SECTION 11

Inspections, Procedures, Preparations, and Checklists

Section Contents

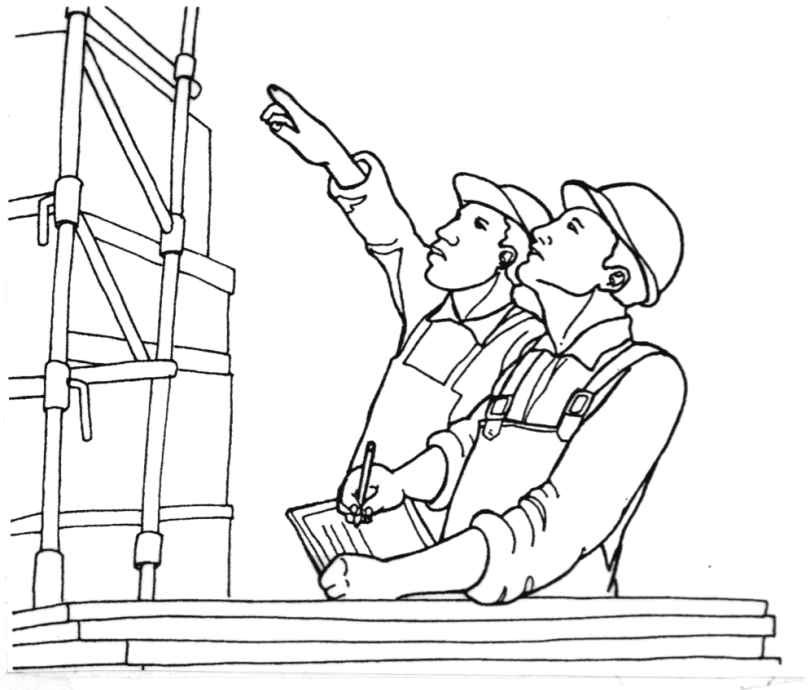
How are workplace hazards evaluated?

Evaluation of hazards in the workplace is an on-going process that starts with recognition of the hazard, followed by an assessment of the severity of the hazard and how many workers are affected, and finally action to correct the hazard by eliminating or controlling it. This process is started all over again with a re-inspection of the work area on a regular schedule.

A special kind of workplace hazard evaluation is the investigation of an accident. The goal of the accident investigation is to determine what was the cause of the accident and how such accidents can be prevented in the future.

The key activities of this evaluation process are:

- on site observation of the production process and work procedures;
- interviews with workers and supervisors;



- written surveys, lists or questionnaires about the equipment and work areas;
- review of safety-related documents;
- measurement and monitoring of worker exposures;
- comparison of the monitoring results to occupational exposure limits (OELs);
- reporting the results of the evaluation process to the health and safety committee, management, and the affected workers;
- taking action to control or eliminate the hazard.

Hazard evaluations and accident investigations often involve consulting technical resources (people as well as manuals, books or reports) to learn more about the nature of the materials or equipment in use.

There are important aspects to each of the evaluation steps listed on this and the previous page.

On-site Observation

Key aspects of effectively observing work during “walk-around inspection” visits include:

- understanding the production process of the area or department, from start to finish;
- observing the entire work cycle of any given operation several times to understand how the work is done;
- identifying hazards that can produce both immediate acute health effects, and long-term chronic health effects;
- documenting the observations by:
  - using written checklists;
  - writing down the model and serial numbers of the equipment;
  - taking measurements of the equipment and dimensions of the work areas;
  - taking photographs, especially in accident investigations, of both specific work operations and the larger work area.

Interviews of workers, supervisors and others

Key aspects of effective interviews during inspection visits include:

- **Speaking to at least three or four workers in each work area, and on different shifts**, to best understand the exposures and concerns of the workers. Workers should be asked about their specific job tasks, any hazardous exposures created by their work, what personal protective equipment they use, what training they have received, any injuries or illnesses they have experienced, and any concerns or worries they have about their work. Workers should be asked about work tasks that are only done occasionally, "non-routine" tasks, as well as their every day tasks;

- **Speaking to supervisors** about what they know of the hazards to the workers in their department, what precautions they take to control these hazards, what personal protective equipment is available and how it is distributed, what training the workers have received, and what procedures are followed to eliminate or control new hazards once they are recognized;

- **Speaking to maintenance department mechanics and plant engineers** who usually know the process and equipment well, and what problems have occurred over the last several months in the work area;

- **Speaking with medical or clinic personnel** who know what types of injuries and illnesses have been reported by workers and supervisors;

- **Speaking with the department health and safety coordinator or committee** about the hazards they have identified in the work area, and what protective measures have been taken.

To get the best information from the people being interviewed, it is best to talk to them privately, or away from other people, so that the person being interviewed is not worried about what other people may think of their answers.

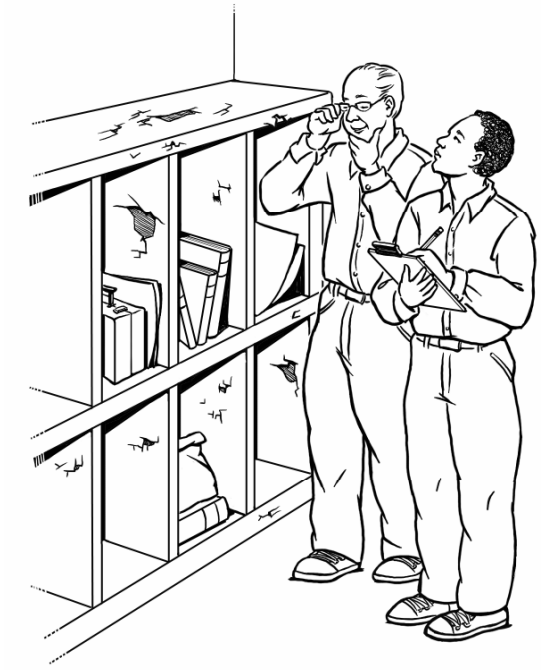
Written surveys

It is often useful to conduct written surveys, lists or questionnaires in the workplace to document information for the hazard evaluation process. Among the types of surveys that can be conducted are:

- Surveys of a given department or work area to document the number of workers present, identify the products made and processes used, and identify the hazards related to those operations;

- Surveys or lists of equipment in a given department or work area to document the different types of equipment in use, identify the schedule of regular maintenance and history of specific repairs, and identify any missing guards or equipment;

- Surveys or questionnaires of all workers in a department or work area to learn of any injuries and illnesses they have experienced, to learn of what training and protective equipment they have received, and to learn of any particular concerns or worries they have.



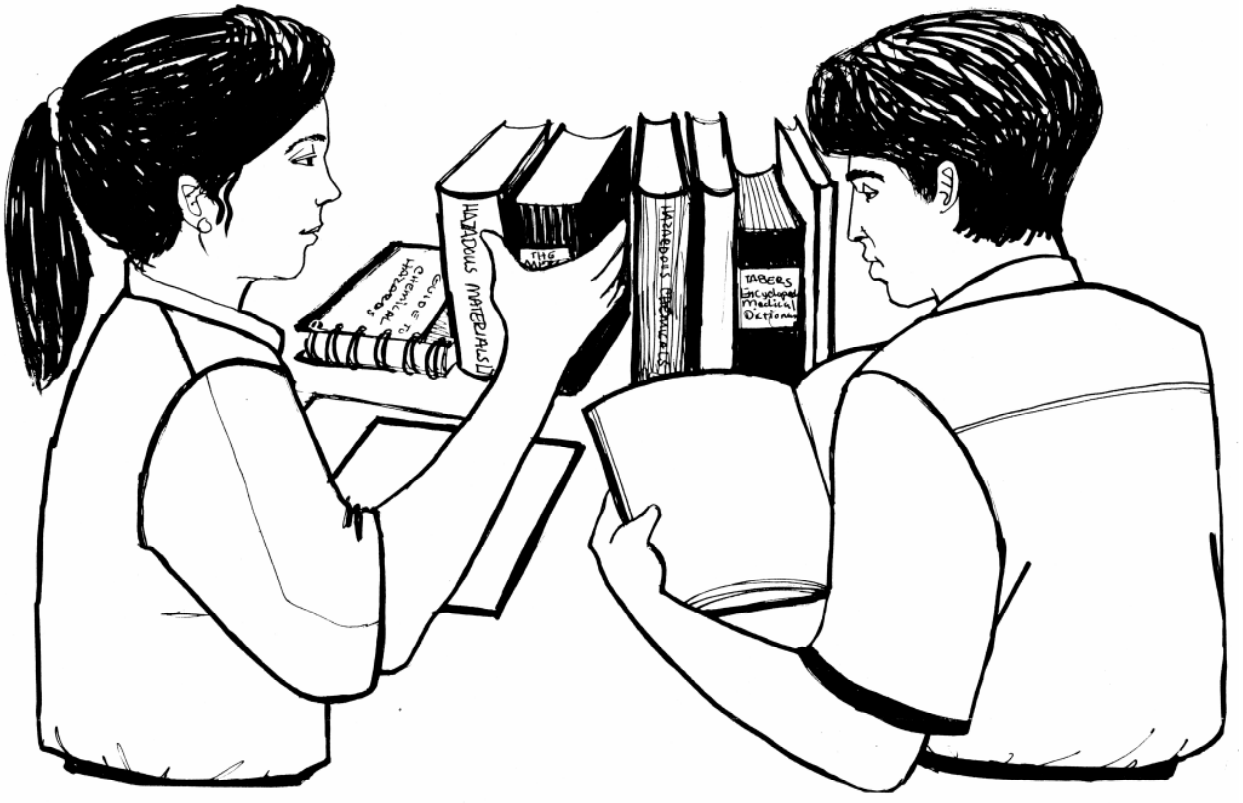
Review of documents

Every hazard evaluation or accident investigation will involve a review of written documents in the department or the plant as a whole. A request to see these documents should be made to the department manager and the health and safety coordinator before or on the day of the inspection. Some of these documents may not exist, but it is important to learn that fact as well.

Included in the list of documents that could be requested and reviewed are:

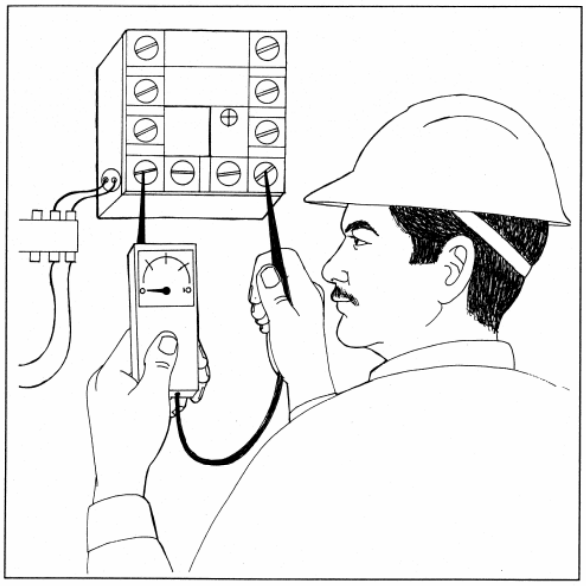
- records of worker injuries and illnesses, both for the plant as a whole and for the specific work area;
- records of specific medical tests of exposed workers, such as hearing tests or blood lead level test results;
- records of previous inspections and hazard corrections for the inspected area;
- written safety programs, such as the fire evacuation plan, the plan to communicate hazards to workers, and the overall safety program;
- records of any annual reviews of the written safety programs;
- minutes of previous health and safety committee meetings related to the inspected areas;
- records of accident investigations, including the determination of the cause of the accident and what was done to prevent similar accidents in the future;
- copy of the inventory list of hazardous materials in use in the inspected areas;
- copies of the Chemical Safety Data Sheets or Material Safety Data Sheets for chemicals in use;
- manufacturers' manuals or operating instructions for the equipment in use;

- records of maintenance of equipment and machinery;
- records of tests of alarms systems;
- records of previous monitoring of worker exposures to chemicals, noise, and other hazards;
- records of worker trainings, including the date, the training topics and the instructors;
- records of previous inspections done by government agencies;
- records of audits done by the parent company of the plant, audits by the retail company (adidas, Nike and Reebok), and audits done by outside "monitors" of the company's code of conduct.



Measurements and monitoring

It is important to have complete and accurate information about the equipment in use and the work tasks being done that can create hazards to the workers.



Measurements and monitoring can be as simple as observing the work process to evaluate ergonomic hazards, or using a tape measure to measure the width of an aisle. Or it can be as complicated as using scientific equipment to measure the exact amount of a chemical in the air at the time of the test.

The monitoring results are only useful if they are done following the correct procedures for using monitoring equipment for exposures to chemicals, noise, temperature, etc. Monitoring results that do not accurately represent the actual exposures of workers during both "normal" and "non-routine" operations cannot be used effectively to protect workers' health.

Monitoring and measurements should focus on the issues that are concerns of the workers and supervisors in the work area. For example, if workers complain of sore throats and eyes, then it would be useful to measure the amount of chemicals in the air. If workers report headaches and that their ears hurt, then it would be useful to measure the noise levels. If workers have pain in their hands and wrists, then it would be useful to evaluate ergonomic hazards in their jobs.

Walk-around inspections should document and measure what machines and substances are used, exactly where operators stand, where their hands and limbs are located during regular operations, where materials come from and go to during the work operation, and how far away from moving machinery and equipment the workers are located.

Comparison with OELs

Monitoring results for chemical, noise, temperature or other exposures should be compared with the legal occupational exposure limit (OEL) and/or with voluntary guidelines like the Threshold Limit Values (TLVs) of the American Conference of Governmental Industrial Hygienists (ACGIH). The monitoring results for actual working hours longer than 8 hours a day should be adjusted because the OELs are set for an 8-hour day and 40-hour work week exposure. See the chapter on occupational exposure limits for examples of the acceptable adjustments for work days longer than 8 hours.

Take action

Once the health and safety committee has information from the inspection process that hazards exist, that accidents and illnesses have occurred, or that the plant's monitoring results are above the legal occupational exposure limit or voluntary guideline, then the health and safety committee should determine and recommend corrective action.

In some cases, the hazard can be eliminated right away. In other cases, immediate protective action is required to control a hazard until a long-term solution can be implemented.

Often the health and safety committee will need to consult technical experts or do its own research on the hazards identified and the best control measures to use. Almost all workplace hazards exist in other plants and other countries, and it is likely that other people may have already found solutions for similar problems.

In all cases, the health and safety committee should maintain complete records of what hazards were identified by the inspection process and what corrective actions have been taken.

Preparation for the walk-around inspection

Before conducting a walk-around inspection, it is important to review any available documents related to the work area to be inspected, especially records of previous inspections, accident investigations and reports of illnesses. Information about the work procedures and equipment in use in the area is also important to know.

It is helpful to include in the inspection team workers and supervisors from the department or work area, and also workers and supervisors from other work areas. People who do not work every day in an area notice or see things differently than people who have become accustomed to the work site. Inspection team members from other departments often can identify new hazards or problems.

The inspection team should have the following materials with them on a walk-around inspection:

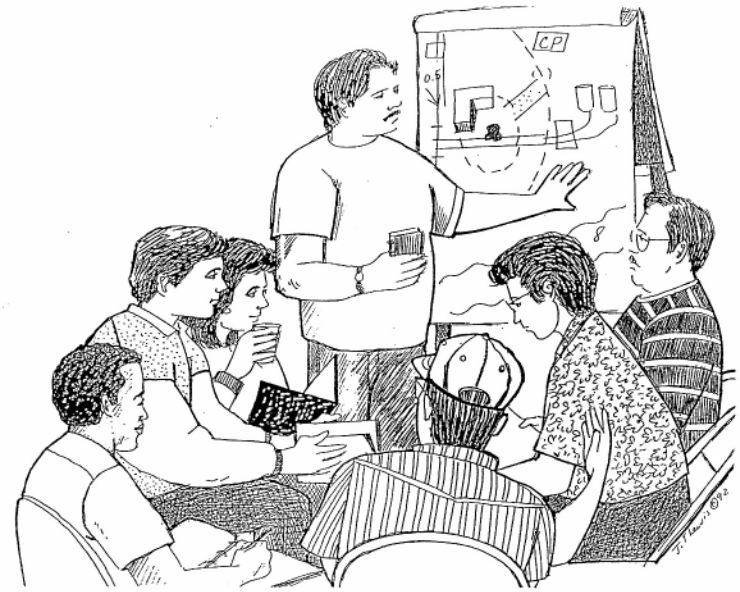
- checklists for specific hazards and general work operations;
- note-taking paper to document what they see;
- equipment to measure, monitor and document, such as cameras, tape measures, sound level meters, thermometers, etc.

Report the results of the inspection visit or accident investigation

Once the inspection team has finished with the walk-around inspection, it should prepare a report of its findings. This does not have to be a long written document. It could be both a written document and an oral presentation to the health and safety committee, to management, and to the affected workers.

The report, either written or verbal, should include a description of:

- what activities were conducted during the inspection;
- what hazards were identified;
- what hazards were measured or monitored;
- what were the results of the monitoring and comparison to OELs; and
- what actions are recommended by the inspection team to eliminate or control the identified hazards.



Plant Inspection Checklist

Equipment:

flashlight, tape measure, thermometer, current tester, sound level meter, ventilation smoke tubes

Date:				
Time:				
Department:				
Number of workers:	Men_____ Women_____			
Hours of Operation:	1st shift start time		End time	
	meal break time		End break	
	2nd shift start time		End time	
	meal break time		End break	

Draw a simple floor plan of the department:

Section One

Emergency Action - Fire Prevention

Question	Answer/Comments
OBSERVE OR MEASURE	
Emergency Exits	
1. Count the number of exits to outside of building:	
2. Count the number of exits to other parts of the building:	
3. Measure the width of 2 or 3 exits:	1._____ 2._____ 3._____
4. Estimate the number of exits that are less than 81 cm wide	
5. Are the exits marked?	” Yes ” No Locations of unmarked exits:
6. Do exits have lighted signs?	” Yes ” No Location of exits with unlighted signs:
7. Is there emergency lighting in the department?	” Yes ” No
Passage Ways	
8. *Measure 2 or 3 interior aisles.* Estimate how many total are less than 60 centimeters wide.	Locations of interior aisles less than 60 cm:
9. *Measure 2 or 3 exit aisles.*	Locations of exit aisles less than 72 cm:
10. How many aisles are blocked by material?	Locations:

Fire Prevention		
11.	Count the fire extinguishers in the department:	
12.	Are fire extinguishers mounted with a sign indicating their location?	” Yes ” No If no, locations and ID numbers:
13.	Number of fire extinguishers which have not been charged in last 12 months:	Locations and ID numbers:
14.	How many liters of flammable liquids are in use in the department?	
15.	Are there flammable liquid storage closets in the department?	” Yes ” No If yes, size and location:
ASK WORKERS		
16.	Is there an evacuation alarm for the department?	” Yes ” No
17.	Are there practice evacuation drills in the department?	” Yes ” No When was the last drill:
18.	Are employees expected to use fire extinguishers?	” Yes ” No When was the last training on fire extinguishers:

ASK SUPERVISORS OR MANAGERS		
19. Are there written evacuation procedures?	” Yes ” No	
20. Is there an evacuation alarm for the department?	” Yes ” No	If yes, when was it last tested?
21. Are there practice evacuation drills in the department?	” Yes ” No	If yes, when was the last drill?
22. When was the emergency lighting last tested?		
23. Is there a written Fire Prevention Plan?	” Yes ” No	If yes, who does the Plan designate as the person assigned to prevent the accumulation of flammable materials?
24. Are employees expected to use fire extinguishers?	” Yes ” No	If yes, when were these employees last trained on fire extinguisher use?

Ask management for the following documents:	Are these documents available?
25. Written emergency action plan	” Yes ” No
26. Written fire prevention plan	” Yes ” No
27. Records of last evacuation alarm testing	” Yes ” No
28. Record of last emergency lighting testing	” Yes ” No
29. Records of employee training: evacuation procedures, fire extinguishers use, first aid, rescue procedures	” Yes ” No

Section Two
Chemical Exposures

Equipment: flashlight, tape measure, ventilation smoke tube

Question	Answer/Comments
Pick one or two work areas to inspect. Name of work area or station:_____ Job title or classification:_____	
OBSERVE OR MEASURE	
Chemicals	
1. What chemicals are used?	
2. Are containers labeled?	” Yes ” No — Locations of unlabeled containers:
3. Are Chemical Safety Data Sheets (CSDSs) available in Chinese?	” Yes ” No — Products with no CSDS in Chinese:
4. Are Material Safety Data Sheets (MSDSs) available in Chinese?	” Yes ” No — Products with no MSDS in Chinese:
Personal Protective Equipment and Ventilation	
5. What Personal Protective Equipment is being used?	❑Gloves ❑Glasses ❑Cartridge Respirator; ❑Cloth masks ❑Steeled-toed shoes; ❑ Coveralls ❑ Hearing protection
6. Is local exhaust ventilation installed at work stations?	” Yes ” No
7. Use smoke tube to see if exhaust ventilation is working:	” Working ” Not working
8. Is there an emergency eyewash/shower?	” Yes ” No
9. Is the eyewash within a 10-second walk of the work area?	” Yes ” No

ASK WORKERS

10. Find two workers who are using respirators.

Name of respirator user:	1. _____	2. _____
a. Did the worker have a Medical Evaluation for respirator use?	” Yes ” No	” Yes ” No
b. Did the worker have an individual fit test?	” Yes ” No	” Yes ” No
c. How often are cartridges changed?		
d. What training on respirator use and care did the worker receive?		

11. Find two workers who are using gloves

	Employee #1	Employee #2
a. What type of glove used (cotton, latex, nitrile, butyl).		
b. How often are gloves changed?		
c. What chemicals is the worker using?		

12. Find two workers who are working with chemicals.

	Employee #1	Employee #2
a. Has individual monitoring of employees for chemical exposures ever been conducted?	” Yes ” No Job: Chemical:	” Yes ” No Job: Chemical:
b. Has the worker received training on chemical hazards and how to read CSDSs and MSDSs?	” Yes ” No	” Yes ” No

ASK SUPERVISORS OR MANAGERS		
13.	Has the flow rate of the local exhaust ventilation been tested in the last 12 months?	” Yes ” No
14.	Has individual monitoring of employees for chemical exposures ever been conducted?	” Yes ” No
15.	Have workers received training on respirator use?	” Yes ” No
16.	Have workers received training on chemical hazards and information sheets?	” Yes ” No
Ask management for the following documents:		Are these documents available?
17.	Written hazard communication plan	” Yes ” No
18.	Written respirator use program	” Yes ” No
19.	Records of employees’ medical evaluation and fit-tests for respirator use	” Yes ” No
20.	Records of local exhaust ventilation testing	” Yes ” No
21.	Records of employee monitoring results	” Yes ” No
22.	Records of employee training: hazard communication; respirator use and care; use of gloves and other personal protective equipment (PPE)	” Yes ” No

Section Three
Noise Exposures

Equipment: flashlight, tape measure, sound level meter

Question	Answer/Comments

OBSERVE OR MEASURE

1. Pick four areas. Measure the sound level: at the machine operator's position, and at the work station of the nearest worker.

	Machine/Area	SLM reading (in decibels)	Hearing Protection in Use?	Number of employees exposed
A.		*Operator:* *Closest worker:*	” Yes ” No ” Yes ” No	
B.		*Operator:* *Closest worker:*	” Yes ” No ” Yes ” No	
C.		*Operator:* *Closest worker:*	” Yes ” No ” Yes ” No	
D.		*Operator:* *Closest worker:*	” Yes ” No ” Yes ” No	

ASK WORKERS

2.

	Were Sound Level Meter readings taken?		Has personal monitoring been conducted?		Have employees had a baseline and annual audiogram?	
Area A	” Yes ” No	When:	” Yes ” No	When:	” Yes ” No	Last test date:
Area B	” Yes ” No	When:	” Yes ” No	When:	” Yes ” No	Last test date:
Area C	” Yes ” No	When:	” Yes ” No	When:	” Yes ” No	Last test date:
Area D	” Yes ” No	When:	” Yes ” No	When:	” Yes ” No	Last test date:

ASK SUPERVISORS OR MANAGERS

3.

	Were Sound Level Meter readings taken?		Has personal monitoring been conducted?		Have employees had a baseline and annual audiogram?	
Area A	” Yes ” No	When:	” Yes ” No	When:	” Yes ” No	Last test date:
Area B	” Yes ” No	When:	” Yes ” No	When:	” Yes ” No	Last test date:
Area C	” Yes ” No	When:	” Yes ” No	When:	” Yes ” No	Last test date:
Area D	” Yes ” No	When:	” Yes ” No	When:	” Yes ” No	Last test date:

Ask management for the following documents:	Are these documents available?
4. Records of Sound Level Meter results	” Yes ” No
5. Records of personal monitoring results	” Yes ” No
6. Records of employee audiogram results	” Yes ” No
7. Records of employee training on the harmful effects of noise	” Yes ” No

Section Four
Electrical Hazards
Machine Guarding and Energy Lock Out

Equipment: flashlight, tape measure, current tester

Question	Answer/Comments
OBSERVE OR MEASURE **Electrical Hazards**	
Select 2 types of machines and look for these common electrical hazards:	
A. exposed live wires B. frayed/damaged wires C. flexible cords used instead of permanent wiring D. plugs without ground pins E. panel boxes without 1 meter clearance	F. openings in panel boxes G. no directory for panel boxes H. wet/damp locations I. locations where flammable liquids or gases are used

Type of Machine	Energized Circuit	Problem (A through I)	Number of exposed employees
1.	” Yes ” No		
2.	” Yes ” No		

Machine Guarding		
Type of Machine	Number in use	Number of exposed employees
1.		
2.		

Hazard	Machine #1	Machine #2
3. Are there point of operation guarding hazards in “danger zone”?		
4. Are there moving parts hazards: (fly-wheels, shaft ends, conveyor belts)?		
5. Are there pinch point hazards: (v-belts, pulleys, chain & sprocket under 2.2 meters above floor)?		
6. Is there enough room around the machine for operation:	” Yes If no, which machines ” No	” Yes If no, which machines ” No
7. Are control buttons clearly marked:	” Yes If no, which machines ” No	” Yes If no, which machines ” No

Energy Lock-out Program

8. Look for one electrically powered and non-electric machine (if any).
Types of energy sources: a. Electrical, b. Mechanical, c. Hydraulic, d. Pneumatic

Type of machine	Energy Source (a, b, c or d)	Can energy source be "locked-out"?	Number of exposed employees
1.			
2.			

Question	Answer/Comments
ASK WORKERS	
9. What is the procedure for reporting electrical hazards?	
10. How are reported hazards corrected?	
11. Do you know how to lock-out power when employees adjust, clean, service or unjam a machine?	” Yes ” No
12. Are padlocks available?	” Yes ” No
13. Have they received any training on machinery hazards and how to "lock-out" power sources?	” Yes ” No

ASK SUPERVISORS OR MANAGERS	
14. What is the procedure for reporting electrical hazards?	
15. How are reported hazards corrected?	
16. Are records of hazard correction kept (such as maintenance work orders):	” Yes ” No
17. How often are the machines serviced and inspected:	Date of last serviced/inspection:
18. Are there written procedures for locking out power when employees adjust, clean service or unjam machinery?	” Yes ” No
19. Have workers been trained on the procedures to “lock-out” power sources before working on machines?	” Yes ” No
20. Are these procedures reviewed annually with maintenance employees?	” Yes If yes, date of last review session: ” No
21. Are there individual padlocks and keys for locking-out energy sources?	” Yes ” No
22. Have workers been trained on the hazards of machines?	” Yes ” No

Ask management for the following documents:	Are these documents available?
23. Hazard reporting procedures	” Yes ” No
24. Records of hazard corrections	” Yes ” No
25. Written lock-out/tag-out procedures	” Yes ” No
26. Records of annual review of procedures with authorized employees	” Yes ” No
27. Records of inspection of machinery	” Yes ” No
28. Records of employee training: machine guarding hazards; lock-out procedures	” Yes ” No

Section Five
Ergonomics and Stress

Equipment: flashlight, tape measure

Question	Answer/Comments
OBSERVE OR MEASURE	
Ergonomics Choose three different machines or jobs. Look for ergonomics risk factors:	
a. repetition b. force	c. long duration d. awkward posture
e. vibration f. cold temperature	

Machine/Area	Risk Factors Present (a, b, c, d, e or f)	Possible Controls
1.		
2.		
3.		

ASK WORKERS		
4. Have employees received any training regarding ergonomics?	” Yes ” No	
5. Does any of your work cause you pain?	” Yes ” No	Describe:
6. What changes would help?	” Yes ” No	Describe
ASK SUPERVISORS OR MANAGERS		
7. Is there a written ergonomics controls program?		
8. Have ergonomics evaluations been performed for any of the work tasks?	” Yes ” No	If so which area and which tasks:

Social stressors at work

Ask workers about the following problems.

a. mandatory overtime
b. high production quotas
c. abusive supervisors
d. harassment (sexual or verbal)
e. overcrowding

Work Area	Problem Types (a, b, c, d, or e)	Description/Number of employees affected
9.		
10.		
11.		

ASK SUPERVISORS OR MANAGERS

12.	Have employees received any training regarding ergonomics?	” Yes ” No When:
13.	Is there a procedure for workers to report problems with work schedules, procedure quotas, supervisors?	” Yes ” No Describe
14.	Who can workers expect to resolve their problems?	Describe:

Ask management for the following documents:		Are these documents available?
15.	Written ergonomics control program	” Yes ” No
16	Records of hazard correction	” Yes ” No
17.	Records of ergonomics evaluations of specific job tasks	” Yes ” No
18.	Records of employee training: ergonomic hazards	” Yes ” No
19.	Hazard reporting procedures	” Yes ” No

Section Six
General Safety Hazards

Equipment: flashlight, tape measure, thermometer, current tester

OBSERVE OR MEASURE

Heat Stress

Select three sections of work area.

Name of Work Area Section	Temperature (centigrade)	Number of employees in section	Drinking water available	Number of breaks per shift	Air conditioning or fans
1.			” Yes ” No Describe:		” Yes ” No Describe:
2.			” Yes ” No Describe:		” Yes ” No Describe:
3.			” Yes ” No Describe:		” Yes ” No Describe:

Sanitation

4.	How many employees in this department:	Men _____ Women _____
5.	How many toilets are immediately accessible for men:	Toilets/Men: _____
6.	How many toilets are immediately accessible for women:	Toilets/Women: _____
7.	How many wash basins are immediately accessible for men:	Basins/Men: _____
8.	How many wash basins are immediately accessible for women:	Basin/Women: _____
9.	How many drinking fountains are immediately accessible:	Number of drinking fountains:_____
10.	If no drinking fountains present, how do workers get water during the shift?	Describe:

Safety Hazards

11. Look for the following safety hazards in each selected section. Describe any problems:

Safety Hazards	Work Area #1	Work Area #2	Work Area #3
a. slip and trip hazards (uneven floors, wet floors, raised edges)			
b. floor openings			
c. wall openings			
d. unstable storage (hazard from falling materials)			
e. no railings on stairs or platforms			
f. uneven or broken stairs			
g. elevated work locations (need fall protection)			
h. poor housekeeping			
i. poor lighting			
j. power and/or hand tools broken or malfunctioning			
k. inadequate protective equipment (gloves, eyewear, clothing)			
l. machinery not secured to floor (hazard from falling machine)			
m. unsecured cylinders of compressed gas			
n. forklift hazards (untrained operators, poor equipment, poor maintenance)			

Ultraviolet Radiation		
12. Are any workers exposed to ultraviolet lights?	” Yes ” No	Number of workers:
13. Are the workers provided with protective eyewear?	” Yes ” No	
14. Have the workers received any training about the hazards of ultraviolet light?	” Yes ” No	If yes, when was the last training:
15. Have the workers had any health problems they think are related to the lights?	” Yes ” No	If yes, describe:
Radio Frequency Radiation		
16. Are any workers operating radio frequency machines (such as sealers)?	” Yes ” No	Number of workers:
17. What is the distance between the operator and the machine’s point of operation?	” Yes ” No	Number of centimeters:
18. Have the workers received any training about the hazards of radio frequency radiation?	” Yes ” No	If yes, when was the last training:
19. Have the workers had any health problems they think are related to the radio frequency machines?	” Yes ” No	If yes, describe:
ASK SUPERVISORS OR MANAGERS		
20. Have there been any complaints about health problems from the ultra violet light?	” Yes ” No	If yes, what was done in response:
21. Have there been any complaints about health problems from the radio frequency machines?	” Yes ” No	If yes, what was done in response:
22. Have the workers received any training about the hazards of ultra violet light and/or radio frequency machines?	” Yes ” No	If yes, where was the last training:

Notes