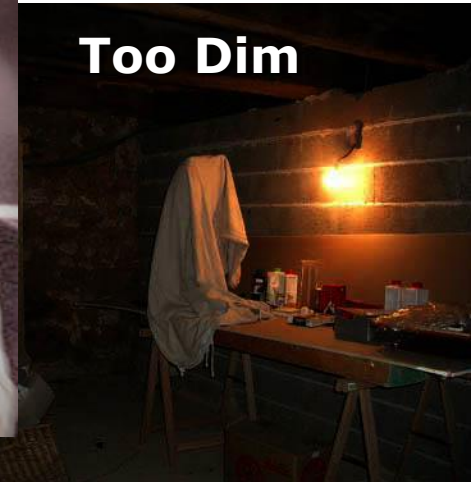
Environmental Hazards

Routes of Entry



Environmental Hazards

Other Environmental Hazards





Key Concerns for Ergonomic Hazards

- Musculoskeletal Disorders (MSD's)
- Force
- Frequency
- Posture

Ergonomic

Ergonomic Hazards



Ergonomic Hazards



FORCE

Forces should
Ideally be kept
to 35 lbs or less

Reduce the load by:

- Purchase in smaller sizes
- Team lifting
- Increase load then use lifting equipment

Ergonomic

- Hazards

Any joint or muscle, if flexed enough times without rest, will experience fatigue, and possibly injury – regardless of force applied.

Reduce frequency by:

- Cross training & job rotation
- Task automation
- Work cells where employees perform multiple tasks



Ergonomic

▪ Hazards

Work should be done with “Neutral” postures to reduce the possibility of MSD’s



- Use neutral postures
- Work in the “green” leverage zone
- Avoid risk factors

Ergonomic Hazards

Risk Factors



Bent Back



Bent Wrists



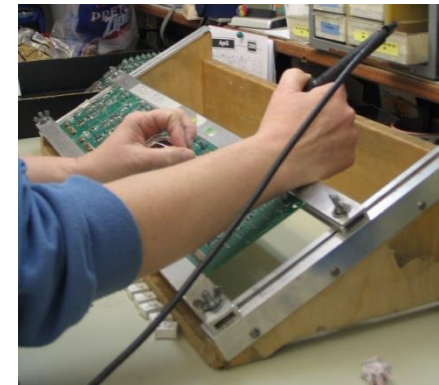
Elbows Out



Over Reaching



Upper Body Twisting



Working Outside Comfort Zone

Ergonomic Hazards

Common Solutions for Overreaching

Do Not Use

**Lightweight
Items**

**Heavier &
Frequently
Used Items**

**Infrequently
Used Items**

High Reach

Above Shoulder Height

Knee to Chest Height

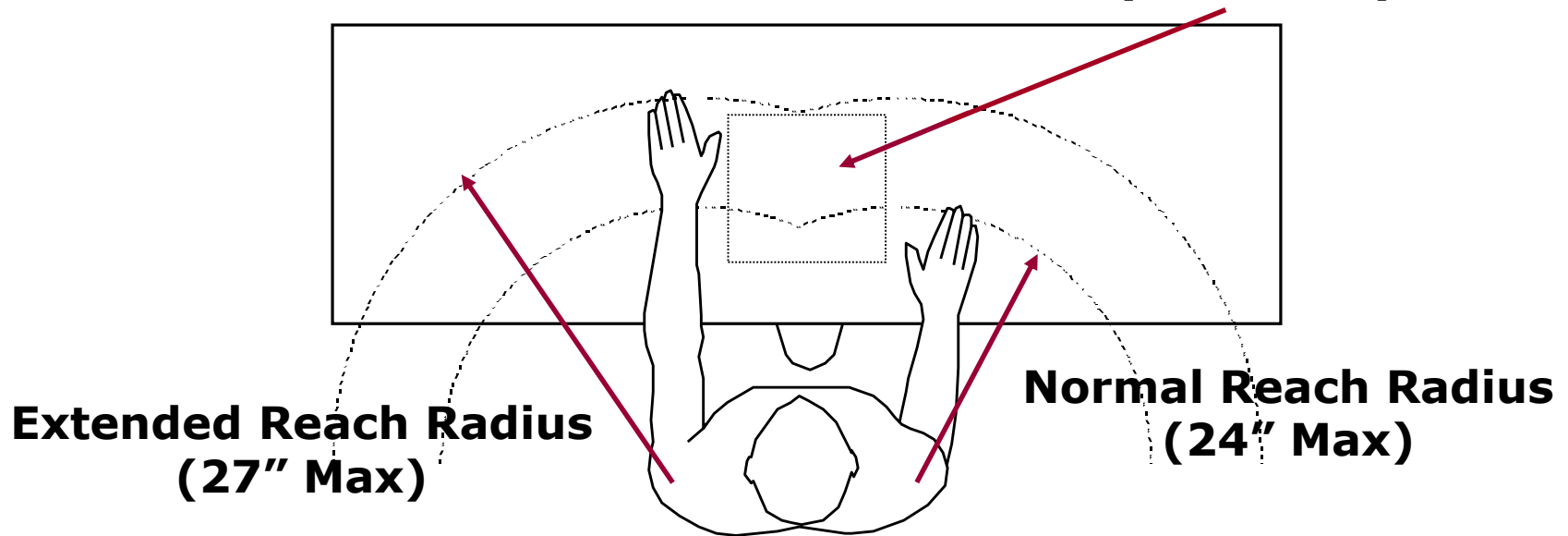
Below Knee Height



Ergonomic Hazards

Common Solutions for Comfort Zone

**Optimum Work Area
(10" x 10")**



Arrange workstations so the majority of work is performed in the "Optimum Work Area". Frequent side tasks should be within the "Normal Reach Radius" and infrequent side tasks within the "Extended Reach Radius".



Key Concerns for Unsafe Behaviors

- Treat unsafe behaviors the same as unsafe conditions
- Record area and actions, but not names
 - Horseplay
 - Improper tool use
 - Unsafe lifting
 - Bypassing safety devices
 - Not using PPE

Behavioral

