

Hazard Identification and Control

An introduction to identifying, analyzing and controlling hazards in the workplace



OR-OSHA 104
0102-03

Presented by the
Public Education and Conferences Section
Oregon Occupational Safety and Health
Division (OR-OSHA)



OR-OSHA Mission Statement

To advance and improve workplace safety and health for all workers in Oregon.

OR-OSHA Services

Oregon OSHA offers a variety of safety and health services to employers and employees:

Consultative Services (all field offices)

Offers no-cost, confidential on-site safety, health, and ergonomic assistance to Oregon employers for help in recognizing and correcting safety and health problems in their workplaces.

Our consultants can also introduce you to the Safety & Health Achievement Recognition Program (SHARP) and Oregon's Voluntary Protection Program (VPP).

Standards and Technical Resources (Salem Central)

Adopts, amends, and formally interprets occupational safety and health standards and provides technical assistance such as reviewing variances.

Operates a resource center containing books, topical files, technical periodicals, pamphlets and brochures, more than 200 technical data bases, and an audiovisual lending library.

Enforcement (all field offices)

Inspects places of employment for occupational safety and health rule violations and investigates workplace safety and health accidents, complaints, and referrals.

Provides compliance assistance, specific abatement assistance to employers who have received citation, and offers pre-job conferences for construction employers.

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Co-sponsors statewide conferences including the biennial Governor's Occupational Safety and Health Conference in Portland.

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Check out our series of five specific safety and health training program certificates!

Salem Central Office: (800) 922-2689 or
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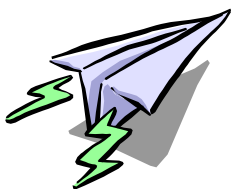
Welcome !

In 1913, the federal Bureau of Labor Statistics (BLS) documented 23,000 industrial deaths among a workforce of 38 million people -- equivalent to a shocking 61 deaths per 100,000 workers. In 1999, the latest year for which figures are available, BLS reported 6,023 deaths, among a workforce of 134 million people, or fewer than 5 deaths per 100,000. Fewer, but still too many. Sound hazard identification and control is partly responsible for this success story.

Identifying and controlling workplace hazards involves many processes. It's more than simply "inspecting out hazards." Before we can effectively control hazardous conditions and unsafe behaviors, we need to be familiar with their characteristics and the necessary processes to make sure they are promptly identified and analyzed. The questions and exercises in this workshop will help us become more familiar with hazard control concepts and we'll discuss the many types of hazards that may exist in the workplace. We'll discuss the various elements of an effective hazard control program, the nature of hazards in the workplace, and finally we'll put everything we've learned together in a final exercise.

The purpose of this workshop is to give you the basic knowledge and skills to identify, analyze, and apply control strategies to eliminate or reduce hazardous conditions and unsafe practices in the workplace.

• Workshop goals:



- Explore the elements of an effective hazard identification and control program.
- Discuss the steps in the hazard identification and control process.
- Complete the hazard identification and control worksheet.

• Introductions

• Housekeeping

Form Teams



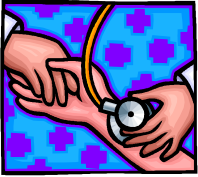
Elect a team leader _____

Select a spokesperson _____

Everyone is a recorder!

Please Note: This material, or any other material used to inform employers of compliance requirements of Oregon OSHA standards through simplification of the regulations should not be considered a substitute for any provisions of the Oregon Safe Employment Act or for any standards issued by Oregon OSHA. The information in workbook is intended for classroom use only.

IDENTIFYING HAZARDS



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

Hazard + Exposure ⇨ Accident

What is a "hazard?" Complete the sentence below.

An

or

that could

cause an

or

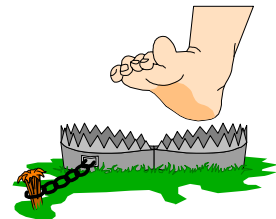
to an

(Extra Credit)

and it's

What is "**Exposure?**"

- How close are you to the "danger zone"?
- Physical exposure - generally arm's length
- Environmental exposure - could be everyone in facility.

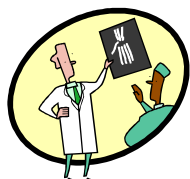




SURFACE SYMPTOMS - clues to underlying root causes

- **Hazardous condition(s)**...tools, equipment, environment, people
- **Unsafe or inappropriate behavior(s)**...practices and procedures
- May exist or be performed by **anyone, anytime, anywhere**
- Factors that would **directly cause or contribute** to an incident or accident
- These are the **outputs** of the safety management system. Important clues.
- Conditions account for _____ % of all workplace accidents.
- Behaviors account for _____ % of all workplace accidents.
- Uncontrollable acts account for _____ % of all workplace accidents.

(SAIF Loss Control Approach, Foundation, p. 9)



UNDERLYING ROOT CAUSES - Defects in safety management system design and implementation that cause the symptoms.

System Design Defects - Missing or inadequate planning

- One or more inadequate policies, plans, programs, processes, procedures, practices
- Inadequate resources - money, time, people, materials, etc.
- Assures inadequate implementation of the safety management system
- Have the greatest positive or negative impact on the safety management system

System Implementation Defects - Failure to carry out the plan.

- Failure to accomplish effective safety policies, plans, processes, procedures, practices, or...
- Effectively accomplishing inadequate safety policies, plans, processes, procedures, practices
- Produce common hazardous conditions and/or unsafe behaviors, or
- Produce repeated unique hazardous conditions and/or unsafe behaviors



Four Important Processes to Identify and Analyze Hazards



Inspection

Formal and informal safety inspections on a daily, weekly, monthly basis are important in making sure the workplace remains free of hazards that could cause injury or illness.

How to develop an effective safety and health checklist

- **Determine applicable state safety & health rules for the workplace.** Call the OR-OSHA technical services section (800) 922-2689 if needed to get assistance. Get copies of applicable rules.
- **Review rules and use those you feel apply to your workplace.** What rules, if violated would result in serious physical harm or fatality?
- **Develop applicable checklist questions that are not addressed in the rules.** Don't get "tunnel vision."



Who's involved in the inspection process?

What is a weakness inherent in the inspection process?

What process(s) can we use to overcome this weakness?



Observation

Observation, informal and formal, are quite important in daily workplace safety.

- Employees and managers can spot hazardous conditions and unsafe or inappropriate behaviors while they conduct their other tasks.
- Formal observation programs can be successful tools for gathering and analyzing data so that safety can be improved.

Writing Effective Inspection Reports

It's important to write an inspection report that effectively "sells" management on corrective actions. The following inspection report format is designed to give management useful information describing hazards and "bottom line" costs/benefits needed to justify corrective actions. See the example in the appendix.

1. The **Background/Introduction** section briefly outlines:
 - What the report is
 - Who conducted the inspection
 - Where it was conducted
 - Why it was conducted
2. The **Findings** section give information about:
 - Hazardous conditions and unsafe work practices
 - Safety system inadequacies
 - Estimated costs if an accident occurs as a result of the hazard are also indicated
3. The **Recommendations** section provides:
 - Strategies to eliminate/reduce hazards
 - Improvements to system inadequacies
 - Estimates of the investment required to implement changes
4. The **Conclusion/Summary** section summarizes:
 - Costs and investments required if all changes are approved
 - Return on investment
 - Other benefits realized



Report Identified Hazards

- Watch your language. Is the report considered a "concern" or a "complaint?"
- Keep the process simple. How can we do that?
- Recognize employees who report hazards. Soon, certain, significant, sincere

How can we most effectively recognize employees for reporting hazards?



Job Hazard Analysis



- Break a job or task into **specific steps**.
- Analyze each step for specific **hazardous conditions** and **unsafe practices**.
- Develop **preventive measures** in each step to eliminate or reduce the hazards.
- **Integrate preventive measures** into training and standard operating procedures (SOP's).

SAMPLE JOB HAZARD ANALYSIS WORKSHEET

Job Description: _____

Step 1 Description: _____

<u>Hazards</u>	<u>Preventive Measure(s) Required</u>
1. _____	_____
2. _____	_____
3. _____	_____

Step 2 Description: _____

<u>Hazards</u>	<u>Preventive Measure(s) Required</u>
1. _____	_____
2. _____	_____
3. _____	_____

Step 3 Description: _____

<u>Hazards</u>	<u>Preventive Measure(s) Required</u>
1. _____	_____
2. _____	_____
3. _____	_____

Safe Job Procedure

Why is it important to involve the employee in the JHA process?



Incident/Accident Analysis

Steps for conducting an incident/accident analysis

Gather information	Step 1 - _____	Secure the accident scene
	Step 2 - _____	Collect facts about what happened
Analyze the facts	Step 3 - _____	Develop the sequence of events
	Step 4 - _____	Determine the causes
Implement Solutions	Step 5 - _____	Recommend improvements
	Step 6 - _____	Write the report



What is the purpose of the incident/accident analysis?

Be ready when accidents happen

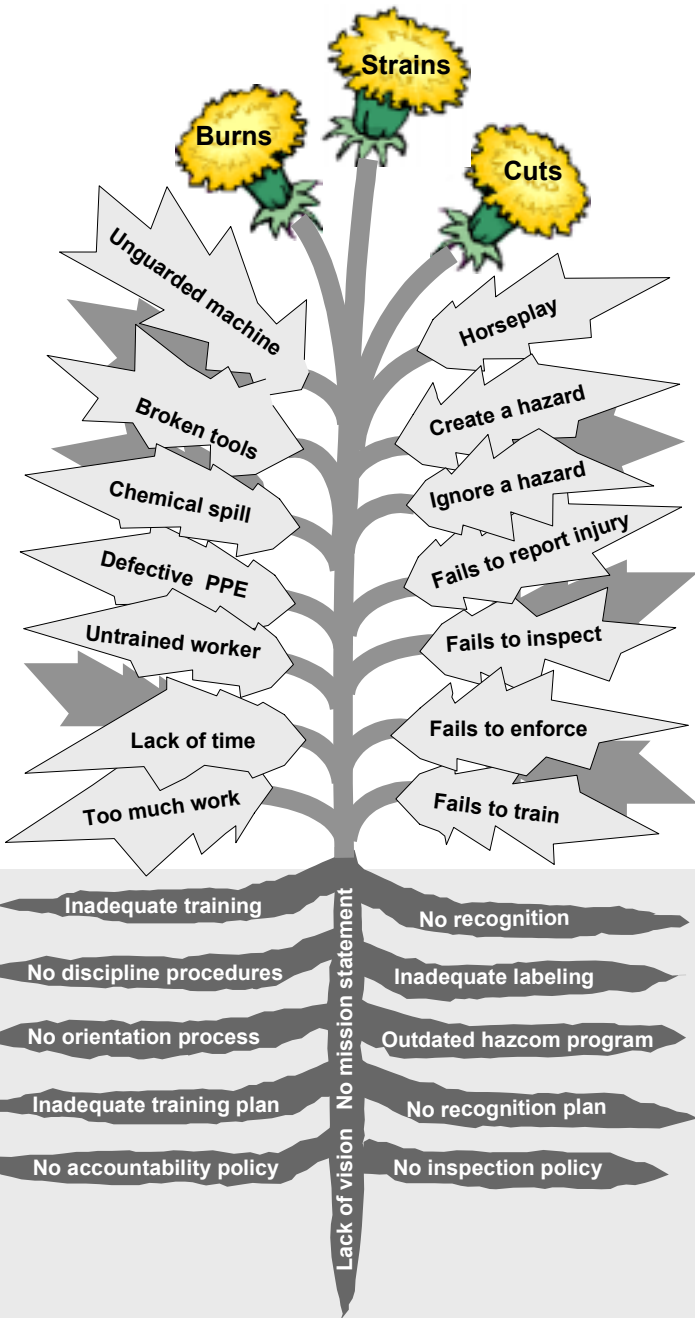


When a serious accident occurs in the workplace, everyone will be too busy dealing with the emergency at hand to worry about putting together an investigation plan, so ***now... before the accident occurs...*** is the time to develop effective accident investigation procedures.

They should include as a minimum procedures that:

1. Write a clear policy statement.
2. Identify those authorized to notify outside agencies (fire, police, etc.)
3. Designate those responsible to investigate accidents.
4. Train all accident investigators.
5. Establish timetables for conducting the investigation and taking corrective action.
6. Identify those who will receive the report and take corrective action.

Weed out the causes of injuries and illness



1. Direct Cause of Injury

- Always the harmful transfer of energy.
- Kinetic, thermal, chemical, etc.
- Contact with, exposure to, etc.

2. Surface Causes of the Accident

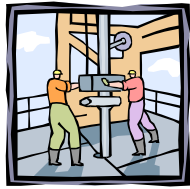
- Specific/unique hazardous conditions and/or unsafe actions
- Produce or contribute to the accident
- May exist/occur anytime, anyplace
- Involve the victim and others

3. Root Causes of the Accident

- Failure to design and/or carry out safety policies, programs, plans, processes, procedures, practices
- Exist prior to surface causes
- Result in common or repeated hazards
- Under control of management
- Failure can occur anytime, anywhere

Any way you look at it, system design is the key to effective safety.

If design is flawed, yet perfectly implemented, the system fails. If design is perfect, yet implementation is flawed, the system fails as a result of design flaws in other related processes.



Analyze Probability and Severity to Determine Risk

It's extremely valuable, when writing an effective inspection report, to include estimates of the risk a hazard imposes on employees. Risk may be thought of as the sum of the probability and severity of a potential accident.

Probability. The probability describes the likelihood that an injury or accident will occur if an employee is exposed to the danger point.

- **Unlikely (U)** – Factors considered indicate it would be unlikely that an accident could occur.
- **Likely (L)** – Factors considered indicate it would be likely that an accident could occur.
- **Highly Likely (H)** – Factors considered indicate it would be very likely that an accident could occur.



Severity. The severity of an accident should be based on the degree of injury or illness that is reasonably predictable. Severity may also be expressed as a rating.



- **Minor injury/illness (M).** Described by OR-OSHA as "Other Than Serious Physical Harm" – The victim will most likely be able to continue working in the same job at the same level of proficiency.
- **Serious Injury/Illness (S).** Described by OR-OSHA as "Serious Physical Harm" - The victim will most likely not be able to continue working in the same job at the pre-injury level of proficiency.
- **Death (D).** The victim will most likely suffer a fatal injury or illness.

Team Exercise: *List factors that will increase the probability and severity of an injury.*

Factors increasing probability:

Factors increasing severity:

2001 Average Cost For Disabling Claims By Event or Exposure

Total Claims = 25,305
Average Cost = \$11,678

Event or Exposure Leading to Injury (Partial list)	CLAIMS CLOSED	AVERAGE COST(\$)
Non-classifiable	1,012	11,036
Struck against stationary object	586	8,437
Struck against moving object	170	10,601
Struck by, other	593	13,943
Struck by falling object	919	13,961
Struck by flying object	291	10,202
Contact with electrical current	27	24,847
Caught in equipment or objects	1,216	14,544
Fall to lower level, all other	436	20,173
Fall down stair or step	297	9,682
Fall from floor, dock, ground level	123	15,006
Fall from ladder	399	17,772
Fall from roof	77	27,544
Fall from scaffold	60	17,612
Fall from non-moving vehicle	338	16,173
Fall to floor, walkway	1,861	11,040
Jump to lower level	183	11,993
Bodily reaction, other	2,547	9,917
Loss of balance	861	9,968
Overexertion, all other	1,267	12,490
Lifting objects	2,981	10,310
Pulling, pushing objects	1,171	11,803
Holding, carrying, wielding objects	1,284	11,939
Repetitive motion	2,510	11,777
Exposure to noise	133	10,461
Highway Collisions	539	16,426
Struck by Vehicle	183	18,092
Explosion	23	12,792
Assault or Violent Act by person	257	10,685

Notes: Table reflects estimated medical, timeloss, and partial permanent disability cost data for disabling claim closure activity. Costs exclude partial total disability and fatal indemnity, vocational assistance, medical-only claim costs, settlements, timeloss paid prior to claim denial and prior to settlement where claim was never closed, and compensation modified on appeal. Source: Research and Analysis Section, Information Management Division, Department of Consumer and Business Services

CONTROLLING HAZARDS



Engineering Controls

Hazard + Exposure ⇒ Accident

Engineering controls consist of substitution, isolation, ventilation, and equipment modification. These controls focus on the source of the hazard, unlike other types of controls that generally focus on the employee exposed to the hazard. The basic concept behind engineering controls is that, to the extent feasible, the work environment and the job itself should be designed to eliminate hazards or reduce exposure to hazards.

Engineering controls are based on the following broad principles:

1. If feasible, **design the facility, equipment, or process to remove the hazard** and/or substitute something that is not hazardous or is less hazardous.
 - Redesigning, changing, or substituting equipment to remove the source of excessive temperatures, noise, or pressure;
 - Redesigning a process to use less toxic chemicals;
 - Redesigning a work station to relieve physical stress and remove ergonomic hazards; or
 - Designing general ventilation with sufficient fresh outdoor air to improve indoor air quality and generally to provide a safe, healthful atmosphere.
2. If removal is not feasible, **enclose the hazard to prevent exposure** in normal operations.
 - Complete enclosure of moving parts of machinery;
 - Complete containment of toxic liquids or gases;
 - Glove box operations to enclose work with dangerous microorganisms, radioisotopes, or toxic substances; and
 - Complete containment of noise, heat, or pressure-producing processes.
3. Where complete enclosure is not feasible, **establish barriers or local ventilation to reduce exposure** to the hazard in normal operations. Examples include:
 - Ventilation hoods in laboratory work;
 - Machine guarding, including electronic barriers;
 - Isolation of a process in an area away from workers, except for maintenance work;
 - Baffles used as noise-absorbing barriers; and



Management Controls

Hazard + Exposure ⇨ Accident

Any procedure which significantly limits daily exposure by control or manipulation of the work schedule or manner in which work is performed is considered a means of management control.

Management controls may result in a reduction of exposure through such methods as changing work habits, improving sanitation and hygiene practices, or making other changes in the way the employee performs the job. The use of personal protective equipment is not considered a means of management control.

1. Some of these **general practices** are very general in their applicability. They include housekeeping activities such as:
 - Removal of tripping, blocking, and slipping hazards;
 - Removal of accumulated toxic dust on surfaces; and
 - Wetting down surfaces to keep toxic dust out of the air.
2. Other safe work practices apply to specific jobs in the workplace and involve **specific procedures** for accomplishing a job. To develop these procedures, you conduct a job hazard analysis.
3. Measures aimed at reducing employee exposure to hazard by **changing work schedules**. Such measures include:
 - Lengthened rest breaks,
 - Additional relief workers,
 - Exercise breaks to vary body motions, and
 - Rotation of workers through different jobs

Why are engineering controls considered superior to management controls?



Control hazards with effective education and training

Safety education tells why safe practices and procedures are important. Education explains the natural consequences (hurt) and system consequences (discipline) that result from unsafe behavior. Training explains how to perform safe behaviors and procedures.

Why is it important to educate as well as train all employees?

How do we know safety education and training has been effective?



If it isn't in writing...it didn't get done...

Sample training certification for specific tasks

Trainee certification. I have received on-the-job training from the trainer listed below on those subjects below (or on other side of sheet):

- [list procedure(s)] _____
- [list practice(s)] _____
- [related policies, rules, accountabilities] _____

This training has provided me adequate opportunity to practice to determine and correct skill deficiencies. I understand that performing these procedures/practices safely is a condition of employment. I fully intend to comply with all safety and operational requirements discussed. I understand that failure to comply with these requirements may result in progressive discipline (or corrective actions) up to and including termination.

(Trainee)

(Date)

Trainer certification. I conducted on-the-job training on the subjects for the trainee(s) listed above. I explained procedures/practices and policies, answered all questions, observed practice, and tested each trainee individually. I have determined that the trainee(s) listed above has/have adequate knowledge and skills to safety perform these procedures/practices.

(Trainer)

(Date)



Personal Protective Equipment (PPE)

Hazard + Exposure ⇨ Accident

When exposure to hazards cannot be engineered completely out of normal operations or maintenance work, and when safe work practices and administrative controls cannot provide sufficient additional protection from exposure, personal protective clothing and/or equipment may be required.

PPE includes such items as:

- | | | | |
|--------------|------------------|----------------|--------------|
| Face shields | Steel-toed shoes | Safety glasses | Hard hats |
| Knee guards | Leather aprons | Mesh gloves | Life jackets |
| Respirators | Ear muffs | Safety goggles | Harness |



Interim Measures

When a hazard is recognized, the preferred correction or control cannot always be accomplished immediately. However, **in virtually all situations, interim measures can be taken** to eliminate or reduce worker risk. These can range from taping down wires that pose a tripping hazard to actually shutting down an operation temporarily. The importance of taking these interim protective actions cannot be overemphasized. There is no way to predict when a hazard will cause serious harm, and no justification to continue exposing workers unnecessarily to risk.

What might be some of the drawbacks of reliance solely on PPE to protect workers?



Effective Maintenance Processes

What two general types of maintenance processes are needed?

1. **Preventive maintenance** to make sure equipment and machinery operates safely and smoothly.
2. **Corrective maintenance** to make sure equipment and machinery gets back into safe operation quickly.

How can we make sure corrective maintenance is completed quickly?



Hazard Tracking Procedures

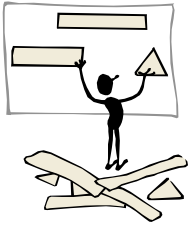
An essential part of any day-to-day safety and health effort is the correction of hazards that occur in spite of your overall prevention and control program. Documenting these corrections is equally important, particularly for larger sites.

Documentation is important because:

- It keeps management and safety staff aware of the status of long-term correction items;
- It provides a record of what occurred, should the hazard reappear at a later date; and
- It provides timely and accurate information that can be supplied to an employee who reported the hazard.

XYZ Hazard Tracking Log

Hazard Number	Description	Reported by	Date Reported	Correct by	Responsible Supervisor	Date Corrected
0301	Lathe #3, needs guard	Smith	9/9/03	9/15/03	Jones	9/14/03
0302	Dock needs warning stripes	Wilson	9/12/03	9/30/03	Jordan	



Periodic evaluation

Team Exercise: *Discuss the processes your organization uses to evaluate the safety management system.*

Sample Checklist

- 1. A comprehensive baseline hazard survey has been conducted within the past five years.
- 2. Effective job hazard analysis (JHA) is performed, as needed.
- 3. Effective safety and health inspections are performed regularly.
- 4. Effective surveillance of established hazard controls is conducted.
- 5. An effective hazard reporting system exists.
- 6. Change analysis is performed whenever a change in facilities, equipment, materials, or processes occurs.
- 7. Expert hazard analysis is performed, as needed.
- 8. Hazards are eliminated or controlled promptly.
- 9. Hazard control procedures demonstrate a preference for engineering methods.
- 10. Effective engineering controls are in place, as needed.
- 11. Effective administrative controls are in place, as needed.
- 12. Safety and health rules are written.
- 13. Safe work practices are written.
- 14. Personal protective equipment is effectively used as needed.
- 15. Effective preventive and corrective maintenance is performed.
- 16. Emergency equipment is well maintained.
- 17. Engineered hazard controls are well maintained.
- 18. Housekeeping is properly maintained.
- 19. The organization is prepared for emergency situations.
- 20. The organization has an effective plan for providing competent emergency medical care to employees and others present on the site.
- 21. An early-return-to-work program is in place at the facility.



Continual improvement

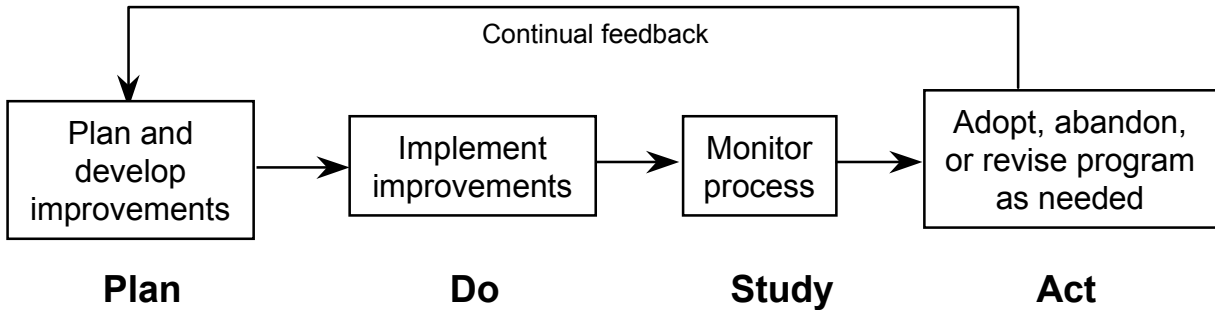
Consider how the change you propose will impact all elements of the safety management system.

The Oregon OSHA safety management system model includes seven critical elements:

- | | |
|--------------------------------------|------------------------------------|
| 1. Management Commitment | 5. Incident/Accident Investigation |
| 2. Accountability | 6. Training |
| 3. Employee Involvement | 7. Periodic Evaluation |
| 4. Hazard Identification and Control | |

As you can see, the hazard identification and control program primarily addresses Element 4. However, it's critically important that all seven elements above be applied in support of the program.

Successful change requires effective design and implementation



What will happen if a change is not carefully designed or carried out effectively?

Do best intentions guarantee a change will be successful? Why?

THE ANALYSIS WORKSHEET!

Team Exercise: View photos and use the worksheet below to determine hazards, system weaknesses, accident types and costs, probability/severity, corrective actions and system improvement.

Hazard Analysis Worksheet

Describe the Hazard:

Hazardous condition - _____

Unsafe behavior - _____

Possible Accident Type(s): _____

Accident Cost Estimates: Direct - \$ _____ Indirect - \$ _____ Total - \$ _____

Risk: Probability: _____ Severity: _____ Risk is: High Moderate Low

Recommended Corrective Action(s):

Engineering controls - _____
 _____ Investment - \$ _____

Management controls - _____
 _____ Investment - \$ _____

Personal Protective Equipment - _____
 _____ Investment - \$ _____

Recommended System Improvement(s):

Design - _____
 _____ Investment - \$ _____

Implementation - _____
 _____ Investment - \$ _____

Benefits: Return on the investment = (Total Accident Costs) _____ x 100 = _____ %
 (Investment) _____

Hazard Analysis Worksheet

Describe the Hazard:

Hazardous condition - _____

Unsafe behavior - _____

Possible Accident Type(s): _____

Accident Cost Estimates: Direct - \$ _____ Indirect - \$ _____ Total - \$ _____

Risk: Probability: _____ Severity: _____ Risk is: High Moderate Low

Recommended Corrective Action(s):

Engineering controls - _____
_____ Investment - \$ _____

Management controls - _____
_____ Investment - \$ _____

Personal Protective Equipment - _____
_____ Investment - \$ _____

Recommended System Improvement(s):

Design - _____
_____ Investment - \$ _____

Implementation - _____
_____ Investment - \$ _____

Benefits: Return on the investment = (Total Accident Costs) _____ x 100 = _____ %
(Investment) _____



Before you run...let's review

1. Conditions cause around _____ % of the accidents in the workplace, while behaviors account for about _____ % ?

2. Which of the following is not considered a surface symptom?
 - a. An unguarded saw.
 - b. A missing MSDS.
 - c. PPE training does not contain practice of spill procedures.
 - d. A maintenance worker fails to wear eye protection.
 - e. A forklift driver speeds around a corner in the warehouse.

3. All of the following are system (root) causes, except?
 - a. A staff member fails to review safety rules during orientation
 - b. No lockout/tagout procedures in place
 - c. A missing training plan
 - d. Supervisors are ignoring safety rules
 - e. An inspection process does not include machine guarding hazards

4. Engineering controls change _____ . Work practice and administrative controls change _____ .
 - b. Behavior, things
 - a. Objects, behavior
 - c. Awareness, attitude
 - d. PPE, performance

5. Why is it important to focus on fixing the system, not the blame?

Reference Materials

437-001-0765 Rules for Workplace Safety Committees.

(1) Purpose. The purpose of a safety committee is to bring workers and management together in a non-adversarial, cooperative effort to promote safety and health in each workplace. A safety committee assists the employer and makes recommendations for change.

(d) Hazard assessment and control.

(A) The safety committee shall assist the employer in evaluating the employer's accident and illness prevention program, and shall make written recommendations to improve the program where applicable. Additionally, 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;

(B) The inspection team shall include employer and employee representatives and shall document in writing the location and identity of the hazards and make recommendations to the employer regarding correction of the hazards.

(C) Quarterly inspections of satellite locations shall be conducted by the committee team or by a person designated at the location.

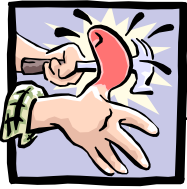
(D) Mobile work sites or locations and activities which do not lend themselves to a quarterly schedule shall be inspected by a designated person as often as Oregon occupational safety and health rules require and/or the committee determines is necessary.

(E) The person designated to carry out inspection activities at the locations identified in sections (C) and (D) of this rule shall be selected by the employer and shall receive training in hazard identification in the workplace.

(e) **Safety and health planning.** The safety committee shall establish procedures for the review of all safety and health inspection reports made by the committee. Based on the results of the review, the committee shall make recommendations for improvement of the employer's accident and illness prevention program.

(f) **Accountability.** The safety committee shall evaluate the employer's account-ability system and make recommendations to implement supervisor and employee accountability for safety and health.

(g) **Accident investigation.** The safety committee shall establish procedures for investigating all safety-related incidents including injury accidents, illnesses and deaths. This rule shall not be construed to require the committee to conduct the investigations.



Inspect to Identify Hazards Types

1. **Acceleration.** When we speed up or slow down too quickly.
2. **Vibration/Noise.** Produce adverse physiological and psychological effects.
3. **Toxics.** Toxic to skin and internal organs.
4. **Radiation.** **Non-ionizing** - burns. **Ionizing** destroys tissue.
5. **Ergonomics.** Lifting, lowering, pushing, pulling, twisting.
6. **Pressure.** Increased pressure in hydraulic and pneumatic systems.
7. **Mechanical.** Pinch points, sharp points and edges, weight, rotating parts, stability, ejected parts and materials, impact.
8. **Heat/Temperature.** Extremes in either can cause trauma, illness.
9. **Flammability/Fire.** In order for combustion to take place, the fuel and oxidizer must be present in gaseous form.
10. **Explosives.** Explosions result in large amounts of gas, heat, noise, light and over-pressure.
11. **Electrical contact.** Exposure to electrical current.
12. **Chemical reactions.** Chemical reactions can be violent, can cause explosions, dispersion of materials and emission of heat.
13. **Biologicals.** Primarily airborne and bloodborne viruses.

Determine the number of hazard types that are present in your workplace. _____

What does the following statement mean?

“Hazards are merely symptoms of bigger problems.”



Inspect to identify potential accidents

To help educate decision-makers about the natural consequences of the hazard you have identified, it's important to describe the type of accident that might result if corrective actions aren't taken.

Struck-by. A person is forcefully struck by an object. The force of contact is provided by the object.

Struck-against. A person forcefully strikes an object. The person provides the force or energy.

Contact-by. Contact by a substance or material that, by its very nature, is harmful and causes injury.

Contact-with. A person comes in contact with a harmful substance or material. The person initiates the contact.

Caught-on. A person or part of his/her clothing or equipment is caught on an object that is either moving or stationary. This may cause the person to lose his/her balance and fall, be pulled into a machine, or suffer some other harm.

Caught-in. A person or part of him/her is trapped, or otherwise caught in an opening or enclosure.

Caught-between. A person is crushed, pinched or otherwise caught between a moving and a stationary object, or between two moving objects.

Fall-To-surface. A person slips or trips and falls to the surface he/she is standing or walking on.

Fall-To-below. A person slips or trips and falls to a level below the one he/she was walking or standing on.

Over-exertion. A person over-extends or strains himself/herself while performing work.

Bodily reaction. Caused solely from stress imposed by free movement of the body or assumption of a strained or unnatural body position. A leading source of injury.

Over-exposure. Over a period of time, a person is exposed to harmful energy (noise, heat), lack of energy (cold), or substances (toxic chemicals/atmospheres).

More about OR-OSHA policy on employee exposure and hazard abatement

Proximity to the Hazard. The analyst should fully document exposure for every apparent incident/accident and the proximity of workers to the point of danger of the operation.

Observed Exposure. Employee exposure is established if anyone witnesses, observes, or monitors exposure of an employee to the hazardous or suspected hazardous condition. Where a standard requires engineering or management controls (including work practice or scheduling controls), employee exposure exists regardless of the use of personal protective equipment.

Unobserved Exposure. Where employee exposure was not observed, witnessed, or monitored by another employee or manager, employee exposure is established if it is determined through witness statements or other evidence that exposure to a hazardous condition occurred, continues to occur, or could recur.

In fatality/catastrophe (or other "accident") investigations, employee exposure is established if the investigator determines, through written statements or other evidence, that exposure to a hazardous condition occurred at the time of the accident.

In other circumstances where the investigator determines that exposure to hazardous conditions has occurred in the past, such exposure may serve as the basis for a violation when employee exposure has occurred in the previous six months.

Potential Exposure. The possibility that an employee could be exposed to a hazardous condition exists when the employee can be shown to have access to the hazard. Potential employee exposure could include one or more of the following:

- When a hazard has existed and could recur because of work patterns, circumstances, or anticipated work requirements and it is reasonably predictable that employee exposure could occur.
- When a safety or health hazard would pose a danger to employees simply by employee presence in the area and it is reasonably predictable that an employee could come into the area during the course of the work, to rest or to eat at the jobsite, or to enter or to exit from the assigned workplace.
- When a safety or health hazard is associated with the use of unsafe machinery or equipment or arises from the presence of hazardous materials and it is reasonably predictable that an employee could use the equipment or be exposed to the hazardous materials in the course of work.

Hazard vs Abatement. OR-OSHA does not mandate a particular hazard abatement measure, but only requires an employer to render the workplace free of certain hazards by any feasible and effective means which the employer wishes to utilize. For example:

- Employees doing sanding operations may be exposed to the hazard of fire caused by sparking in the presence of magnesium dust. One of the abatement methods may be training and supervision. The "hazard" is the exposure to the potential of a fire; it is not the lack of training and supervision.
- In a hazardous situation involving high pressure gas where the employer has failed to train employees properly, has not installed the proper high pressure equipment, and has improperly installed the equipment that is in place, there are three abatement measures which the employer failed to take; there is only one hazard (viz., exposure to the hazard of explosion due to the presence of high pressure gas) and hence only one general duty clause citation.

Foreseeable Hazards. The hazard for which OR-OSHA issues a citation must be reasonably foreseeable. All the factors which could cause a hazard need not be present in the same place at the same time in order to prove foreseeability of the hazard; e.g., an explosion need not be imminent. For example:

- If combustible gas and oxygen are present in sufficient quantities in a confined area to cause an explosion if ignited but no ignition source is present or could be present, no OR-OSHA violation would exist. If an ignition source is available at the workplace and the employer has not taken sufficient safety precautions to preclude its use in the confined area, then a foreseeable hazard may exist.

It is necessary to establish the reasonable foreseeability of the general workplace hazard, rather than the particular hazard which led to the accident. For example:

- A titanium dust fire may have spread from one room to another only because an open can of gasoline was in the second room. An employee who usually worked in both rooms was burned in the second room from the gasoline. The presence of gasoline in the second room may be a rare occurrence. It is not necessary to prove that a fire in both rooms was reasonably foreseeable. It is necessary only to prove that the fire hazard, in this case due to the presence of titanium dust, was reasonably foreseeable.

Recognized Hazards. Recognition of a hazard can be established on the basis of industry recognition, employer recognition, or "common sense" recognition. The use of common sense as the basis for establishing recognition shall be limited to special circumstances.

- **Industry Recognition.** A hazard is recognized if the employer's industry recognizes it. Recognition by an industry, other than the industry to which the employer belongs, is generally insufficient to prove industry recognition. Although evidence of recognition by the employer's specific branch within an industry is preferred, evidence that the employer's industry recognizes the hazard may be sufficient.
- **Employer Recognition.** A recognized hazard can be established by evidence of actual employer knowledge. Evidence of such recognition may consist of written or oral statements made by the employer or other management or supervisory personnel during or before the OSHA inspection, or instances where employees have clearly called the hazard to the employer's attention.
- **Common Sense Recognition.** If industry or employer recognition of the hazard cannot be established, recognition can still be established if it is concluded that any reasonable person would have recognized the hazard. This argument is used by OSHA only in flagrant cases.

Sample Hazard Identification and Control Checklist

Hazardous Conditions

Damage to equipment machinery tools materials
 Moving parts: rotating cutting reciprocating transverse
 pinching punching shearing bending
 Chemicals toxic flammable explosive
 Atmospheres toxic flammable explosive oxygen deficient
 Electrical cords grounding exposed circuits other _____
 Temperature cold hot variation other _____
 Lighting too little too much glare other _____
 Noise nuisance excessive continuous intermittent
 Location at elevation confined space vehicle water
 Design workstation equipment machinery materials guards
 Other: _____

Exposure/Work Practices

Number of employees exposed (may contact) hazards _____
 Frequency of exposure continual /min /hr /shift /week /month /year
 Duration of exposure continual mins hrs days weeks
 Work under stress mental physical Describe _____
 Nature of work: piecework prolonged standing/sitting posture extremes at elevation
 confined space other: Describe _____

Root Causes - Defects in design and/or implementation

Accountability Non-existent Inconsistent Consistent
 Training Little - None General Comprehensive
 Supervision Little- none Occasional Continual
 Related Policies Not addressed Informal Formal
 Rules None Informal Formal
 Resources None Poor quality Insufficient
 Other: _____

Most probable outcome

Accident type _____
 Nature of Injury/Illness _____

Sample PPE Assessment & Certification Worksheet

(Note: This worksheet, or any other worksheet used to assess the worksite for PPE is not mandatory. However, certification that a PPE assessment has been completed is required by the PPE standard.)

Assessment conducted by: _____ Date: _____

Task _____ Department _____

Instructions

1. Conduct a Job Safety Analysis of the above task.
2. List below the hazards found in the JSA.
3. If engineering or management practices cannot eliminate the hazards or are not feasible, determine the appropriate PPE for each hazard. Note: If you are not sure about appropriate PPE, consult your OR-OSHA consultant or insurer for assistance.

Summary of Task Hazards and PPE Required

Impact by: ___ materials ___ equipment ___ objects ___ co-worker ___ other (describe) _____

PPE required: (head, eye, foot, etc.) _____

Contact with: ___ stationary object ___ moving object ___ sharp object ___ other (describe) _____

PPE required: (foot, head, etc.) _____

Fall: ___ from elevation ___ to surface ___ slipping ___ tripping ___ other (describe) _____

PPE required: (fall, restraint systems) _____

Caught in, under, between: ___ running or meshing objects ___ moving object ___ stationary object ___ rolling vehicle ___ collapsing materials/cave-in ___ other (describe) _____

PPE required: (hand, foot, etc.) _____

Overexposure: ___ noise ___ heat ___ cold ___ temperature variation ___ radiation. List dBA _____ Temp _____ F.

PPE required: (hearing, respiratory, clothing, eye, etc.) _____

Inhalation of: ___ hot ___ cold ___ dust ___ mists ___ vapors ___ smoke ___ gasses ___ fibers ___ biohazards ___

other (describe) _____

PPE required: (respiratory, face, etc.) _____

Ingestion of: ___ hot ___ cold ___ acids ___ bases ___ caustics ___ poisons ___ dust ___ mists ___ vapors ___ smoke ___ gasses ___ radiation ___ fibers ___ other (describe) _____

PPE required: (respiratory, face, etc.) _____

Absorption of: ___ acids ___ bases ___ caustics ___ poisons ___ hazardous chemicals ___ other (describe) _____

PPE required: (hand, face, eye, clothing, etc.) _____

Skin contact with: ___ hot liquid ___ molten metal ___ sparks ___ acids ___ bases ___ caustics ___ poison ___ other (describe) _____

PPE required: (hand, foot, face, eye, clothing, etc.) _____

4. Reference the associated MSDS for each hazardous chemical used and list the recommended PPE for that chemical.

Chemical:	_____	MSDS PPE:	_____
	_____		_____
	_____		_____

Certification _____

Signature

Date

Sample PPE Walkthrough Survey and Certification

Department _____ Task _____ Date _____

Assess each task for hazards using following criteria: (1 **Type of injury or illness** possible; (2 **Probability** - unlikely, likely, highly likely; and (3 **Severity** - death, serious injury/illness, not serious injury/illness.

1. **Sources of motion** - machinery, processes, tools, materials, people etc. _____

Required PPE: _____

2. **Sources of high temperatures** - that could cause burns, ignition, injury to eyes, etc. _____

Required PPE: _____

3. **Sources of chemical exposure** - splash, vapor, spray, immersion, etc. _____

Required PPE: _____

4. **Sources of harmful atmospheres** - dust, fumes, gasses, mists, vapors, fibers, etc. _____

Required PPE: _____

5. **Sources of light radiation** - welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc. _____

Required PPE: _____

6. **Sources of falling objects** - materials, equipment, tools, etc. _____

Required PPE: _____

7. **Sources of sharp objects** - which could pierce the skin - feet, hands, face etc. _____

Required PPE: _____

8. **Sources of rolling or pinching that could crush** - hands, feet. _____

Required PPE: _____

9. **Layout of workplace and location of co-workers** - adequate space for task. _____

Required PPE: _____

10. **Sources of contact with electricity** - wires, grounding, _____

Required PPE: _____

I certify that I have conducted a workplace survey on the above task to assess the need for personal protective equipment. The personal protective equipment noted above will be required while performing this task.

Signature

Date

Workstation Ergonomic Hazard Analysis

Yes No

1. ___ ___ Does the working space allow for a full range of movement?
2. ___ ___ Are mechanical aids and equipment available?
3. ___ ___ Is the height of the work surface adjustable?
4. ___ ___ Can the work surface be tilted or angled?
5. Is the workstation designed to reduce or eliminate:
 - ___ ___ Bending or twisting at the waist?
 - ___ ___ Reaching above the shoulder?
 - ___ ___ Static muscle loading?
 - ___ ___ Extending the arms?
 - ___ ___ Bending or twisting the wrists?
 - ___ ___ Raised elbows?
6. ___ ___ Is the employee able to vary posture?
7. ___ ___ Are hands and arms free from pressure from sharp edges on work surfaces?
8. ___ ___ Is an armrest provided where needed?
9. ___ ___ Is the floor surface flat?
10. ___ ___ Are cushioned floor mats provided when workers stand for long periods?
11. ___ ___ Is the chair or stool easily adjustable and suited to the task?
12. ___ ___ Are all task requirements visible from comfortable positions?
13. ___ ___ Is there a preventive maintenance program for tools and equipment?

Ergonomic Task Analysis Worksheet

Yes No

1. Does the design of the task reduce or eliminate:
 - Bending or twisting?
 - Crouching?
 - Bending or twisting the wrists?
 - Extending the arms?
 - Raising elbows?
 - Static muscle loading?
 - Clothes-wringing motions?
 - Finger pinch grip?
2. Are mechanical devices used when necessary?
3. Can the task be done with either hand?
4. Can the task be done with two hands?
5. Are pushing and pulling forces reduced or eliminated?
6. Are the required forces acceptable?
7. Are the materials able to be held without slipping?
8. Are the materials easy to grasp?
9. Are the materials free from sharp edges or corners?
10. Do containers have good handholds?
11. Are jigs, fixtures and vises used where needed?
12. Do gloves fit properly, and are they made of the proper fabric?
13. Does the task avoid contact with sharp edges?
14. When needed, are push buttons designed properly?
15. Does personal protective equipment keep from getting in the way of the task?
16. Are high rates of repetitive motion avoided by:
 - Job rotation?
 - Self pacing?
 - Sufficient rest pauses?
 - Adjusting the job to the skill level of the worker?
17. Is the employee trained in:
 - Proper work practices?
 - When and how to make adjustments?
 - Signs and symptoms of potential physical problems?

Hand tool analysis checklist

Yes No

1. Are tools selected to avoid:
 - excessive vibration?
 - excessive force?
 - Bending or twisting the wrists?
 - finger pinch grip?
 - Raising elbows?
 - problems associated with trigger finger?
2. Are tools powered where necessary and feasible?
3. Are tools evenly balanced?
4. Are heavy tools counterbalanced?
5. Does the tool allow adequate visibility of the work?
6. Does the tool grip/handle prevent slipping during use?
7. Are tools equipped with handles:
 - of proper diameter?
 - that do not end in the palm area?
 - of textured non-conductive material?
8. Are different handle sizes available to fit a wide range of hand sizes?
9. Is the tool handle designed to not dig into the palm of the hand?
10. Can the tool be used safely with gloves?
11. Can the tool be used by either hand?
12. Is there a preventive maintenance program to keep tools operating as designed?
13. Have employees been trained:
 - in the proper use of tools?
 - when and how to report problems with tools?
 - in proper tool maintenance?

Materials handling checklist

Yes No

1. Has excessive weight lifting been reduced?
2. Are materials moved over minimum distances?
3. Is the distance between the object and the body minimized?
4. Are walking surfaces:
 - level?
 - wide enough?
 - clean and dry?
 - well lit?
5. Are objects:
 - easy to grasp?
 - stable?
 - able to be held without slipping?
6. Are there handholds on these objects?
7. When required, do gloves fit properly?
8. Is the proper footwear worn?
9. Is there enough room to maneuver?
10. Are mechanical aids easily available and used whenever possible?
11. Are working surfaces adjustable to the best handling heights?
12. Does material handling avoid:
 - movements below knuckle height and above shoulder height?
 - static muscle loading?
 - sudden movements during handling?
 - twisting at the waist?
 - excessive reaching?
13. Is help available for heavy or awkward lifts?
14. Are high rates of repetition avoided by:
 - job rotation?
 - self pacing?
 - sufficient rest pauses?
15. Are pushing and pulling forces reduced or eliminated?
16. Does the employee have an unobstructed view of the handling task?
17. Is there a preventive maintenance program for equipment?
18. Are workers trained in correct handling and lifting procedures?

Computer workstation checklist

Yes No

1. Is the chair adjusted to ensure proper posture, such as:
 - knees and hips bent at approximately 90 degrees?
 - feet flat on floor or footrest?
 - arms comfortably at sides with elbows at 90-degree angle?
 - straight wrists at keyboard?
2. Does the chair:
 - adjust easily from the seated position?
 - have a padded seat that is adjustable for height and angle?
 - have an adjustable backrest?
 - provide lumbar support?
 - have a stable caster base?
3. Is there sufficient space for knees and feet?
4. Are the height and tilt of the keyboard work surface adjustable?
5. Is the keyboard prevented from slipping when in use?
6. Is the mouse or pointing device at the same level as the keyboard?
7. Does keying require minimal force?
8. Is there an adjustable document holder?
9. Are arm rests provided where needed?
10. Is the screen clean and free of flickering?
11. Is the top line of the screen slightly below eye level?
12. Does the monitor have brightness and contrast controls?
13. Is the monitor 18-30 inches from the worker for viewing?
14. Is there sufficient lighting without causing glare?
15. Is an anti-glare screen used if necessary?
16. Are adequate rest breaks provided for task demands?
17. Are high stroke rates avoided by:
 - job rotation?
 - self pacing?
 - adjusting the job to the skill of the worker?
 - adequate rest pauses?
18. Are employees trained in:
 - proper postures?
 - proper work methods?
 - when and how to adjust their workstations?
 - how to seek assistance with concerns?

Symptoms Survey

Name _____ Date _____

(Optional)

Work Location _____ Job _____

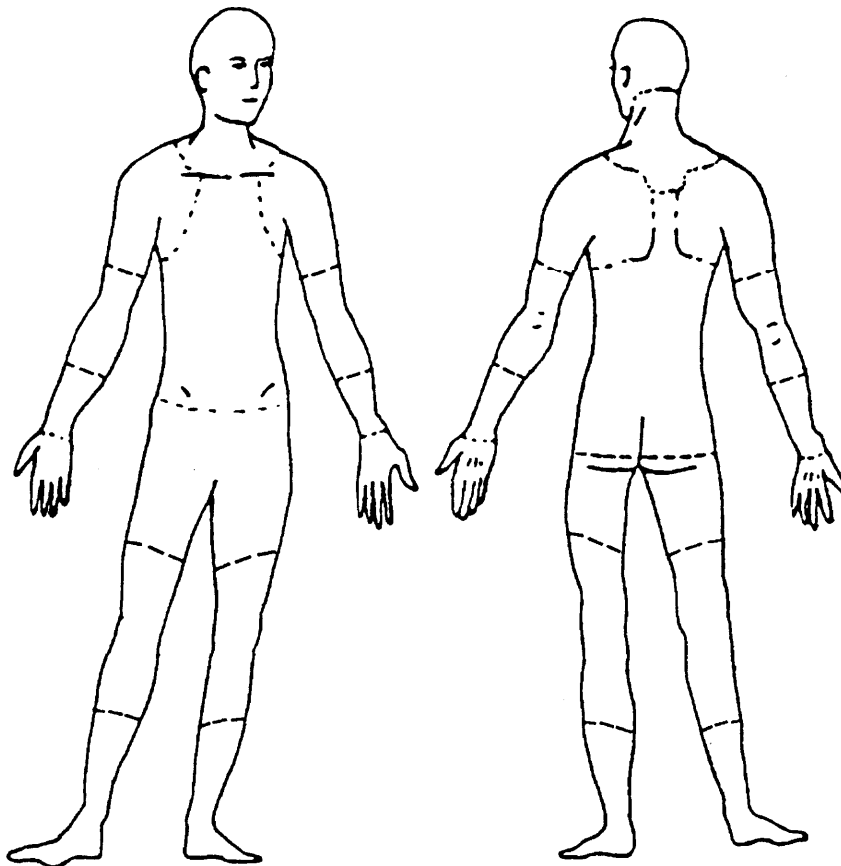
Shift _____ Supervisor _____

(Optional)

Time on this job: _____ Less than 3 months _____ 3 months to 1 year _____ 1 year to 5 years
_____ 5 years to 10 years _____ Over 10 years

Have you had any pain or discomfort during the last year? _____ Yes _____ No

If you answered "Yes" to the above question, carefully shade in the area of the drawings below which indicate the location of the pain which bothers you the most.



Front

Back

Symptoms Survey

Name (Optional) _____

Please complete a separate page for each area that bothers you.

Check area Neck Shoulder Elbow Forearm
 Hand/Wrist Fingers Upper back Low back
 Thigh Knee Low leg Ankle/foot

1. Please put a check by the word(s) that best describe your problem.

Aching Cramp Numbness Tingling
 Stiffness Burning Pain Weakness
 Swelling Color Loss Other (Specify) _____

2. When did you first notice the problem? recently number of months ago years ago

3. How long does each episode last? _____

4. How many separate episodes have you had in the last year? _____

5. What do you think caused the problem? _____

6. Have you had this problem in the last 7 days? Yes No

7. (optional) How would you rate the level of pain you experience related to this problem? Mark an "X" on the line.

Right now: None -----Unbearable

At its worst: None -----Unbearable

8. Have you had medical treatment for this problem? Yes No

If yes, what was the diagnosis? _____

9. How many days have you lost from work in the last year because of this problem? _____

10. How many days in the last year were you on modified duty because of this problem? _____

11. Have you changed jobs because of this problem? Yes No

12. Please comment on what you think would improve your symptoms:

Sample Safety Inspection Report

I. Background

Inspection Date 9/00 Dept. Warehouse
 Inspector(s) B. Wood (Management rep.) R. Smith (Employee rep.)
 Inspection Type Quarterly Safety Committee

II. Findings

A. Hazardous Conditions

1. Platform storage area does not have guardrails.
 - a. Root cause(s). Missing guardrails were previously identified but not budgeted for correction. Indicates inadequate policy and procedures to respond to hazards. Note: Since management has prior knowledge of this hazard and has elected not to take action, this hazard may be classified as a willful violation by OR-OSHA and subject to an increased penalty.
 - b. Possible Accident(s) and Associated Cost(s):
 - (1 Struck by falling object. Average direct accident cost for this accident is \$9,851. Estimated indirect cost \$36,000. Total estimated cost if accident occurs is \$45,851.
 - (2 Fall from elevated platform. Average direct accident cost for this accident it \$15,668. Estimated indirect cost \$60,000. Total estimated cost if accident occurs is \$75,668.
 - c. Exposure, Probability and Severity:
 - (1 Exposure. Twelve employees work in the area throughout an 8-hour shift. Five employees routinely work on the platform. Approximately 30 employees walk through the hazard area each day.
 - (2 Probability. It is likely that one of the above accidents will occur within the next year. There was a near miss six months ago when an employee was nearly hit by a falling container.
 - (3 Severity. Most likely: Serious physical harm. Worst case: Fatality.

B. Hazardous Work Practices:

1. Workers are using improper lifting techniques:
 - a. Root Cause(s). Equipment to assist employees in lifting is not present. Through interviews and records reviews it has been determined that workers are not being properly trained in safe lifting techniques. Indicates an inadequate training program addressing ergonomics hazards.
 - b. Possible Accident(s): Overexertion - Lifting. Average cost = \$9,956. Estimated indirect cost = \$40,000. Total = \$49,956.
 - c. Exposure, Probability and Severity.
 - (1 Exposure. All employee in the warehouse are expected to lift heavy containers throughout all 8-hour work shifts.
 - (2 Probability. It is highly likely that one or more employees will experience a back strain or sprain in the next year. OSHA 200 Log/801 Reports indicate we experience five such accidents annually (1995-1999).
 - (3 Severity. Most likely: Serious physical harm. Worst case: Serious physical harm.

Section III. Recommendations.

A. Hazardous Conditions:

1. Missing guardrails.
 - a. Engineering controls. Install guardrail system in compliance with OR-OSHA safety and health rules. Investment: \$1,5000-\$2,300. Recommended correction date: Immediately.
 - b. Work practice/Administrative controls. Instruct employees not to work on platform unless absolutely necessary until guardrails are installed. Investment: \$500. Recommended action date: Immediately.
 - c. Personal Protective Equipment. Fall restraint system should be used by workers on platform until guardrails are installed. Investment: \$400. Recommended action date: Immediately.
 - d. System improvements. (Weaknesses/recommendations in the safety system may be determined most effectively by the safety coordinator/committee) Improve inspection procedures to include management review of inspection reports. Establish policy/procedures to ensure reasonable response times to recommendations. Investment: \$1000

B. Hazardous Work Practices:

1. Unsafe lifting techniques.
 - a. Engineering controls. Purchase equipment to lift heavy containers. Cost: \$12,000. Recommended action date: 1/1/98.
 - b. Work practice/Administrative controls.
 - (1 Train all employees on safe lifting techniques and use of personal protective equipment. Investment: \$1,000. Recommended action date: Immediately.
 - (2 Train management on accountability system. Ensure warehouse supervisors properly monitor lifting techniques, provide feedback to employees, and enforce safety rule on lifting for repeated violations. Investment: \$1000. Recommended action date: Immediately.
 - c. Personal protective equipment. N/A.
 - d. System improvements. Establish policies and procedures to ensure adequate safety training in a timely manner. Improve/reinforce accountability policy. Ensure all employees review and certify understanding of new rule. Investment: \$3000. Recommended action date: Immediately.

Section IV. Conclusion:

- A. Total potential direct and indirect accident costs : \$171,000 (Does not include possible OSHA penalties)
- B. Total investment: \$24,700
- C. Estimated five-year ROI = 692%
- C. Commendable: Observations during the inspection indicated that safe use of forklifts was excellent. All aisles were clear and housekeeping in general was excellent.

Inspector

Inspector

Section V. Action Plan [Completed by decision maker]

A. Hazardous conditions:

1. Missing guardrail.

- a. Interim measures. [Responsible individual] will ensure current guardrail is reinforced immediately.
- b. Long-term corrective actions. [Responsible individual] new guardrail is purchased and installed by [Correction date].

B. Unsafe work practices and procedures:

1. Improper lifting

- a. Interim measures. [Responsible individual] will ensure affected workers and their supervisors receive proper lifting techniques training by [Date]. Supervisors will increase supervision, provide immediate feedback, and report observations to the safety coordinator.
- b. Long-term corrective actions. [Responsible individual] will ensure a pneumatic lift device is purchased and installed by [Correction date].

C. System improvements.

1. [Responsible individual] will ensure the safety inspection plan is revised to include review by top management and a schedule is developed for written response to written recommendations. Action to be completed by [Correction date].
2. [Responsible individual] will ensure proper lifting techniques training is included in new employee orientation and affected employee and supervisor training plans by no later than [Correction date].

[Decision Maker]

Date

Section V. After Action Report [Completed by safety coordinator]

A. Hazardous conditions:

1. Missing guardrail.

- a. Interim measures. Guardrail reinforced. Corrected on [Date]. Item closed
- b. Long-term corrective action. New guardrail installed on [Date]. Item closed.

B. Unsafe work practices and procedures:

1. Improper lifting

- a. Interim measures. Affected employees/supervisor training is complete. Item closed. Increased supervision and feedback, observations are being reported. Item Open.
- b. Long-term corrective action. A pneumatic lift device is purchased and installed. Item closed.

C. System improvements.

1. The safety inspection plan is revised to include review by top management and a schedule is developed for written response to written recommendations. Item closed.
2. Proper lifting techniques training is included in new employee orientation and affected employee and supervisor training plans. Item closed.

Safety Coordinator

Date



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