ANNEX A: SAFETY GUIDELINES

Safety Committees

Sample Safety Committee Mission Statement

Purpose
The purpose of the ____(factory name)_____ Safety Committee ("the committee") is to promote a safe working environment at the factory name of factory with worker involvement. The committee will give workers a direct voice in addressing safety concerns throughout the factory. Workers who become members of the committee will have the opportunity to work closely with management staff in solving critical problems. The members will be the representatives of all other workers and should be the contacts for workers who have safety concerns.

Membership
The committee will consist of ___(number)____ workers from all areas of the factory that will work directly with [list the management members and number include the Health and Safety Coordinator]. The committee members will meet monthly for approximately one hour to discuss safety concerns. It is important for workers who become members of this committee to have:

- good attendance and work records,
- a good attitude,
- good communication skills,
- motivation and a concern for safety.

The committee members will elect two Leaders (one worker, one management representative) and a Secretary for the committee. The Leaders are responsible for running the meetings and will report to factory management on the activities of the committee. It will be the Leaders' responsibility to develop an agenda for each meeting and ensure that it is followed. It is also the Leaders' obligation to ensure that all safety concerns that are raised are followed through to an end result. The Secretary is responsible for recording the minutes of each meeting and distributing copies of these minutes to all members and to factory management in a timely manner. The Secretary is also responsible for posting the minutes in a location(s) that allows them to be read by the factory worker population.

The committee will need to set the terms for serving on this committee for each member. Most committee members will serve for no more than three years, with the normal term running two years. Terms for each member will need to be staggered so that a complete turnover of the committee does not occur at one time. When there is a vacant position on the committee, the factory will solicit nominations and it will be the responsibility of the committee to select new members from the nominations received. The committee will have very strict guidelines for attendance at committee meetings and if any member misses three consecutive meetings without a valid excuse, they will be dismissed from the committee.

Responsibilities
The committee will tour work areas throughout the factory with the Health and Safety Coordinator to familiarize all members with the different types of jobs workers do and their work environment. The committee will work to identify areas where workers are at risk either through direct experience, through observation (during routine inspections) or through concerns brought to their attention by other workers. They will address the various issues identified and offer suggestions. The committee will conduct

investigations of incidents (accidents, environmental incidents, near misses) that occur at the factory to identify root causes and appropriate corrective actions. The committee will also review safety suggestions made by other workers. It will be the committee's responsibility to prioritize the concerns and present their plans and suggestions to management. In addition, the members will do an annual review of all training programs related to safety and offer continual improvement suggestions.

Being a member of this committee is a very serious role. The cooperative effort between workers and management typically results in higher morale, lower accidents and injury rates, reduced workers' compensation costs, and joint ownership of the safety improvement process. Worker involvement is integral to creating a safe working environment.

Example procedure for identifying work place hazards

a. Risk assessment performed as required by law (not less than once every 2 years)
b. Procedures are implemented
c. Employees are trained
d. Every activity is assessed at periodically by H&S competent person

Examples of Risk Assessment Minimum Requirements

a. Fire risk
b. Use of electricity
c. Delivery and storage of stock
d. Workplace health and safety arrangements in work floor
e. Employment of persons under 18
f. Pregnant or nursing mothers
g. Working at height
h. Slips, trips and falls
i. Manual handling
j. Stress
k. Machinery (e.g., sewing machines, steamers, irons, boilers, etc.)
l. Display screen equipment
m. Chemicals and banned substances
n. Minimum property requirements including:
o. Separate break area including kitchenette
p. Storage area
q. Toilets available as legally required and in good condition
r. If the local requirements exceed above standards these should be included

Example Safety Committee Agenda

a. Attendance
b. Minutes of last meeting (circulated prior to meeting)
c. New issues/matters (only if not on this agenda)
d. Report from Health and Safety Coordinator
e. Regular items: Incident Investigations, Inspection Results, Metrics (e.g., training attendance, injury rate, etc.)
    - Progress towards improving systems
f. Outstanding issues from previous meetings
g. Scheduling next meeting

Use the Agenda:

- To keep track of issues from meeting to meeting
- As a template for minutes
- To publicize dates/times and issues to factory managers and workers

Emergency Preparedness

Contents

Purpose

The _____(factory name)_____ Fire Safety Plan has been developed to work with company emergency plans and other safety programs. All new building construction and renovations should be reviewed to ensure compliance with applicable state, local, and national fire and life safety standards. Fire prevention measures reduce the incidence of fires by eliminating opportunities for flammable materials to ignite.

Responsibilities

Management

- ☐ Make sure all fire prevention methods are established and enforced.
- ☐ Make sure fire suppression systems such as sprinklers and extinguishers are inspected at least monthly and maintained to a high degree of working order.
- ☐ Train all workers to use fire extinguishers for fires that are just
- ☐ beginning.
- ☐ Train workers on evacuation routes and procedures.
- ☐ Supervisors
- ☐ Closely monitor the use of flammable materials and liquids.
- ☐ Train assigned workers to safely store, use and handle flammable materials.
- ☐ Make sure areas where flammable materials are stored are properly maintained.

Workers

- ☐ Use, store and transfer flammable materials following procedures provided in training.
- ☐ Do not mix flammable materials.
- ☐ Immediately report violations of the Fire Safety Program.

Hazards

Fire and explosion hazards can exist in almost any work area. Potential hazards include:

- Improper operation or maintenance of gas-fired equipment
- Improper storage or use of flammable liquids
- Smoking in prohibited areas
- Accumulation of trash
- Hot Work (welding, soldering, any use of open flame or torch) operations without proper controls.

Hazard Controls

Eliminate Ignition Sources

All non-essential ignition sources should be eliminated where flammable liquids are used or stored. The following is a list of some of the more common potential ignition sources:

- Open flames, such as cutting and welding torches, furnaces, matches, solder guns, and heaters–these sources should be kept away from flammable liquids operations. Cutting or welding on flammable liquids equipment should not be performed unless the equipment has been properly emptied and purged with a neutral gas such as nitrogen.
- Chemical sources of ignition such as d.c. motors, switches, and circuit breakers–these sources should be eliminated where flammable liquids are handled or stored. Only approved explosion-proof devices should be used in these areas.
- Mechanical sparks–these sparks can be produced as a result of friction. Only non-sparking tools should be used in areas where flammable liquids are stored or handled.
- Static sparks–these sparks can be generated as a result of electron transfer between two contacting surfaces. The electrons can discharge in a small volume, raising the temperature to above the ignition temperature. Every effort should be made to eliminate the possibility of static sparks. Also proper bonding and grounding procedures should be followed when flammable liquids are transferred or transported.

Remove Incompatibles
Materials that can contribute to a flammable liquid fire should not be stored with flammable liquids. Examples of such materials include oxidizers and organic peroxides, which, on decomposition, can generate large amounts of oxygen.

Control Flammable Gases
Generally, flammable gases pose the same type of fire hazards as flammable liquids and their vapors. Many of the safeguards for flammable liquids also apply to flammable gases; other properties such as toxicity, reactivity, and corrosiveness also should also be taken into account. For example, a gas that is flammable could produce toxic combustion products.

Fire Extinguishers
A portable fire extinguisher is a "first aid" device and is very effective when used while the fire is small. The use of a fire extinguisher that matches the class of fire, by a person who is well trained, can save both lives and property. Portable fire extinguishers should be installed in workplaces regardless of other fire-fighting measures. The successful performance of a fire extinguisher in a fire situation largely depends on its proper selection, inspection, maintenance, and distribution.

Classification of Fires and Selection of Extinguishers
Fires are classified into four general categories depending on the type of material or fuel involved. The type of fire determines the type of extinguisher that should be used to extinguish it:

- Class A fires involve materials such as wood, paper, and cloth, which produce glowing embers or char.
- Class B fires involve flammable gases, liquids, and greases, including gasoline and most hydrocarbon liquids, which should be vaporized for combustion to occur.
- Class C are fires in live electrical equipment or in materials near electrically powered equipment.
- Class D fires involve combustible metals such as magnesium, zirconium, potassium, and sodium.

Extinguishers should be selected according to the potential fire hazard, the construction and occupancy of facilities, the hazard to be protected, and other factors pertinent to the situation

Location and Marking of Extinguishers
Extinguishers should be conspicuously located and readily accessible for immediate use in the event of fire. They should be located along normal paths of travel and egress. Extinguishers should be clearly visible. In locations where visual obstruction cannot be completely avoided, directional arrows will be provided to indicate the location of extinguishers and the arrows will be marked with the extinguisher classification.

If extinguishers intended for different classes of fire are located together, they should be conspicuously marked to ensure that the proper class extinguisher selection is made at the time of a fire. Extinguisher classification markings should be located on the front of the shell above or below the extinguisher nameplate. Markings should be of a size and form to be legible from a distance of 1 meter (about 3 feet).

Condition
Portable extinguishers should be maintained in a fully charged and operable condition. They should be kept in their assigned locations at all times when not being used. When extinguishers are removed for maintenance or testing, a fully charged and operable replacement unit should be provided.

Mounting and Distribution of Extinguishers
Extinguishers should be installed on hangers, brackets, in cabinets, or on shelves.

Extinguishers mounted in cabinets or wall recesses or set on shelves should be placed so that the extinguisher operating instructions face outward. The location of such extinguishers will be made clear by marking the cabinet or wall recess in a contrasting color which will distinguish it from the normal decor.

Extinguishers should be distributed in such a way that the amount of time needed to travel to their location and back to the fire does not allow the fire to get out of control. The travel distance for Class A and Class D extinguishers should not exceed 23 meters (75 feet).

The maximum travel distance for Class B extinguishers is 15 meters (50 feet) because flammable liquid fires can get out of control faster that Class A fires. There is no maximum travel distance specified for Class C extinguishers, but they should be distributed on the basis of appropriate patterns for Class A and B hazards.

Inspection and Maintenance
Once an extinguisher is selected, purchased, and installed, it is the responsibility of [names/titles of individuals assigned this responsibility] to oversee the inspection, maintenance, and testing of fire extinguishers to ensure that they are in proper working condition and have not been tampered with or physically damaged.

Fire Safety Inspections & Housekeeping
_____(Title of individuals assigned this responsibility)_____ are responsible for observing worksite safety and housekeeping issues and should specifically address proper storage of chemicals and supplies, unobstructed access to fire extinguishers, and emergency evacuation routes. Also, they should determine if an emergency evacuation plan is present in work areas and if personnel are familiar with the plan.

_____(Title of individuals assigned this responsibility)_____ will be responsible for ensuring a monthly fire safety inspection of the facility is conducted. This includes valve inspections, flow tests of the risers, audible and visual alarm activation, inspection of sprinkler heads, emergency lighting, general order and housekeeping. It also includes checking that combustible materials are removed daily, that flammable liquids are stored safely, that spill kits are intact at specific locations and that electrical equipment is in good repair.

Emergency Exits
Every exit will be clearly visible, or the route to it clearly identified in such a way that every occupant of the building will readily know the direction of escape from any point. At no time will exits be blocked.

Any doorway or passageway which is not an exit or access to an exit, but which may be mistaken for an exit, will be identified by a sign reading "Not An Exit" or a sign indicating its actual use (i.e., "Storeroom"). Exits and accesses to exits will be marked by a readily visible sign. Each exit sign (other than internally illuminated signs) will be illuminated by a reliable light source providing not less than 50 lux on the illuminated surface.

Emergency Plan for Persons with Disabilities
Supervisors are assigned the responsibility of assisting persons with disabilities under their supervision. An alternate assistant will be chosen by the supervisor. The role of the assistants is to report to their assigned person in an emergency, and to either assist in evacuation or assure that the person is removed from danger.

- Supervisors, alternates, and the person with a disability will be trained on available escape routes and methods.
- Visitors who have disabilities will be assisted in a manner similar to that of factory workers. The host of the person with disabilities will assist in their evacuation.

Emergencies Involving Fire

Fire Alarms
In the event of a fire emergency, a fire alarm will sound __(include any description of sound)___ for the building.

Evacuation Routes and Plans—*See Emergency Evacuation Plan*
_____(Name of Supplier)____ will have an emergency evacuation plan. All emergency exits should conform to codes and standards. Should evacuation be necessary, go to the nearest exit and proceed to the assigned area outside the building.

Supervisors and Coordinators
Supervisors and Coordinators will be responsible for checking that all personnel have evacuated from their assigned areas.

Fire Emergency Procedures

If you discover a fire:
1. Activate the nearest fire alarm.
2. Notify your Supervisor and other occupants.

Fight the fire ONLY if:

1. The fire department has been notified of the fire, AND
2. The fire is small and confined to its area of origin, AND
3. You have a way out and can fight the fire with your back to the exit, AND
4. You have the proper extinguisher, in good working order,
5. AND have been trained and know how to use it.
6. If you are not sure of your ability or the fire extinguisher's capacity to contain the fire, leave the area.

If you hear a fire alarm:

1. Evacuate the area, and close doors as you leave.
2. Leave the building and move away from exits and out of the way of emergency operations.
3. Assemble in an assigned area, outside the building.
4. Supervisors and Coordinators should account for all workers in their area to determine that all personnel have evacuated.
5. All workers should remain outside until given the signal or
6. announcement that it is safe to re-enter.

Evacuation Routes:

1. Learn at least two escape routes and emergency exits from your area.
2. Learn to activate a fire alarm.
3. Learn to recognize alarm sounds.
4. Take an active part in fire evacuation drills.

Evacuation

Fire

- ☐ When the alarm sounds, all personnel not assigned to emergency duties will immediately proceed to the nearest SAFE exit. Leave the building, and move directly to the nearest assembly area.
- ☐ Do not stop to pick up personal items.
- ☐ All personnel should refrain from smoking during the evacuation.
- ☐ All personnel should be at least sixty meters (60 m) or two hundred feet (200 ft) away from the building.
- ☐ Be familiar with exit routes, assembly areas, and evacuation maps.
- ☐ Report to assembly area coordinator if evacuating from other than your normally assigned location, also report to assembly area coordinator if co-worker is missing.
- ☐ Treat all alarms as if there is an emergency situation. Factory will evacuate for all alarms.

Power Failure

- ☐ In the event of a power failure, remain in your work area. Wait for instruction from your coordinator, Supervisor, or shift leader.
- ☐ STOP and park all moving equipment immediately for the duration of the power failure (this includes golf/ utility carts and bicycles).

List of Potential Fire Hazards

Flammables	Location	Handling Procedure	Storage Procedure
Flammable Chemicals	*[insert location]*	Trained Personnel only	Kept in flammable cabinets when not in use.
Diesel Fuel	*[insert location]*	Trained Personnel, Contracted Fuel Delivery Company	Protected tanks, with secondary containment, isolated from ignition sources.

Processes	Location	Precautionary Steps	Storage Procedure
Welding, cutting, grinding	*[insert location]*	Isolated area with local ventilation, fire-rated walls	Compressed gas cylinders secured properly to structure or cart, stored in welding area.
	[insert location]	Hot work permit system	

Combustibles	Location	Handling Procedure	Storage Procedure
Cartons, pallets, garments, sundries, trash	*[insert location]*	All items isolated from ignition sources, hot work permit system	Cartons, pallets, garments, sundries stored in compliance with local ordinances, in warehouse equipped with automatic sprinklers. Trash stored outside in covered dumpster emptied regularly.

Reactives	Location	Handling Procedure	Storage Procedure
Sulfuric Acid	Battery Charging Area	Trained Personnel wearing proper personal protective equipment	Acid only contained in batteries themselves

Types of Fires and Fire Extinguisher Ratings

There are four classes of fires, categorized according to the kind of material that is burning. There are two sets of color coded icons in common use. One or both types of icons appear on most fire extinguishers to indicate the kinds of fire against which the unit is intended to be used. There is only one icon used to indicate the fourth (class D) kind of fire. Class D fires involve uncommon materials and occur in fairly specialized situations. Note that any given fire can fall into more than one class; a fire that involves both burning paper and kitchen grease would be a Class AB fire.

	Picture Designator	Old Style Label
Class A fires are those fueled by materials that, when they burn, leave a residue in the form of ash, such as paper, wood, cloth, rubber and certain plastics. **Class A Extinguishers** will put out fires in ordinary combustibles, such as wood and paper.		
Class B fires involve flammable liquids and gases, such as gasoline, paint thinner, kitchen grease, propane, and acetylene. **Class B Extinguishers** should be used on fires involving flammable liquids, such as grease, gasoline, oil, etc.		
Class C fires involve energized electrical wiring or equipment (motors, computers, panel boxes). Note that if the electricity to the equipment is cut, a Class C fire becomes one of the other three types of fires. **Class C Extinguishers** are suitable for use on electrically energized fires. This class of fire extinguishers does not have a numerical rating. The presence of the letter "C" indicates that the extinguishing agent is non-conductive.		
Class D fires involve exotic metals, such as magnesium, sodium, titanium, and certain organometallic compounds such as alkyllithium and Grignard reagents. **Class D Extinguishers** are designed for use on flammable metals and are often specific for the type of metal in question. There is no picture designator for Class D extinguishers.	**NONE**	

Earthquake Preparedness Procedures

Earthquake Preparation

- ☐ Search for hazards in your work areas; eliminate them where possible and know how to protect yourself.
- ☐ Keep earthquake supplies on hand, at or near your workstation. An individual kit, stored in a backpack, should include a 72-hour supply of the following:
  1. Sturdy, hard-soled, close-toed shoes
  2. Essential medications
  3. Spare prescription glasses
  4. Warm clothing
  5. Flashlight and batteries
  6. Battery-powered radio
  7. Bottled water
  8. Non-perishable foods in sealed containers

During an Earthquake

Inside the building:

- ☐ Stay calm. Seek cover. Get under a sturdy table or desk; protect your hands by keeping them off the floor.
- ☐ Stay clear of tall objects and windows.
- ☐ Once the initial shocks have subsided, stay under cover.
- ☐ When it is safe to do so, assist the injured.
- ☐ Check for potential safety and fire hazards.
- ☐ Evacuate the building only if instructed to do so.
- ☐ Always use stairs—elevators are a potential trap in an earthquake.
- ☐ When you move, be careful—the greatest danger from falling debris is just outside doorways, on the outer walls of a building or room.
- ☐ Be prepared for aftershocks.

If outside:

- ☐ Get out into the open.
- ☐ Move away from power lines and tall buildings, if possible.
- ☐ Get down and protect your face and head with your arms or an object such as a newspaper, blanket or coat.
- ☐ Do not enter any building, even after the shaking has stopped, until local authorities have said it is safe.

After an Earthquake

- ☐ Check your immediate location; are you safe?
- ☐ Use flashlights; do not light matches or ignite flames.
- ☐ Check for injuries of others and report to emergency personnel.
- ☐ Be prepared for aftershocks.
- ☐ Put on sturdy shoes to protect yourself from broken glass and debris.
- ☐ Do not relocate to another floor or evacuate until safe to do so.
- ☐ If you smell gas or see broken pipe, report it immediately to security guards or emergency personnel.
- ☐ Be prepared to go without public emergency services and to ration food and water.

Sample Shelter-in-Place Procedure

Shelter Areas

The following areas have been assigned as shelter areas in case of severe weather or other emergencies requiring shelter-in place:

_____ (name/location)
_____ (name/location)
_____ (name/location)

Shelter-in-Place Procedure

- ☐ Become familiar with your primary shelter area.
- ☐ Become familiar with the sound of the shelter-in-place alarm. When the shelter-in-place alarm sounds, walk in an orderly fashion toward the nearest shelter area.
- ☐ If directed to relocate to another area, follow and wait for further instructions.
- ☐ Stay in your shelter area until the signal has been given that it is safe to leave.

Aisles and Exits

Aisles and Exits Checklist

	Requirement	Meet Requirement?	
Exit Doors	The floor on each side of the exit doors should be level. (The floor surfaces on both sides of a door should not vary in height by more than 1.3 cm [0.5 in].)	☐ Yes	☐ No
	If doors do not swing open at least 90 degrees, the width of the doorway should be measured between the face of the door and the door stop. This width should be at least 91 cm (36 in).	☐ Yes	☐ No
	Exit doors should swing in the direction of the way out from the building (generally outward).	☐ Yes	☐ No
	Exit doors should not be equipped with locks or keys or other mechanisms which require special knowledge or effort to operate.	☐ Yes	☐ No
	The door-latch release mechanism should be located at least 86 cm (34 in), but no more than 122 cm (46 in), above the floor.	☐ Yes	☐ No
	Exit doors should release easily to the outside. It should not take more than 67 N (15 lbf) of manual force to fully open any exit door.	☐ Yes	☐ No
	All exits should end in an outdoor public way.	☐ Yes	☐ No
Stairs	Stairwell doors should allow a worker to re-enter from the stairwell.		
	Stairs that serve as an exit route should be of permanent, fixed construction. Stairs that exit the building that are more than 76 cm (30 in) above the floor should have guards that are at least 107 cm (42 in) high to prevent workers from falling over the open side.	☐ Yes	☐ No
	Stairs should be at least 112 cm (44 in) wide and at least 10-19 cm (4”-7 1/2” in) high. Stairs and ramps should have handrails on both sides. Existing handrails should not be less than 76 cm (30 in) high. New handrails should be at least 86 cm (34 inches) and not more than 96 cm (38 in) high.	☐ Yes	☐ No
	Handrails should have an outside diameter of not less than 3.2 cm (1.25 in) and no more than 5 cm (2 in). Handrails should be located a distance of 5.7 cm (2.25 in) from the adjacent wall or other point of contact.	☐ Yes	☐ No
	For buildings with one to three levels, the exit corridors and stairwells should be able to contain a fire and stay intact for at least one hour in a fire situation. There should be at least two exits on each floor that are located as far away from one another as is practical.	☐ Yes	☐ No
Exit Routes	The maximum distance for a worker to travel to an exit should be no more than 61 m (200 ft) in a building that does not have fire sprinklers. This distance may be no more than 76 m (250 ft) in a building that has fully automatic sprinklers. Corridors with only one exit may not be longer than 15 m (50 ft).	☐ Yes	☐ No
	All exit routes should have at least 10.7 lux (one foot-candle) of light.	☐ Yes	☐ No
	Emergency lighting should be provided by battery-powered units or generators that can run for 1.5 hours. Emergency lighting should operate automatically and provide at least 10.7 lux (one foot candle).	☐ Yes	☐ No
	The route to each exit should be clearly marked.	☐ Yes	☐ No

*1 N = Newton. 1 Newton is the amount of force required to accelerate a mass of one kilogram at a rate of one meter per second squared (kg * m/s2).*
2 Lbf = pound-force

Housekeeping

Housekeeping Checklist

Aspect	Housekeeping Item	Meet Requirement?	
Buildings	Walls and windows clean.	☐ Yes	☐ No
	Lint and combustible fiber regularly swept or vacuumed up.	☐ Yes	☐ No
	Walls free of unnecessary hangings.	☐ Yes	☐ No
	Proper light provided.	☐ Yes	☐ No
	Stairs clean and well lit. Handrails and steps are well constructed and well maintained.	☐ Yes	☐ No
Floors	Clean and free of loose or scrap material. Clean in corners, behind radiators and other equipment, along walls, around pillars or columns.	☐ Yes	☐ No
	Free of oil, grease, other drips or spills.	☐ Yes	☐ No
	Free of unnecessary materials.	☐ Yes	☐ No
	Non-combustible containers, with lids, provided for waste. Waste regularly removed.	☐ Yes	☐ No
Aisles	Free of obstacles.	☐ Yes	☐ No
	Safe and free passage to fire-fighting equipment and exits.	☐ Yes	☐ No
	Safe and free access to workstations.	☐ Yes	☐ No
	Clearly marked.	☐ Yes	☐ No
Machinery & Equipment	Clean and free of unnecessary material. Lint and combustible fiber regularly swept or vacuumed up.	☐ Yes	☐ No
	Free of dripping oil or grease.	☐ Yes	☐ No
	Area around machines is clean and free of rags, paper, etc.	☐ Yes	☐ No
	Lockers and cupboards clean and free of unnecessary material both on top and inside.	☐ Yes	☐ No
	Benches and seats clean and in good condition.	☐ Yes	☐ No
	Toilet facilities clean and well ventilated.	☐ Yes	☐ No
	Proper machine guards provided and in good condition.	☐ Yes	☐ No
	First-aid facilities and equipment fully stocked and in clean condition.	☐ Yes	☐ No
Stock & Material	Properly piled and arranged.	☐ Yes	☐ No
	Neatly kept in storage areas.	☐ Yes	☐ No
	Storage areas clearly marked, kept in orderly condition.	☐ Yes	☐ No
	Storage does not block exits, first-aid stations, fire extinguishers, electrical panels, eyewash stations/showers, or sprinkler heads.	☐ Yes	☐ No
	Flammable, combustible, toxic and other hazardous materials are stored in approved containers in designated areas that are appropriate for the different hazards that they pose.	☐ Yes	☐ No
Tools	Properly arranged in place.	☐ Yes	☐ No
	Free of oil and grease.	☐ Yes	☐ No
	Inspected and maintained in good order.	☐ Yes	☐ No
	Tool room and racks in clean and orderly condition.	☐ Yes	☐ No

Grounds	Building grounds are free of refuse such as food scraps, scrap metal, other waste material.	☐ Yes	☐ No
	Waste materials removed frequently.	☐ Yes	☐ No
	Outside storage is at least 25 m (7.5 ft) from building walls.	☐ Yes	☐ No

Electrical Safety

Electrical Safety Inspection Checklist

Condition	Yes of No?	Corrective Action	Examples of Improper Conditions
Are **face plates** in good condition?	☐ Yes ☐ No	Replace broken or cracked faceplates.	
Are **electrical cords** in good condition?	☐ Yes ☐ No	Repair or replace cords with exposed wiring.	
Are **ground plugs** intact?	☐ Yes ☐ No	Replace plugs that have broken ground plugs.	
Are connections to **junction boxes** secure?	☐ Yes ☐ No	Repair connection to J-boxes so wires are not exposed.	
Are **knockouts to J-boxes** covered?	☐ Yes ☐ No	Cover all J-box knockouts so internal wires are not exposed.	

Lock-Out/Tag-Out

Annual Inspection Checklist

Name of authorized worker: _____ ID#_____
Description of machinery/equipment: _____
_____

Observe the authorized worker implementing the lock-out/tag-out procedure. Ensure he/she completes the following:

- ☐ Notify affected personnel.
- ☐ Shut off the machine according to proper procedures; then assure the controls are in the OFF or NEUTRAL position.
- ☐ Separate the machine from ALL hazardous energy sources.
- ☐ Apply the lock-out/tag-out device(s) to the separation point(s).
- ☐ Assure the lock-out/tag-out is effective by attempting to start machine.
- ☐ Simulate/describe repairs.
- ☐ Assure area is clear of items that could cause an accident or problems.
- ☐ Replace all guards and safety devices.
- ☐ Remove lock-out/tag-out device(s).
- ☐ Restore power.
- ☐ Test machine with or without guards to assure it is working properly.
- ☐ Inform affected person(s) that lock-out/tag-out is no longer in effect.

Ensure Authorized Worker is able to explain the following:

- ☐ Group lock-out/tag-out
- ☐ Shift Change lock-out/tag-out
- ☐ Limitations of Tag-Only procedure
- ☐ Understanding of “Management Lock” procedures

Authorized worker signature: _____
Inspector Name (print): _____ _____
Title: _____

Annual Certification Form

This document is to certify that an annual certification of the [Name of the Factory] Lock-Out/Tag-Out program has been conducted for the year _____. The following steps were taken to ensure the lock-out/tag-out program was effective and understood by all authorized workers.

- ☐ The lock-out/tag-out program was reviewed and revised by: _____
- ☐ All specific equipment procedures were reviewed and revised to ensure applicability and effectiveness.
- ☐ This was performed by: _____
- ☐ All authorized workers were trained using the revised program and the revised equipment-specific procedures.
- ☐ Each authorized worker participated in an inspection of the lock-out/tag-out procedures on specific equipment.

Health & Safety Coordinator Date

Factory Manager Date

Machine Guarding

General

Any mechanical motion that threatens a worker's safety should not remain unguarded. The approaches to machine safeguarding discussed in this Handbook are not the only solutions which meet our requirements. Why? Because practical solutions to safeguarding moving machine parts are as numerous as the people working on them.

Requirements for Safeguards

What must a safeguard do to protect workers against mechanical hazards? Safeguards should meet these minimum general requirements:

- **Prevent contact**: The safeguard should prevent hands, arms, and any other parts of a worker's body from making contact with dangerous moving parts. A good safeguarding system eliminates the possibility of the operator or another worker placing parts of their bodies near hazardous moving parts.
- **Secure**: Workers should not be able to easily remove or tamper with the safeguard, because a safeguard that can easily be made ineffective is no safeguard at all. Guards and safety devices should be made of durable material that will withstand the conditions of normal use. They should be firmly secured to the machine.
- **Protect from falling objects**: The safeguard should ensure that no objects can fall into moving parts. A small tool which is dropped into a cycling machine could easily become a projectile that could strike and injure someone.
- **Create no new hazards**: A safeguard defeats its own purpose if it creates a hazard of its own such as a shear point, a jagged edge, or an unfinished surface which can cause a laceration. The edges of guards, for instance, should be rolled or bolted in such a way that they eliminate sharp edges.
- **Create no interference**: Any safeguard which impedes a worker from performing the job quickly and comfortably might soon be overridden or disregarded. Proper safeguarding can actually enhance efficiency since it can relieve the worker's apprehensions about injury.
- **Allow safe lubrication**: If possible, one should be able to lubricate the machine without removing the safeguards. Locating oil reservoirs outside the guard, with a line leading to the lubrication point, will reduce the need for the operator or maintenance worker to enter the hazardous area.

Training

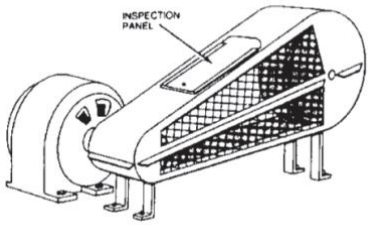
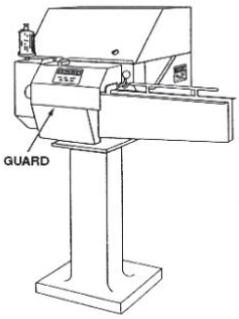
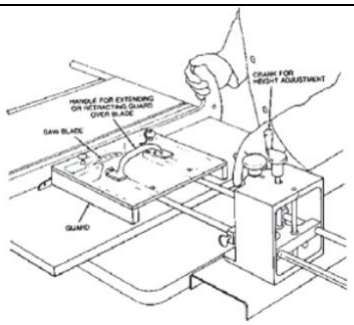
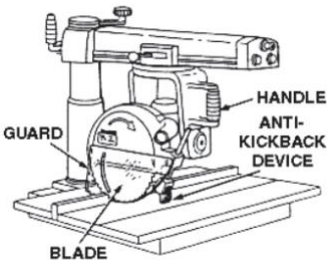
Even the most elaborate safeguarding system cannot offer effective protection unless the worker knows how to use it and why. Specific and detailed training is therefore a crucial part of any effort to provide safeguarding against machine-related hazards. Thorough operator training should involve instruction or hands-on training in the following:

1. a description and identification of the hazards associated with particular machines;
2. the safeguards themselves, how they provide protection, and the hazards for which they are intended;
3. how to use the safeguards and why;

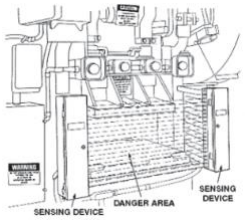
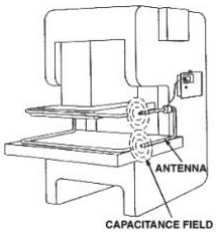
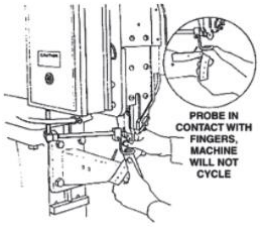
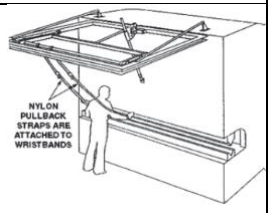
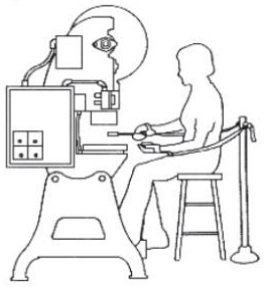
4. how and under what circumstances safeguards can be removed, and by whom (in most cases, repair or maintenance personnel only); and
5. what to do (e.g., contact the supervisor) if a safeguard is damaged, missing, or unable to provide adequate protection.

This kind of safety training is necessary for new operators and maintenance or setup personnel, when any new or altered safeguards are put in service, or when workers are assigned to a new machine or operation.

Types of Guards

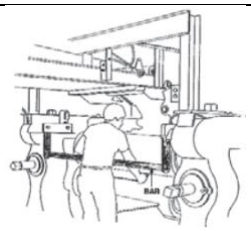
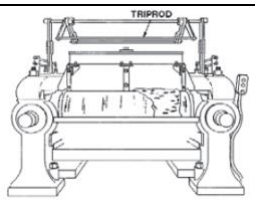
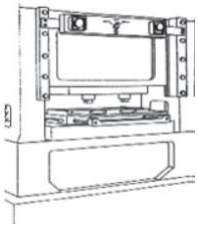
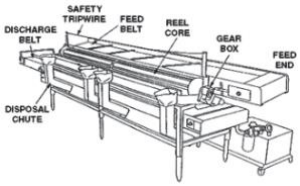
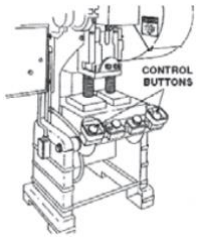
Fixed Guard A fixed guard is a permanent part of the machine. It is not dependent upon moving parts to perform its intended function. It may be constructed of sheet metal, screen, wire cloth, bars, plastic, or any other material that is substantial enough to withstand whatever impact it may receive and to endure prolonged use. This guard is usually preferable to all other types because of its relative simplicity and permanence	
Interlocked Guard Interlocked guards automatically shut off or disengage the power when opened or removed. The machine cannot cycle or be started until the guard is back in place.	
Adjustable guards Adjustable guards are useful because they allow flexibility in accommodating various sizes of materials to be cut, shaped or formed.	
Self-Adjustable Guards The openings of self-adjustable guards are determined by the movement of the stock. As the operator moves the stock into the danger area, the guard is pushed away, providing an opening that is only large enough to admit the stock. After the stock is removed, the guard returns to the rest position.	

Presence-Sensing Devices

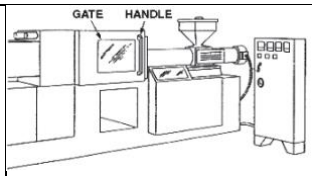
Photoelectrical (optical) sensing device Uses a system of light sources and controls that can interrupt the machine's operating cycle. If the field of light is broken, the machine stops and will not cycle. This device should be used only on machines that can be stopped before the worker can reach the danger area.	
Radio-frequency (capacitance) sensing device Uses a radio beam that is part of the machine control circuit. When the capacitance field is broken, the machine will stop or will not activate. Like the photoelectric device, this device should only be used on machines that can be stopped before the worker can reach the danger area. This requires a friction clutch or other reliable means for stopping.	
Electromechanical sensing device A probe or contact bar that descends to a predetermined distance when the operator initiates the machine cycle. If there is an obstruction preventing it from descending its full predetermined distance, the control unit does not actuate the machine cycle.	
Pullback devices Utilize a series of cables attached to the operator's hands, wrists, and/or arms. This type of device is primarily used on machines with a stroking action. When the slide or ram is up, the operator is allowed access to the point of operation. When the slide or ram begins to descend, a mechanical linkage automatically ensures withdrawal of the hands from the point of operation.	
Restraint device Utilizes cables or straps that are attached to the operator's hands and to a fixed point. The cables or straps should be adjusted to let the operator's hands travel within a predetermined safe area.	

Safety Trip Controls

Safety trip controls provide a quick means for deactivating the machine in an emergency situation.

Body Bar A pressure-sensitive body bar, when depressed, will deactivate the machine. If the operator or anyone trips, loses balance, or is drawn into the machine, applying pressure to the bar will stop the operation.	
Triprod A safety triprod, when pressed by the operator's hand, deactivates the machine. Because it has to be actuated by the operator during emergency situations, proper position is critical.	
Tripwire Safety tripwire cables are located around the perimeter of or near the danger area. The operator should be able to reach the cable with either hand to stop the machine.	
Two-hand control Two-hand control requires constant, concurrent pressure by the operator to activate the machine. This kind of control requires a part-revolution clutch, brake, and a brake monitor if used on a power press. With this type of device, the operator's hands are required to remain at a safe location (on the control buttons) and at a safe distance from the danger area while the machine completes its closing cycle.	
Two-hand trip A two-hand trip requires concurrent application of both of the operator's control buttons to activate the machine cycle, after which the hands are free. This device is usually used with machines equipped with full-revolution clutches. The trips should be placed far enough from the point of operation to make it impossible for the operator to move his or her hands from the trip buttons or handles into the point of operation before the first half of the cycle is completed. The operator's hands are kept far enough away to prevent them from being accidentally placed in the danger area before the slide, ram, or blade reaches the full "down" position.	

Gates

Gates Movable barriers that protect the operator at the point of operation before the machine cycle text can be started. Gates are, in many instances, designed to be operated with each machine cycle.	

Advantages and Disadvantages

Guard Type	Application	Advantages	Disadvantages
Fixed	Provides a barrier.	• Can be constructed to suit many specific applications. In- plant construction is often possible. • Can provide maximum protection. • Usually requires minimum maintenance. • Can be suitable to high production.	• May interfere with visibility. Can be limited to specific operations. • Machine adjustment and repair often require its removal, thereby necessitating other means of protection for maintenance personnel.
Interlock	Shuts off or disengages power and prevents starting of machine when guard is open; should require the machine to be stopped before the worker can reach into the danger area.	• Can provide maximum protection. • Allows access to machine for removing jams without time- consuming removal	• Requires careful adjustment and maintenance. • May be easy to disengage jams.
Adjustable	Provides a barrier that may be adjusted to facilitate a variety of production operations.	• Can be constructed to suit many specific applications. • Can be adjusted to admit varying sizes of stock.	• Hands may enter danger area; protection may not be complete at all times. • May require frequent maintenance and/or adjustment. • The guard may be made ineffective by the operator. • May interfere with visibility.
Self-adjusting	Provides a barrier that moves according to the size of the stock entering the danger area.	• Off-the-shelf guards are often commercially available.	• Does not always provide maximum protection. • May interfere with visibility. • May require frequent maintenance and adjustment.
Fixed Photo-electric	Machine will not start cycling when the light field is interrupted. When the light field is broken by any part of the operator's body during the cycling process, immediate machine braking is activated by a barrier.	• Can allow freer movement for operator. • Simplicity of use. • Used by multiple operators. • Provide passerby protection. • No adjustment required.	• May interfere with visibility. • Does not protect against mechanical failure. • Limited to machines that can be stopped.
Electro-mechanical	Contact bar or probe travels a predetermined distance between operator and danger area. Interruption of this movement prevents machine cycle starting.	• Can allow access at the point of operation.	• Contact bar or probe should be properly adjusted for each application; this adjustment should be maintained properly.

Guard Type	Application	Advantages	Disadvantages
Pullback	As the machine begins to cycle, the operator's hands are pulled out of the danger area.	• Eliminates need for auxiliary barriers or other interference at the danger area.	• Limits movement of operator. • May obstruct work space around operator.
Restraint (holdback)	Prevents the operator from reaching into the danger area.	• Little risk of mechanical failure.	• Adjustments should be made for specific operations and for each individual. • Requires frequent inspections and regular maintenance. • Requires close supervision of the operators' use of the equipment. • Limits movement of operator. • May obstruct work space. • Adjustments should be made for specific operations and each individual.
Safety trip controls: • **Pressure-sensitive body bar** • **Safety triprod** • **Safety tripwire**	Stops machine when tripped.	• Simplicity of use.	• All controls should be manually activated. • May be difficult to activate controls because of their location. • Only protects the operator. • May require special fixtures to hold work. • May require a machine brake.
Two-hand control	Concurrent use of both hands is required, preventing the operator from entering the danger area.	• Operator's hands are at a pre- determined location. • Operator's hands are free to pick up a new part after first half of cycle is completed.	• Requires a partial cycle machine with a brake. • Some two-handed controls can be rendered unsafe by holding with arm or blocking, thereby permitting one-hand operation. • Protects only the operator.
Two-hand trip	Concurrent use of two hands on separate controls prevents hands from being in danger area when machine cycle starts.	• Operator's hands are away from danger area. • Can be adapted to multiple operations. • No obstruction to hand feeding. • Does not require adjustment for each operation.	• Operator may try to reach into danger area after tripping machine. • Some trips can be rendered unsafe by holding with arm or blocking, thereby permitting one-hand operation. • Protects only the operator. • May require special fixtures.
Gate	Provides a barrier between danger area and operator or other personnel.	• Can prevent reaching into or walking into the danger area.	• May require frequent inspection and regular maintenance. • May interfere with operator's ability to see the work.

Safe Distance Requirements for Guard Design

Largest Allowable Guard Opening—centimeters (inches)	
If the distance (A) from hazard to the guard is:	**Then the opening (B) in the guard or between the table and the guard can not be greater than:**
1.27 – 3.81 cm (1/2 to 1 1/2 in)	0.64 cm (1/4 in)
3.81 – 6.35 cm (1 1/2 to 2 1/2 in)	0.95 cm (3/8 in)
6.35 – 8.89 cm (2 1/2 to 3 1/2 in)	1.27 cm (1/2 in)
8.89 – 13.97 cm (3 1/2 to 5 1/2 in)	1.59 cm (5/8 in)
13.97 – 16.51 cm (5 1/2 to 6 1/2 in)	1.91 cm (3/4 in)
16.51 – 19.05 cm (6 1/2 to 7 1/2 in)	2.22 cm (7/8 in)
19.05 – 31.75 cm (7 1/2 to 12 1/2 in)	3.18 cm (1 1/4 in)
31.75 – 39.37 cm (12 1/2 to 15 1/2 in)	3.81 cm (1 1/2 in)
39.37 – 44.45 cm (15 1/2 to 17 1/2 in)	4.76 cm (1 7/8 in)
44.45 – 80.01 cm (17 1/2 to 31 1/2 in)	5.40 cm (2 1/8 in)
Over 80.01 cm (Over 31 1/2 in)	15.24 cm (6 in)

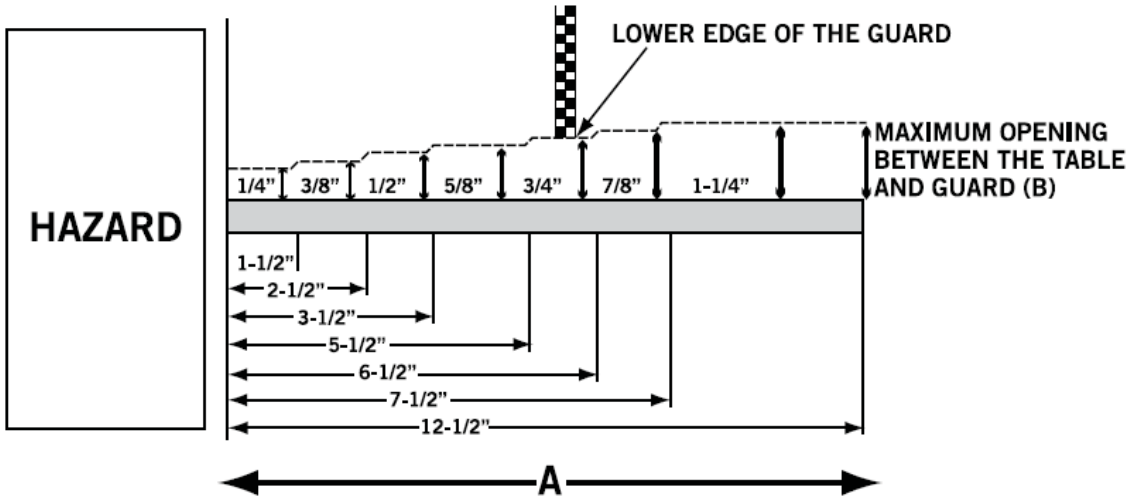


Diagram shows distance in inches.

Machine Guarding Checklist

Answers to the following questions should help the interested reader determine the safeguarding needs of his or her own workplace, by drawing attention to hazardous conditions or practices requiring correction.

	Requirements	Meet Requirement?
Safeguards	Do the safeguards provided meet the minimum SES requirements?	☐ Yes ☐ No
	Do the safeguards prevent workers' hands, arms, and other body parts from making contact with dangerous moving parts?	☐ Yes ☐ No
	Are the safeguards firmly secured and not easily removable?	☐ Yes ☐ No
	Do the safeguards ensure that no object will fall into the moving parts?	☐ Yes ☐ No
	Do the safeguards permit safe, comfortable, and relatively easy operation of the machine?	☐ Yes ☐ No
	Can the machine be oiled without removing the safeguard?	☐ Yes ☐ No
	Is there a system for shutting down the machinery before safeguards are removed?	☐ Yes ☐ No
	Can the existing safeguards be improved?	☐ Yes ☐ No
Mechanical Hazards	**The point of operation:**	
	Is there a point-of-operation safeguard provided for the machine?	☐ Yes ☐ No
	Does it keep the operator's hands, fingers, body out of the danger area?	☐ Yes ☐ No
	Is there evidence that the safeguards have been tampered with or removed?	☐ Yes ☐ No
	Could you suggest a more practical, effective safeguard?	☐ Yes ☐ No
	Could changes be made on the machine to eliminate the point-of-operation hazard entirely?	☐ Yes ☐ No
	Power transmission apparatus:	☐ Yes ☐ No
	Are there any unguarded gears, sprockets, pulleys, or flywheels on the apparatus?	☐ Yes ☐ No
	Are there any exposed belts or chain drives?	☐ Yes ☐ No
	Are there any exposed set screws, key ways, collars, etc.?	☐ Yes ☐ No
	Are starting and stopping controls within easy reach of the operator?	☐ Yes ☐ No
	If there is more than one operator, are separate controls provided?	☐ Yes ☐ No
	Other moving parts:	☐ Yes ☐ No
	Are safeguards provided for all hazardous moving parts of the machine, including auxiliary parts?	☐ Yes ☐ No
	Non-mechanical hazards:	☐ Yes ☐ No
	Have special guards, enclosures, or personal protective equipment been provided, where necessary, to protect workers from exposure to harmful substances used in machine operation?	☐ Yes ☐ No
Electric Hazards	Is the machine installed in accordance with SES and applicable local requirements?	☐ Yes ☐ No
	Are there loose conduit fittings?	☐ Yes ☐ No
	Is the machine properly grounded?	☐ Yes ☐ No
	Is the power supply correctly fused and protected?	☐ Yes ☐ No
	Do workers occasionally receive minor shocks while operating any of the machines?	☐ Yes ☐ No

Machine Guarding Checklist - continued

	Requirements	Meet Requirement?	
Training	Do operators and maintenance workers have the necessary training in how to use the safeguards and why?	☐ Yes	☐ No
	Have operators and maintenance workers been trained in where the safeguards are located, how they provide protection, and what hazards they protect against?	☐ Yes	☐ No
	Have operators and maintenance workers been trained in how and under what circumstances guards can be removed?	☐ Yes	☐ No
	Have workers been trained in the procedures to follow if they notice guards that are damaged, missing, or inadequate?	☐ Yes	☐ No
Protective Equipment and Proper Clothing	Is protective equipment required?	☐ Yes	☐ No
	If protective equipment is required, is it appropriate for the job, in good condition, kept clean and sanitary, and stored carefully when not in use?	☐ Yes	☐ No
	Is the operator dressed safely for the job (i.e., no loose-fitting clothing or jewelry)?	☐ Yes	☐ No
Machinery Maintenance and Repair	Have maintenance workers received up-to-date instruction on the machines they service?	☐ Yes	☐ No
	Do maintenance workers lock out the machine from its power sources before beginning repairs?	☐ Yes	☐ No
	Where several maintenance workers work on the same machine, are multiple lock-out devices used?	☐ Yes	☐ No
	Do maintenance workers use appropriate and safe equipment in their repair work?	☐ Yes	☐ No
	Is the equipment used by maintenance workers properly guarded?	☐ Yes	☐ No
	Are maintenance and servicing workers trained in lock-out/tag-out, and do the procedures for lock-out/tag-out exist before they attempt their tasks?	☐ Yes	☐ No

Noise Management

US OSHA Permissible Exposure Levels

Duration per day, hours	Sound level dBA slow response
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115

Chemical Management

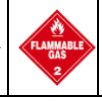
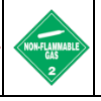
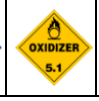
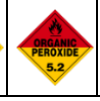
General Guidelines for Chemical Storage & Incompatible Chemicals

The chemical storage guidelines on the tables that follow do not cover all possible chemical incompatibilities. (A more comprehensive table is found at: https://www.ehs.harvard.edu/sites/ehs.harvard.edu/files/chemical_waste_chemical_compatibility_chart.pdf . It is important for factories to thoroughly research the properties of the chemicals they are using, including reviewing the chemical incompatibility section of the Material Safety Data Sheets.

Chemical Class	Storage Guidelines
Acids	• Store away from reactive metals such as potassium, sodium, magnesium. • Store oxidizing acids away from organic acids, flammable and combustible materials. • Store acids away from chemicals which could generate toxic or flammable gases upon contact. • Store acids away from bases.
Bases	• Store bases away from acids, metals, explosives, organic peroxides and easily ignitable materials.
Solvents (Flammable and Halogenated Solvents)	• Store in approved safety cans or cabinets. • Store away from oxidizing acids and other oxidizers. • Keep away from heat sources, including sparks and open flames.
Oxidisers	• Store in a cool, dry place. • Store away from combustible and flammable materials. • Store away from reducing agents such as zinc, alkali metals, and formic acid.
Cyanides	• Store away from acids and oxidizers.
Water Reactive Chemicals	• Store in a cool, dry place away from any water source. • D Class fire extinguisher must be nearby.

Table 1

This table shows general recommendations for the separation or segregation of different classes of dangerous substances.

	Class	2			3	4			5		6	8
												
Compressed Gases												
2.1 Flammable	2 		KEEP APART	SEGREGATE FROM or KEEP APART	SEGREGATE FROM	SEGREGATE FROM	SEGREGATE FROM	SEGREGATE FROM	SEGREGATE FROM	ISOLATE	KEEP APART	KEEP APART
2.2 Non-flammable Non-toxic	2 	KEEP APART		KEEP APART	KEEP APART	SEPARATION MAY NOT BE NECESSARY	SEGREGATE FROM	SEPARATION MAY NOT BE NECESSARY		SEGREGATE FROM	SEPARATION MAY NOT BE NECESSARY	KEEP APART
2.3 Toxic	2 	SEGREGATE FROM or KEEP APART	KEEP APART		SEGREGATE FROM	KEEP APART	SEGREGATE FROM	KEEP APART		SEGREGATE FROM	SEPARATION MAY NOT BE NECESSARY	KEEP APART
Flammable Liquids												
	3 	SEGREGATE FROM	KEEP APART	SEGREGATE FROM		KEEP APART	SEGREGATE FROM	SEGREGATE FROM	SEGREGATE FROM	ISOLATE	KEEP APART	KEEP APART
Flammable Solids												
4.1 Readily Combustible	4 	SEGREGATE FROM	SEPARATION MAY NOT BE NECESSARY	KEEP APART	KEEP APART		KEEP APART	SEGREGATE FROM	SEGREGATE FROM	SEGREGATE FROM	KEEP APART	SEPARATION MAY NOT BE NECESSARY
4.2 Spontaneously Combustible	4 	SEGREGATE FROM	SEGREGATE FROM	SEGREGATE FROM	SEGREGATE FROM	KEEP APART		KEEP APART	SEGREGATE FROM	ISOLATE	KEEP APART	KEEP APART
4.3 Dangerous when wet	4 	SEGREGATE FROM	SEPARATION MAY NOT BE NECESSARY	KEEP APART	SEGREGATE FROM	SEGREGATE FROM	KEEP APART		KEEP APART	SEGREGATE FROM	SEPARATION MAY NOT BE NECESSARY	SEPARATION MAY NOT BE NECESSARY
Oxidizing Substances												
5.1 Oxidizing Substances	5 	SEGREGATE FROM	SEPARATION MAY NOT BE NECESSARY	SEPARATION MAY NOT BE NECESSARY	SEGREGATE FROM	SEGREGATE FROM	SEGREGATE FROM	KEEP APART		SEGREGATE FROM	KEEP APART	KEEP APART
5.2 Organic Peroxides	5 	ISOLATE	SEGREGATE FROM	SEGREGATE FROM	ISOLATE	SEGREGATE FROM		SEGREGATE FROM	SEGREGATE FROM		KEEP APART	KEEP APART
Toxic Substances												
	6 	KEEP APART	SEPARATION MAY NOT BE NECESSARY	SEPARATION MAY NOT BE NECESSARY	KEEP APART	KEEP APART	KEEP APART	SEPARATION MAY NOT BE NECESSARY	KEEP APART	KEEP APART		SEPARATION MAY NOT BE NECESSARY
Corrosive Substances												
	8 	KEEP APART	KEEP APART	KEEP APART	KEEP APART	SEPARATION MAY NOT BE NECESSARY	KEEP APART	SEPARATION MAY NOT BE NECESSARY	KEEP APART	KEEP APART	SEPARATION MAY NOT BE NECESSARY	

Compatibility Chart Terminology :

KEEP APART : Keep at minimum 3m apart.

SEGREGATE : Keep in separate compartments of the same store, separated by at least a firewall or in a separate building.

ISOLATE : Keep in separate building or isolate within a cabinet designed for this purpose.

Extreme Temperatures

Item	Meets requirement?	Corrective Action
Thermometers: properly working?	☐ Yes ☐ No	
Temperature control equipment: properly working? (E.g., thermostats, heaters, fans, air conditioners)		
Adequate water supply for worker population in extremely hot conditions?		
Rest breaks are frequent enough and in suitable conditions (located in warm area if temperature conditions are extremely cold, in shaded or cooler area if temperature conditions are extremely hot)?		
The right kinds of personal protective equipment are provided for work in extremely cold conditions or around hot equipment?		

Heat Stress: General Workplace Review

***Note**: Listed below are sample questions that the Program Evaluator may wish to consider when investigating heat stress in the workplace.*

Workplace Description

1. Type of business
2. Heat-producing equipment or processes used
3. Previous history (if any) of heat-related problems
4. At "hot" spots:
    - Is the heat steady or intermittent?
    - Number of employees exposed?
    - For how many hours per day?
    - Is potable water available?
    - Are supervisors trained to detect/evaluate heat-stress symptoms?

Are Exposures Typical for a Workplace In This Industry?

1. Weather at Time of Review
    - Temperature
    - Humidity
    - Air velocity
2. Is day typical of recent weather conditions? (Get information from the Weather Bureau.)
3. Heat-Reducing Engineering Controls
    - Ventilation in place?
    - Ventilation operating?
    - Air conditioning in place?
    - Air conditioning operating?
    - Fans in place?
    - Fans operating?
    - Shields or insulation between sources and employees?
    - Are reflective faces of shields clean?

Work Practices to Detect, Evaluate, and Prevent or Reduce Heat Stress

1. Training program?
    - Content?
    - Where given?
    - For whom?
2. Liquid replacement program?
3. Acclimatization program?
4. Work/rest schedule?
5. Scheduling of work (during cooler parts of shift, cleaning and maintenance during shut-downs, etc.)
6. Cool rest areas (including shelter at outdoor work sites)?
7. Heat monitoring program?
8. Personal Protective Equipment
    - Reflective clothing in use?
    - Ice and/or water-cooled garments in use?
    - Wetted undergarments (used with reflective or impermeable clothing) in use?

- Circulating air systems in use?

9. First Aid Program
    - Trained personnel?
    - Provision for rapid cool-down?
    - Procedures for getting medical attention?
    - Transportation to medical facilities readily available for heat stroke victims?
10. Medical Screening and Surveillance Program
    - Content?
    - Who manages program?

Asbestos Management

Background Information

Health Effects:
Serious illness, including cancer, can result from exposure to asbestos fibers. This depends upon many factors, including the type of asbestos, how much asbestos-containing material an individual is exposed to, how long he/she is exposed, and whether or not an exposed individual smokes cigarettes[14].

Use of Asbestos in Buildings:
Since its earliest use, asbestos has been increasingly used for insulation coating and fire proofing, and has been added to construction materials for a variety of purposes. Asbestos can be found in many places throughout a building. Asbestos containing building materials may include the following:

- Thermal System Insulation
  1. insulated boiler
  2. steam pipe
  3. ducts
  4. hot-water pipes
  5. exhaust system
  6. high-temperature gaskets and valve insulation

- Surfacing Materials
  1. sprayed or troweled-on surfacing materials on ceilings, walls, and acoustic and decorative insulation
  2. textured paint and coatings
  3. plaster and stucco
  4. taping and joint compound
  5. fireproof drywall
  6. fireproof drapes and curtains

- Miscellaneous Materials
  1. roofing felts and shingles
  2. exterior siding shingles
  3. sprayed-on fireproofing on metal beams and columns
  4. resilient asphalt
  5. vinyl flooring, mastics, and seal

Friable vs. non Friable Asbestos:
A friable asbestos product is one that you can crumble, pulverize, or otherwise cause to release dust simply by applying hand pressure. A non-friable asbestos material will not release dust or crumble by hand pressure. Friable materials are more likely to release asbestos fibers into the air and therefore are considered more hazardous to worker health. The following lists describe materials that are usually friable, sometimes friable, and rarely friable.

[14] Cigarette smoking increases the likelihood of an individual developing a type of asbestos-related disease (mesothelioma).

Usually Friable

- sprayed-on acoustic insulation
- plaster and textured paints
- sprayed-on structural fireproofing

Sometimes Friable

- pipe insulation
- boiler insulation
- roofing felt
- duct wrap

Rarely Friable

- transite ducts
- transite boards
- vinyl tile and mastics
- asphalt
- shingles

Products listed in the “Usually” and “Sometimes” friable categories are always treated as being friable. Products listed as “Rarely” friable can become friable over time if disturbed.

The specific amount or percent of asbestos in a product is not relevant. If the product has more than 1 percent asbestos, treat the product as asbestos-containing material and disregard the specific percent asbestos. The friability of the material will be a significant factor in how a qualified contractor decides to manage it.

ANNEX B : HEALTH GUIDELINES

Health Training

Appendix 1: Monthly Report of Serious Illnesses in the Factory

Name of the Factory: **Month of Reporting:**

Details of Hospital Admissions

Name of worker	ID No	Reason for Admission	Admitted at	Follow Up HCP/Doctor	Diagnosis	Cost of Treatment		
						Total	Patient	Company

A consolidation of these monthly reports in each factory will help identify common health problems that require hospital admission.

Appendix 2: Summary of the Most Common Cases Reported to Factory Health Care Professional (HCP)

Name of the Factory: **Reporting Period:** **No. of working days in the factory:**
Name of HCP: **No. of workers treated by HCP:**

List 10 most common causes of illness reported to HCP, and adjust this list at least quarterly:

Disease/Complaint	Body pain	Head ache	Fever	----	----	----	----	----	----	----
No. of cases										

Appendix 3: Report of Incidents on Factory Floor: (e.g. needle injury, trimmer injury)

Name of the Factory: **Reporting Period:** **No. of working days in the factory:**
Name of HCP: **No. of workers treated by HCP:**

Name of worker	ID No	Nature of Emergency	Time	Day/Date	Action taken	Occupational/ Others

A consolidation of these reports will give the factory an idea of the most common emergencies (not only injuries) that are seen on the shop floor

Appendix 4: Causes for Sick Leave on the Factory Floor:

Name of the Factory: **Reporting Period:** **No. of working days in the factory:**
Name of HR Executive:

Name of worker	ID No	Department	Reason for Sick Leave	No. of Days of Leave	Notes

A consolidation of these reports will give the factory an idea of the most common reasons for sick leave among the workers.

First Aid

First Aid Logbook

Sl. No	Worker's Name	ID No	Department	Job Title	Date and Time of Injury	Injury Description	First Aid provided

Details of Significant Injuries

Particulars	Details
Name	
Age	
Token Number	
Batch/Section	
Date and Time of accident	
Type of Injury	
Precise anatomical organ that was injured.	
Operation/Task being performed at the time of accident	
Details of how the accident occurred	
Was the accident avoidable? If yes, how?	
Was the injured person wearing protective / safety equipment at the time of accident?	
Was the operator fully aware of the “dos and don’ts” of the machine in use?	
Was the operator trained to use the machine or gadget?	
Was the accident due to unsafe condition of the machine?	
Any suggestion to avoid such type of accident in future?	
Treatment given:	

Medical Officer **EHS Executive**

A quick guide to dealing with common injuries/illnesses in the factory

- The factory is recommended to have at least the items listed in this table as part of its First Aid Box. Additional items will be available at the first aid room/ ambulance room/ medical center.
- First aid responders should realize that commonly-available materials can provide useful first aid: clean cloth and clean water may be available very close to the place where the accident has happened until the First Aix Box is brought to the scene. It is important to remember that one's own hands must be clean before administering first aid.
- In all cases where first aid has been provided, be sure promptly to take the worker to a medical professional to ensure that all that needs to be done has been done.
- **Needle injuries:** Make sure that no part of the needle is stuck in the finger. Promptly contact the health care professional. If it is suspected that a bit of the needle is still under the skin/bleeding part, be sure too to inform the health care professional.

  If the needle is intact, wash the injured finger with the antiseptic liquid that is available in the First Aid Box. Then take the sterile pad and place it on the point where there is bleeding and apply pressure.

- **Trimmer cuts:** In these cases the bleeding may be very minimal or very profuse depending on the amount of skin that has been cut. In both cases, wash the area with the antiseptic liquid. Then apply pressure using the sterile pad. The bleeding should stop, if continuous pressure is applied for about 1-2 minutes. As with all instances where first aid is administered, promptly contact the health care professional
- **Deep wounds:** Such wounds may occur, for example, if a worker falls on a sharp object. If the first aid responder feels that the wound is deep, wash the wound with clean water or with antiseptic liquid. Apply a sterile pad that is big enough to cover all edges of the wound and promptly contact the health care professional. DO NOT try to remove any dirt that appears to be stuck to the open wound. That is the job of a medical professional.
- **Fractures and Dislocations:** These are rare occurrences in the garment industry. If a worker meets with an accident where there is any suspicion of a bone been broken, the first aid responder should ensure that there is no movement of the injured part. Provide support to the broken part by using some hard material (wooden ruler/scale, long cardboard piece). Use the triangular bandage to keep the part supported (in the case of fractures to the arm). Promptly contact the health care professional. Fractures and dislocations will have to be treated at a hospital.
- **Blunt injuries:** This can occur when the worker falls down or when a moving machine part hits him/her. If there is a swelling, immobilize the part and apply some cold water (or ice, if available). A painkiller tablet can be given at the first aid station. Promptly contact the health care professional.
- **Deep cut in finger:** These injuries can occur when a worker does not use protective equipment while using the mechanized knife (band-knife or straight knife). If a part of the finger is severed, DO NOT panic. Pick up the severed piece and place it in a plastic bag containing cold water (with ice if possible) and promptly contact the health care professional.

- **Eye injuries:** These can occur when some dust enters into the eye. If this occurs, take the worker to the nearest water tap/faucet and splash as much water as possible, till s/he feels relieved. If the worker still feels like there is something in his/her eye, promptly contact the health care professional.

    - In more severe cases, such as when a piece of a button (at the buttoning machine) breaks off during the buttoning operation and injures the eye, place the sterile pad gently on the eye and promptly contact the health care professional.
    - If the eye is injured by some chemical splash, move the worker to the eye-washing station. Allow as much water as possible to wash the eye.
    - In all these cases, advise the worker NOT TO rub the eye with the hands. After first aid has been given, promptly contact the health care professional.

- **Bleeding from the nose:** Hold the nose tightly and ask the worker to bend forward. Continuous tight pressure should stop the bleeding in 1-2 minutes. If the bleeding does not stop within 5 minutes or if it recurs, promptly contact the health care professional.

- **Head injury:** When a worker loses consciousness after being hit on the head (by a fall or moving machinery) appears confused or starts vomiting or has severe headache after the injury promptly contact the health care professional.

- **Burns:** This can happen in the factory when a worker comes into contact with a hot object like the steam iron or the fusing machine. Burns can also happen when workers who are handling strong chemicals come into contact with the substance. In all such cases, the first thing to do is to wash/soak the area with/in cold water. Leave the part in contact with water for some time – even 10-15 minutes. This will soothe the pain especially if they are minor burns. Promptly contact the health care professional.

  If there are blisters formed, DO NOT try to prick holes in them. In such cases and in cases where the burns have left the flesh exposed, DO NOT try to remove any fibers or dirt that is stuck to the burns wound and promptly contact the health care professional.

- **Fits:** If a worker suffers from an attack of fits while working (e.g., if the worker is a diabetic and has had insufficient insulin), lay him/her on the floor. Remove all sharp objects and hard items away from the worker. If possible, place some folded cloth or a thick piece of wood between the teeth, so that the worker does not bite his/her tongue. The attack should subside in 1-2 minutes, after which the worker will appear normal. If there are any injuries as a result of the attack, give first aid as above. Promptly contact the health care professional.

- **Fainting attacks:** Commonly, these are temporary in nature. DO NOT panic. Allow the worker to lie on the floor. Gently lift the legs, to allow for the blood to flow back to the heart. You may sprinkle some water on his/her face. Generally, the worker will “wake up” in a few seconds. Promptly contact the health care professional.

- **Unconsciousness:** These are more serious conditions when the worker could have suffered from a heart attack or some other serious problem (generally seen in older workers). Call for help from the medical professional who is in the factory. Until such time that help comes, check if the person is

breathing. Trained first aid responders should know how to find the pulse – check the pulse. Trained first aid responders should start cardio-pulmonary resuscitation as soon as possible.

- **Electrocution:** Do not approach the electrocuted worker until the power switch has been turned off. Then standing as far away from the worker as possible remove him/her from the contact of the electrical wire. Promptly contact the health care professional.
- **Poisoning:** Workers may accidently or purposely consume a poisonous liquid that is found in the factory. In such situations, the first aid respondent should try to make the worker vomit. This can be done by trying to put one's finger into the mouth of the worker and touching the back of the mouth/throat – this will force the worker to vomit. Make sure that the poison is not a strong acid before doing this. Promptly contact the health care professional.

Suggested contents of a training program on first aid for garment industry

- Minor injuries – needle injuries, small cuts, superficial wounds
- Major injuries – deep wounds, major bleeding, fractures, dislocations, amputations
- Special types of injuries – eye injuries, nose bleeds, head injuries
- Burns – superficial and deep (1st degree to 3rd degree)
- Electrocution
- Poisoning
- Fits
- Unconsciousness
- Cardio-pulmonary resuscitation (CPR)
- Transport of the injured
- Topics like snake bite, dog bite, bee stings etc. can be optional, as well as dealing with fevers, diarrhea and vomiting.

Communicable Diseases

Appendix 1: Transmission of communicable diseases.

For the purposes of understanding, it is important to recognize the cycle of disease transmission.

Source or reservoir: Every communicable disease has a source from which it starts. The source of infection is usually a person/animal/object/substance from which the organism causing the disease (infectious agent) passes on to a human being. The reservoir is slightly different in that the organism lives and multiplies in it – it is the natural habitat of the disease-causing organism.

Taking the example of typhoid, the human being is the reservoir of the disease and his/her feces or urine is the source from which the disease-causing organism can be transmitted to others. It is important to understand this because the disease can be prevented if we can ensure that humans do not harbor the organism.

Modes of transmission: Diseases can be transmitted from one person to another by a variety of modes. Some the important modes of transmission are listed here.

- Direct contact: skin to skin contact, as in the case of sexually transmitted diseases
- Droplet infection: projection of a spray of saliva/secretion while sneezing of coughing, as in the case of the common cold
- Contact with soil: direct exposure of an exposed/injured part of the body to soil, as in the case of tetanus
- Inoculation into the skin: by bites or injections, as in the case of rabies (dog-bite) or hepatitis B (using infected needles)
- "Vehicle borne": drinking contaminated water, as in the case of diarrheal diseases
- "Vector borne": by mosquitoes that carry the disease-causing organism in their body (malaria, dengue) or by flies that mechanically transmit the disease-causing organism on their body surface (diarrheal diseases)
- Airborne: through dust or "droplet nuclei," where the disease-causing organism rests on a particle and floats in the air to reach the susceptible person.
- Fomite borne: through inanimate objects (fomites) that can harbor the disease-causing organism, like soiled clothes, towels, door handles
- Unclean hands and fingers: when poor hygiene leads to the transmission of diseases from one person to another

Susceptible host: This is the human being who has certain features that predispose him/her to contract the disease. These features could be something that is as direct as the lack of immunity against a particular disease (e.g. those not vaccinated against measles can get the disease if they are exposed to a person who has the illness), or it could be something indirect as in the case of poor nutrition or poor personal hygiene.

The link between the source/reservoir of infection, the mode of transmission and the availability of a susceptible host is called the **chain of transmission.**

For factory management and factory health care providers, it is important to recognize this chain of transmission to enable them to keep an eye out for possible weaknesses in the links that will result in the onset of a communicable disease. In the description of common communicable diseases that follow, possible problem areas will be explained to facilitate taking steps to prevent the onset or spread of diseases.

Common communicable diseases

Acute respiratory infections (ARIs)

General information

- ARI is one of the most common human ailments affecting all ages.
- It is also probably the most common infection that affects factory workers
- It is a source of discomfort, disability, loss of time for adults and major mortality and morbidity in young children and elderly.
- It can be caused by various agents including bacteria, viruses, and other agents.
- The mode of transmission is airborne.

Prevention of ARI

- Improved living conditions (good ventilation, prevention of overcrowding) and better nutrition will help in preventing the disease
- Avoidance of smoking will definitely help as well.
- Good hand-washing practices: regularly wash one's hands with soap and running water, particularly before preparing and eating food and after blowing your nose
- Cough etiquette: Cover one's mouth with a handkerchief/tissue when coughing or sneezing, and use the nearest waste receptacle to dispose of the tissue.
- Avoid close contact with the person suffering from ARI
- Contact the nearest medical officer as early as possible for treatment.
- Areas where overcrowding is common, such as poor ventilation, must be identified. Locally prescribed standards (described elsewhere in this guidebook) must be followed. Special attention is required in factories that provide dormitory accommodation for their employees.
- Health care professionals must look out for patterns in the reporting of ARIs. Are there any locations within the factory where more employees appear to be presenting with ARI? Are there any groups of workers who are suffering from the illness? Is there an increased number of cases in the community outside the factory? Could it be something more serious? (See, e.g., guidebook sections regarding Avian/Bird Flu.)

  Note that not all cases of watery discharge from the nose or coughs and colds are infectious in nature. These features can also be seen in allergic individuals who react adversely to exposure to dust or cloth fibers or strong smelling paints/chemicals. The health care professional must be capable of distinguishing between an infection and an allergy.
- Health care professionals must be careful in the prescription of anti-allergy drugs when treating cases that they know are caused by dust. The use of some of these drugs can cause drowsiness and can result in poor concentration at the workplace, leading to injuries.

Diarrheal diseases

General Information

- Diarrhea is defined as the passage of three or more loose or liquid stools per day (or more frequent passage than is normal for the individual).
- Most people who die from diarrhea actually die from severe dehydration and fluid loss.
- Diarrhea is usually a symptom of an infection in the intestinal tract, which can be caused by a variety of bacterial, viral and parasitic organisms.
- Infection is spread through contaminated food or drinking water, or from person-to-person as a result of poor hygiene (feco-oral transmission).

Prevention of diarrheal diseases

- Access to safe drinking-water both at home and in the factory will help in the prevention of diarrheal diseases, as will the actions listed below. The locally-prescribed standards for the provision of drinking water (described elsewhere in this guidebook) must be followed.
- Use of improved sanitation both at home and in the factory. Care should be taken to ensure that there is an adequate number of properly-maintained toilets.
- Provision of soap for hand washing. The employees must be told to use soap at home too. (A proper technique of hand-washing is important as well; there are various resources on the internet which have pictorial descriptions of the ideal method).
- Good personal and food hygiene. This includes washing hands after urination and defecation, before and after eating, and before cooking.
- Rotavirus vaccination, where available.
- Exclusive breastfeeding for the first six months of life. Provisions must be made to allow nursing mothers to feed their babies at regular intervals.

Key measures to treat diarrhea:

- The most important step in treating diarrhea is rehydration with oral rehydration salts (ORS) solution. Adequate quantities of this must be made available in the factory clinic. ORS, which is a mixture of clean water, salt and sugar, can also be prepared at home.
- Patients must be given nutrient-rich foods to aid in the recovery.
- Consulting a health professional, particularly for management of diarrhea that lasts more than 5 days or when there is blood in stool or if there are signs of dehydration.
- Special precautions will have to be taken in countries where cholera is common (e.g., Bangladesh, Haiti).

Skin Infections

General information

- Skin infections in humans can be caused by bacteria, virus, mites, fungus etc. Of these, fungal infections are probably the most common.
- Mode of transmission is usually through direct contact (skin to skin). However, clothes that are not washed after use can also harbor infectious agents.

Prevention of fungal infections

- Good personal hygiene, including regular baths and the use of clean clothes, are important ways in which skin infections can be prevented, as are the actions listed below.
- Follow good hand washing, laundering and keeping areas clean.
- If one person gets an infection, close contacts (people living in the same household or those in close physical contact) should be inspected for signs of infection.
- Employees must avoid the sharing of towels, combs and other personal items.
- Fungal infection of the feet can be prevented by washing the feet daily, drying them well, and wearing clean socks.
- Use dry, clean clothes every day and avoiding tight clothing.
- Particular attention should be given in areas of the factory where water logging is common (e.g., washing areas). The employees in these zones should be provided with wellingtons and appropriate gloves to avoid continuous exposure to water and to keep the limbs dry.
- Factories that provide dormitories for the employees must ensure that adequate areas are provided for the drying of washed clothes.

Prevention of scabies

- This infestation can be particularly common in dormitories. It is caused by small mites.
- The biggest threat is that even if one person presents with the illness, it is highly likely that others in the same household or dormitory will contract the disease.
- Thus, it is important to treat all the members of the affected household/dormitory simultaneously, irrespective of their disease status.
- Intervention of a health care professional who has experience with scabicidal medication.
- Ensure that the mattresses and pillows (and bed linen used by the employees) are cleaned and dried on a regular basis.

Reproductive tract infections (RTIs)

General information

- Can be caused by bacteria, virus, fungi and other parasites.
- Mode of transmission generally by sexual contact.
- Most commonly seen among individuals in the age group 20-29 years
- Symptoms usually include discharge from urethra/ vagina, pain/swelling/ulcer in the groin.

Prevention of RTIs

- This is an example of a disease where the factory management's (and health care professional's) knowledge about the local situation is important. If high risk behaviour is common among the population in the region, health education programs that target the "at-risk" population must be implemented.
- Factories can also invest in condom-vending machines.

- The general advice given to populations at risk for RTIs include
  - Avoid unprotected sexual intercourse with an infected partner
  - Consistent and correct use of condoms during sexual intercourse
  - Limiting the number of sexual partners
  - Seek medical treatment if any symptoms are present
- It is important for the physician (factory health care professional) to ensure that the partner of the infected individual is treated simultaneously.

Tuberculosis

General Information

- Tuberculosis is a disease that primarily affects the lungs and causes symptoms that are related to the respiratory tract.
- However, it can also affect other parts of the body such as the intestines, bones and the lymph glands, among others.
- The disease is most commonly transmitted when the lung is affected. When a person with lung tuberculosis coughs, s/he releases the tuberculosis-causing bacteria into the environment which may be inhaled by other individuals.
- Social factors have a major role to play in the occurrence of the disease. These include poverty, poor quality of life, overcrowding, poor ventilation and under-nutrition. .
- The symptoms of tuberculosis include persistent cough lasting more than 2 weeks, sputum which is blood stained, chest pain, fever, weakness/fatigue, loss of appetite and loss of weight.
- The diagnosis is usually confirmed by testing the sputum or by taking an x-ray of the chest.

Prevention of tuberculosis

- In countries where tuberculosis is common, factory management must ensure that conditions within the factory do not predispose to its transmission. Overcrowding on the factory shop floor and poor ventilation (poor air circulation) can increase the chance of disease transmission from one person to another.
- The factory health care provider must look out for employees who have any of the symptoms listed above.
- All countries where the disease is common have clear protocols as to what should be done when a person is suspected to have tuberculosis. These must be reviewed.
- Any person who has cough for more than two weeks must be treated with specific antibiotics, with clear instructions to complete the course of treatment. If the person's condition does not improve, then s/he must be referred to the health system for further management.
- The treatment of tuberculosis is of long duration, extending to *at least* 6 months.
- The sputum must be checked regularly to assess whether it still contains disease-causing germs. If the germs are still present, the treatment of course must be extended.
- Even if the sputum is negative for the disease-causing germ, the treatment must be continued as doctor describes.. However, if the sputum is negative and the person is feeling well enough s/he may return to work while the treatment continues

- The factory health care provider must follow up the cases regularly because patients tend to stop taking medication once they start feeling better.

Malaria

General information

- Malaria is a common mosquito-borne illness in the developing world, particularly in South East Asia and Sub-Saharan Africa.
- Though malaria is predominantly a rural disease, with change of land utilization and population migration it is not uncommon to see urban dwellers also getting the disease.
- Environmental factors play an important role in the breeding of mosquitoes. Pits, garden pools, irrigation channels, construction of roads, dams and bridges have led to situations where the disease-transmitting mosquito breeds.
- Persons who have malaria generally have symptoms that start off with fatigue, headache and cold sensations, followed by shivering. Their temperature rises. Soon they start feeling hot and want to remove their clothes. A few hours later s/he starts sweating and the fever comes down.
- Recurrence of the disease is possible, especially when appropriate treatment has not been given or where the environmental conditions encourage the breeding of the mosquito.

Prevention of malaria

- The key to preventing malaria is to ensure that the environment does not encourage the breeding of mosquitoes. Factories must avoid the construction of water bodies (e.g., ornamental fountains that do not function, or standing water in pots, air conditioning units or anywhere else. The collection of water can result in mosquito breeding.
- At the household level, the employees must be asked to use all protective measures. These include insect repellents (bug sprays), insecticide-treated bed nets and other products that may be locally available.
- Employees must be educated about the symptoms and signs of the disease and asked to report to the appropriate health system whenever they have fever.
- Diagnosing the disease early and taking the complete course of treatment is of great importance.

Dengue/Chikungunya

General Information

- Dengue and chikungunya are diseases that are transmitted by the same mosquito.
- Knowledge of habits of this species of mosquito will help prevent its breeding and thereby the spread of these diseases.
- This is important to know because there are many environmental factors in the factory that can predispose to the breeding of this mosquito.
- The mosquito breeds in small collections of water (pots, planters, cups, etc.).
- The mosquito bites in the day time, particularly dawn and dusk.
- Dengue fever usually starts suddenly, with the patient having intense high fever, headache, muscle and joint pains. The complications of dengue fever are more dangerous: bleeding and shock.

- Chikungunya also starts suddenly and presents with high fever, chills, headache, severe backache and aches/stiffness of the small joints (fingers, toes, wrists, ankles).

Prevention of dengue/chikungunya

- The key to the prevention of these conditions is environmental hygiene.
- Factory management must ensure that there are not small collections of water in the surroundings of the factory. Pots and planters should not have standing water.
- Water coolers/air-conditioning units where water can collect should be cleaned at regular intervals (at least once a week).
- The grounds around the factory must be cleaned regularly. Improper waste disposal of the community around the factory can predispose to the collections of small quantities of water.
- When there are epidemics of dengue/chikungunya in the region, all cases of fever must be suspected to be due to these diseases.
- The treatment is essentially symptomatic: paracetamol for fever (aspirin not to be given) and plenty of fluids orally.
- Any indications of bleeding (e.g., dark patches or small spots on the skin) should be considered serious enough to admit the person in hospital.

Influenza (including bird flu)

General information

- Flu (influenza) is a common viral infection.
- In recent years there has been global concern because of the discovery of a new strain of the virus that can cause influenza: the bird flu (avian flu) virus.
- Although the bird flu virus does not usually affect humans, rare cases of infections have been reported. Human infections happen when enough virus gets into a person's body through the eyes, nose or mouth.
- The virus is transmitted when a person breathes in the air that contains virus or when a person touches something that has virus on it then touches their mouth, eyes or nose.
- Person to person transmission has not been recorded but the worry is that the virus can change its character (which is quite possible with any influenza virus) and begin to spread from one person to another.
- The symptoms of influenza are eye infection (conjunctivitis), fever, cough, sore throat and muscle pains. In more severe cases (bad cases of bird flu), this can progress to lung infections (pneumonia), respiratory distress and respiratory failure.

Preventive measures

- As of now, recommendations for the prevention of the spread of bird flu are targeted principally at those who work with poultry (and possibly zoos where birds are exhibited).
- Strict use of personal protective equipment is essential while handling poultry.
- Proper hand washing practices are also important: thorough and frequent washing of the hands with soap and water.

- If any employee thinks that s/he has been exposed to the virus, s/he must watch out for symptoms like fever, cough and difficulty in breathing.
- Such a person must visit a health care provider as soon as possible. More importantly, such individuals should avoid coming to work.
- *Employees who believe they have a communicable common disease should immediately contact the factory health care professional so that they can be evaluated before returning to work.*

Hypertension/Diabetes

General information

- Hypertension and diabetes are considered diseases of lifestyle. For this reason, they are both dealt with under this same section, although the symptoms and signs are different and their treatment is also different.
- While there is a significant genetic pre-disposition to acquire these diseases, the onset of the conditions can be postponed (or totally prevented) by following a healthy lifestyle.
- Knowing that these diseases occur in the older age group of workers is important. The factory should periodically remind employees 40 years of age or older of information (see below) regarding symptons of and prevention of hypertension and diabetes information. The symptoms of hypertension (high blood pressure, high BP) include severe headaches, fatigue and confusion, vision problems, chest pain and difficulty breathing.
- The symptoms of diabetes (high sugar) include excessive thirst, going often to the toilet to urinate, blurry vision, irritability, tingling sensation of the hands, fatigue and wounds that do not heal quickly.

Preventing hypertension/diabetes

- The following elements of a healthy lifestyle are particularly helpful in preventing hypertension and diabetes: consumption of good quality food, avoidance of salt (for hypertension), avoidance of sugar and sugary drinks (diabetes), avoidance of foods that are rich in fats and oils; and limiting portion sizes.
- Regular exercise: at least 30 minutes of brisk walking (not counting the walking during work in the factory).
- Weight reduction for those who are overweight or obese. Complete avoidance of the use of tobacco (no cigarettes and other forms of smoking tobacco).
- The factory can encourage a system of regular medical checks for all employees with a special focus on the high risk groups: older workers, sedentary workers, overweight/obese workers.
- For those diagnosed to be hypertensive or diabetic, opportunities must be provided for regular follow-up checks at intervals not exceeding 6 months.

Musculoskeletal pains

General information

- Musculoskeletal disorders are

- Aches and pains that affect the muscles, bones and tissues that connect these to each other (ligaments, tendons).
- Blunt injury to muscular parts, accidents, falls leading to sprains, fractures and dislocations can cause musculoskeletal pains. Poor posture, overuse or repetitive use of a particular limb or long term immobilization of a part of the body can cause musculoskeletal disorders.
- Symptoms can include aches and pains of a particular region of the body, or fatigue so significant that it causes sleep disturbances.

Preventing musculoskeletal pains

- The factory health care provider must investigate and respond appropriately to all employee complaints of significant aches and pains of any muscular or bony part of the body. While it is always possible that the origins of these problems are outside of the workplace, the health care provider must investigate whether the work place triggered the illness.
- A visit to the worksite is called for to assess the work environment and to assess the posture adopted by the employee at work.
- As a preventive step, employees must be encouraged to exercise regularly. This in itself is very important in preventing musculoskeletal pains.
- Relaxation techniques also have positive effects
- Pain killers may be given in severe cases.

If all these interventions do not work, then job rotation or even a change in job may be recommended.

ANNEX C : ENVIRONMENT GUIDELINES

Waste Management

Transporting Hazardous Materials

Hazmat Transportation Inspections Information

Loading/Unloading Inspection

Objective: To reduce the frequency of hazardous materials loading and unloading incidents through regular inspections of loading and unloading equipment and procedures.

Description: A large majority of hazardous materials incidents occur during loading and unloading operations. Providing adequate supervision of these operations and inspecting material handling equipment regularly may reduce the number of Hazmat incidents at this stage of the transportation process.

Questions for Management:

1. Are all loading/unloading operations supervised or conducted by experienced staff?
2. Are flammable materials and explosives kept away from sources of ignition or heat sources (including cargo heater and air conditioning units)?
3. Are you complying with applicable federal, state, provincial, and/or local regulations regarding the compatibility of hazardous materials per the Segregation Table for Hazardous Materials?

Tip for Management:

- Be aware that certain chemicals react with air or water and require special loading/unloading equipment.

Tips for Hazmat Employees:

- Contact management if a suspicious shipment is offered.
- Check the compatibility of mixed loads.
- Check the weight distribution of loads.
- Verify that the cargo is properly secured.
- Check the type, number, and stacking arrangement of load.
- Ensure that the load will not swing over the cab during loading/unloading.
- Ensure cylinders are kept positioned correctly and that temperatures are kept within a safe range.
- Verify that tank trucks are grounded prior to loading and unloading.
- Prior to loading bulk loads, inspect the tank for objects which are not bonded.
- Inspect valves, connections, emergency shutoff valves, and pipes before loading.
- Verify that container is safe for filling.
- Verify that all truck electrical systems are off before loading or unloading.
- Conduct a walk-around inspection prior to driving away.

Vehicle Inspection

Objective: To reduce the frequency of vehicle breakdowns and hazardous materials incidents by thorough and regular inspections of fleet vehicles.

Description: Regular vehicle inspection is an integral part of the maintenance program of fleet vehicles. Inspections by qualified personnel dramatically reduce the number of vehicle breakdowns and malfunctions thereby improving overall vehicle fleet operations efficiency and helping to reduce the number of hazardous materials incidents.

Questions for Management:

1. Are vehicles subject to comprehensive pre-trip and post trip inspections?
2. Are vehicles and loads systematically inspected at regular intervals during a trip?
3. Are frequent functional tests carried out?
4. Are vehicles appropriate for their hazardous materials cargo?
5. Are flammable solids or oxidizers carried in closed cargo spaces?
6. Do vehicles have tight floors where required?

Tips for Management:

- Thoroughly inspect and test vehicles periodically for safe operation.
- Be sure that vehicle repairs are performed in a timely fashion.
- Keep records of results and dates of vehicle inspections and repairs.

Tips for Drivers:

- Check for loose, worn or leaking parts.
- Check pressure, temperature, liquid levels and gauges before setting out.
- Adjust mirrors.
- Check for hot brakes regularly.
- Do not drive your vehicle unless it is safe to do so.

Packaging Inspection

Objective: To reduce the frequency of accidental leaks of hazardous materials due to incompatible or damaged packages by conducting thorough inspections of packages prior to and during the transportation process.

Description: Use of correct packaging is the single most effective measure in reducing hazardous materials incidents. Inadequate packaging can result in costly and damaging Hazmat incidents. These incidents can often be prevented by conscientiously inspecting all packages and containers.

Questions for Management:

1. Is there a quality control program in effect to ensure the monitoring of package integrity on a regular basis?
2. Is authorized packaging used for hazardous materials?
3. Are sample packages subject to performance testing such as a drop test?
4. Are cylinder scales frequently calibrated to maintain accuracy?
5. Are Hazmat employees aware that flammable bulk packages must be grounded or bonded?
6. Are material-specific leak detectors used to detect leakage and/or permeation?

Tip for Management:

- Require and encourage Hazmat employees to perform visual inspections of packages as they are loaded and unloaded.

Tips for Hazmat Employees:

- Be alert for containers which are under- or over-filled.
- Properly clean, purge, and inspect containers to ensure there is no residue from previous loads.
- Inspect over-fill protection systems for proper operation.
- Inspect pressure, temperature and liquid-level gauges.
- Ensure valve-protecting caps and collars are in place on cylinders of compressed gases, if required.
- Inspect containers and packages to ensure that they are properly labeled and marked.
- Ensure that containers and packages are secure.
- Inspect the stacking arrangements of all loads, including blocking and bracing.
- Ensure that cargo has the appropriate ventilation.
- Inspect all tank mountings.

Safety Equipment Inspection

Objective: To ensure that safety equipment is in good working order through regular and thorough inspections.

Description: Properly functioning safety equipment for vehicles, plant machinery and personnel is essential for reducing the frequency and severity of hazardous materials incidents. Therefore, it is vital that complete inspections of safety equipment be routinely performed by qualified personnel.

Questions for Management:

1. Is all safety equipment inspected on a regular and scheduled basis?
2. Is safety equipment on vehicles—including fire extinguishers and personal protection equipment—inspected before setting out?
3. Should spare parts, such as headlamps and directional bulbs, be carried with each vehicle?
4. Is the personal protective equipment provided to Hazmat employees suitable for the hazardous materials being handled?
5. Are Hazmat employees trained to inspect chemical respirators since this equipment has a finite life once exposed to atmosphere or chemicals?
6. Are compressed-gas cylinder safety devices checked regularly?

Tips for Management:

- Provide checklists for all equipment inspections and require their use.
- Keep records of all equipment inspections and review periodically.

Tips for Hazmat Employees:

- Check vehicle maintenance log for last servicing date and findings.
- Inspect emergency/remote shutoff valves at beginning of each shift or as part of pre-trip inspection.

Labeling Inspection

Objective: To promote effective communication of hazards associated with shipments by the visual inspection of package labeling.

Description: The purpose of package labels is to communicate the primary hazards of the material being shipped. Hazmat employees handling the package should be familiar with the labels in order to be aware of and to respect the potential dangers of the material. Emergency responders also need this information in order to respond correctly in case of an incident. Regular inspections of package labeling may detect packages which are not in compliance with federal regulations.

Questions for Management:

1. Are all samples which are transported labeled for hazard class?
2. Should a reference table be provided to the drivers for interpreting numerical markings and labels?
3. Are carrying capacities marked on tanks, cylinders, and trucks?

Tips for Management:

- Alert employees to the importance of package labeling.
- Encourage employees to check package labeling.

Tip for Hazmat Employees:

- Inspect labels to ensure that they match shipping papers.

Shipping Papers and Classification Inspection

Objective: To ensure that the information contained in the shipping papers is complete and corresponds to the hazardous materials being transported.

Description: The shipping papers will quickly identify the hazardous materials involved in a Hazmat incident. For this reason, it is critical that the information contained in the documents be accurate. Emergency responders rely heavily on shipping papers for properly identifying materials as well as for finding sources of technical assistance.

Questions for Management:

- Are hazardous materials clearly identified on shipping papers?
- Do you have most recent emergency response information?
- If Material Safety Data Sheets (MSDS) or equivalent documents refer to personal protection equipment such as respirators, is this equipment available?

Tips for Management:

- Alert employees to the importance and use of shipping papers in both routine and emergency situations.
- Encourage employees to inspect shipping papers for content and format.

Tips for Hazmat Employees:

- Be sure that emergency response information is immediately available for use at all times.

- Check that shipping papers are legible, complete, and that all listed hazardous materials are easily identifiable.
- Check that shipping papers are stored for easy access.
- Check to ensure that shipment matches shipping papers, placards, markings and labels.

Placarding Inspection

Objective: To ensure that proper placards appear on the exterior of a vehicle.

Description: In the event of a hazardous materials incident, placards are often the first source of information used in evaluating the hazards of an unidentified Hazmat shipment. The inspection of vehicle placards prior to departure will ensure that the information displayed is accurate.

Questions for Management:

1. Are vehicle equipped with the proper tools for attaching placards?
2. Are placards being offered by the shipper to the carrier?
3. Is the carrier placing the placards on the vehicle?
4. Are replacement placards available to Hazmat employees?

Tips for Management:

- Train Hazmat employees to properly choose placards.
- Consider the use of separate placards versus the use of flip- type placards.

Tips for Hazmat Employees:

- Inspect placards prior to departure to ensure they are clean and legible.
- Verify that the placards match the shipping papers.
- Clean any dirty placards.
- Replace any damaged or illegible placards.
- Remove or change the placards only when it is appropriate to do so.

Waste Management

Transporting Hazardous Materials

Sample Bulk Fuel Oil Transfer Procedures

A release of fuel oil or other bulk chemicals can cause harm to nearby populations and the environment. Therefore, special precautions are taken to prevent a release when fuel oil is delivered to the premises.

The following procedures have been established to prevent the release of diesel during fueling operations:

1. Tanker trucks are received by appointment only.
2. The tanker truck driver engages the vehicle break interlock system to prevent the vehicle from departing before complete disconnection of flexible or fixed oil transfer lines.
3. Before fueling begins, factory personnel cover any storm drains within close proximity to the fuel truck.
4. The truck driver runs the hose from the tanker truck to the fill pipe inlet.
5. A factory employee familiar with hazardous materials and emergency response procedures is present during the entire fueling process to respond immediately to any of the following conditions:
    - An alarm triggered by over-filling the tank;
    - An alarm triggered by a breach of the system resulting in a release of diesel from the tank;
    - Leaks from the hose during fueling; or
    - Any other condition that indicates a spill or release of fuel oil.
6. Absorbent pads, booms, and other emergency response materials are maintained nearby fueling operations so that a spill or release can be immediately contained.

Emergency Procedures

(Post near telephones and as appropriate)

In case of a fire, spill, or other emergency involving hazardous chemicals or wastes, do the following:

MAJOR EMERGENCY

- ☐ Evacuate the affected areas per the facility Evacuation Plan
- ☐ Call _____ and report the emergency
- ☐ Report the emergency to the Facility Emergency Coordinator

MINOR EMERGENCY

- ☐ Try to control the emergency if you are trained to do so and can do it safely
- ☐ Report the emergency to the Facility Emergency Coordinator

Facility Emergency Coordinators

	Name	Work Phone	24-Hour Phone
Primary EC			
1st Alternate			
2nd Alternate			
3rd Alternate			

Agency	Phone number
Fire Dept., Ambulance, Police	
Spill Response Contractor (if applicable)	
Local Government Agencies	

Emergency Equipment

Locations of fire extinguishers, fire alarms (if any), and equipment for controlling chemical spills are shown on the facility site plan posted with this notice.

This document is only a summary of emergency procedures. Refer to this facility's written emergency response plan for detailed procedures.

Waste Management

Sample Facility Site Plan/Storage Map

Site Address: _____

Date Map Drawn:_____/_____/_____. Map Scale:_____Page___of ___

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1																										
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										
13																										
14																										
15																										
16																										
17																										
18																										
19																										
20																										
21																										
22																										
23																										
24																										
25																										
26																										
27																										
28																										

Instructions: It is recommended that the map contain the following information:

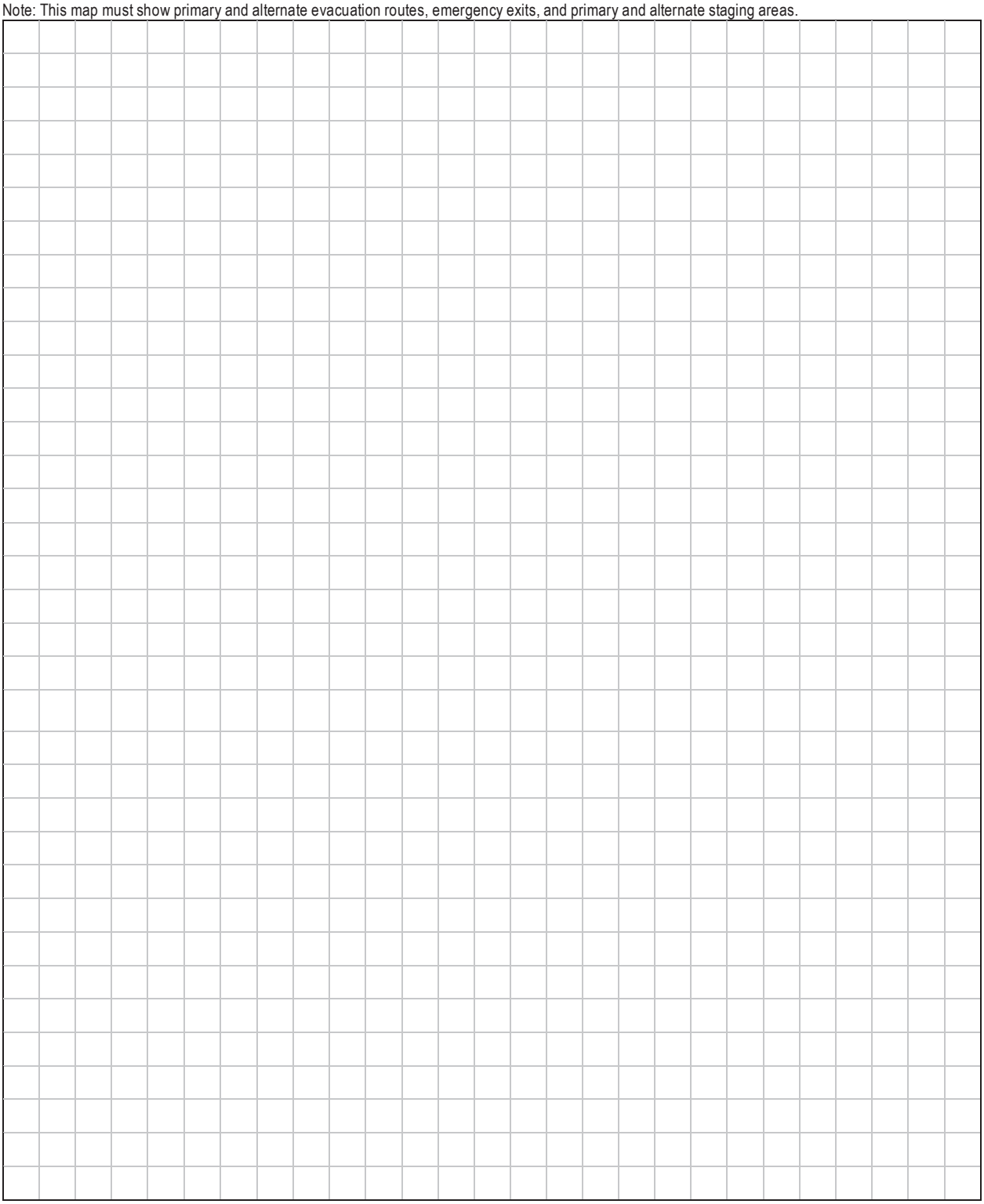
a) General purpose of each section/area within each building (e.g., "Office Area", "Manufacturing Area", etc.);
b) Location of each hazardous material/waste storage, dispensing, use, or handling area (e.g., individual underground tanks, aboveground tanks, storage rooms, etc.). Each area shall be identifiable by a Grid Number for easy reference.
c) For tanks, the capacity limit in gallons and common name of the hazardous material contained in each tank.
d) Entrances to and exits from each building and hazardous material/waste room/area;
e) Location of each utility emergency shut-off point (i.e., gas, water, electric.); and
f) Location of each monitoring system control panel (e.g., underground tank monitoring, toxic gas monitoring, etc.).

Waste Management

Facility Evacuation Map Template

Site Address: _____

Note: This map must show primary and alternate evacuation routes, emergency exits, and primary and alternate staging areas.



Waste Management

Sample Hazardous Waste Storage Area Weekly Inspections Checklist

Inspector Name _____ Date _____ Time _____

Location of inspection _____ Total number of containers _____

	Yes	No
1. Is the area free of debris and other materials?	☐	☐
2. Is the ground clean and dry?	☐	☐
3. Are container tops free of spillage?	☐	☐
4. Is the area free of spills or leaks?	☐	☐
5. Are all of the containers in good condition? (free of dents and corrosion, not bulging, or otherwise deteriorating?)	☐	☐
6. Are all containers properly closed?	☐	☐
7. Are containers labeled with hazardous waste labels?	☐	☐
8. Is the following information on the labels filled out?		
Generator name and address	☐	☐
Accumulation start date	☐	☐
Contents	☐	☐
Physical state	☐	☐
Hazardous properties	☐	☐
9. Is the information on the labels legible?	☐	☐
10. Have wastes been disposed of within the allowable accumulation time?	☐	☐
11. Are the containers compatible with their contents?	☐	☐
12. Are incompatible wastes stored separately?	☐	☐
13. Is there adequate aisle space?	☐	☐

Describe any observations for items checked "NO"

Corrective Action required

Waste Management

Emergency Procedures for Spill or Release

A. Facility Information

BUSINESS NAME		BUSINESS PHONE
		( )
SITE ADDRESS	CITY	STATE/PROV
COUNTRY/CODE		

B. Emergency Coordinators

All personnel qualified to act as the facility's Emergency Coordinator must be listed in this plan. (Note: Emergency Coordinator responsibilities are described in Section E, below.) If more than two people are qualified, list the names, titles, business and 24- hour telephone numbers, and pager numbers of the additional qualified individuals on an attached page in the order in which they will assume responsibility as alternates, then check the box beneath the Emergency Coordinator information table, below, and indicate the list's page number in the space provided.

Primary Emergency Coordinator	**Secondary Emergency Coordinator**
NAME	NAME
TITLE	TITLE
BUSINESS PHONE	BUSINESS PHONE
( )	( )
24-HOUR PHONE	24-HOUR PHONE
( )	( )
PAGER#	PAGER#
( )	( )
☐ (Check box only if applicable) Additional Emergency Coordinators are listed on page__of this plan.	

C. Evacuation Plan

The following alarm signal(s) will be used to begin evacuation of the facility (check all that apply):

☐ Bells; ☐ Horns/Sirens; ☐ Verbal (e.g., shouting); ☐ Other (specify) ____

☐ Evacuation map is prominently displayed throughout the facility.

D. Emergency Contacts

Fire/Police/Ambulance _____Phone No _____

Authorities :

(Name) _____ Phone No _____

(Name) _____ Phone No _____

(Name) _____ Phone No _____

(Name) _____ Phone No _____

Arrangements with Emergency Responders:

If you have made special (i.e., contractual) arrangements with any police department, fire department, hospital, contractor, or local emergency response team to coordinate emergency services, describe those arrangements below:

_____
_____
_____
_____
_____
_____
_____
_____

E. **Emergency Procedures:**

Emergency Coordinator Responsibilities:

a. Whenever there is an imminent or actual emergency situation such as a explosion, fire, or release, the emergency coordinator (or his/her designee when the emergency coordinator is on call) shall:
    i. Identify the character, exact source, amount, and a real extent of any released hazardous materials.
    ii. Assess possible hazards to human health or the environment that may result from the explosion, fire, or release. This assessment must consider both direct and indirect effects (e.g. the effects of any toxic, irritating, or asphyxiating gases that are generated, the effects of any hazardous surface water run-off from water or chemical agents used to control fire, etc.).
    iii. iii. Activate internal facility alarms or communications systems, where applicable, to notify all facility personnel.
    iv. Notify appropriate local authorities
    v. Monitor for leaks, pressure build-up, gas generation, or ruptures in valves, pipes, or other equipment shut down in response to the incident.
    vi. Take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous materials at the facility.

b. Before facility operations are resumed in areas of the facility affected by the incident, the emergency coordinator shall:
    i. Provide for proper storage and disposal of recovered waste, contaminated soil or surface water, or any other material that results from a explosion, fire, or release at the facility.
    ii. Ensure that no material that is incompatible with the released material is transferred, stored, or disposed of in areas of the facility affected by the incident until cleanup procedures are completed.
    iii. Ensure that all emergency equipment is cleaned, fit for its intended use, and available for use.
    iv. Notify local authorities, if required, that the facility is in compliance with requirements b-i and b-ii, above.

Responsibilities of Other Personnel:
On a separate page, list any emergency response functions not covered in the “Emergency Coordinator Responsibilities” section, above. Next to each function, list the job title or name of each person responsible for performing the function. Number the page(s) appropriately.

F. Post-Incident Reporting/Recording

The time, date, and details of any hazardous materials incident that requires implementation of this plan shall be noted in the facility's operating record.

The report should include:

a. Name, address, and telephone number of the facility's owner/operator;
b. Name, address, and telephone number of the facility;
c. Date, time, and type of incident (e.g. fire, explosion, etc.);
d. Name and quantity of material(s) involved;
e. The extent of injuries, if any;
f. An assessment of actual or potential hazards to human health or the environment, where this is applicable;
g. Estimated quantity and disposition of recovered material that resulted from the incident;
h. Cause(es) of the incident;
i. Actions taken in response to the incident;
j. Administrative or engineering controls designed to prevent such incidents in the future; AND
k. ANY OTHER INFORMATION REQUIRED BY LOCAL AUTHORITIES.

G. Earthquake Vulnerability

Identify any areas of the facility and mechanical or other systems that require immediate inspection or isolation because of their vulnerability to earthquake-related ground motion:

_____
_____
_____
_____

H. Emergency Equipment

EMERGENCY EQUIPMENT INVENTORY TABLE

Equipment Category	Equipment Type	Locations*	Description**
Personal Protective Equipment, Safety Equipment, and First Aid Equipment	☐ Cartridge Respirators		
	☐ Chemical Monitoring Equipment (describe)		
	☐ Chemical Protective Aprons/Coats		
	☐ Chemical Protective Boots		
	☐ Chemical Protective Gloves		
	☐ Chemical Protective Suits (describe)		
	☐ Face Shields		
	☐ First Aid Kits/Stations (describe)		
	☐ Hard Hats		
	☐ Plumbed Eye Wash Stations		
	☐ Portable Eye Wash Kits (i.e. bottle type)		
	☐ Respirator Cartridges (describe)		
	☐ Safety Glasses/Splash Goggles		
	☐ Safety Showers		
	☐ Self-Contained Breathing Apparatuses		
	☐ Other (describe)		
Fire Extinguishing Systems	☐ Automatic Fire Sprinkler Systems		
	☐ Fire Alarm Boxes/Stations		
	☐ Fire Extinguisher Systems (describe)		
	☐ Other (describe)		
Spill Control Equipment and Decontamination Equipment	☐ Absorbents (describe)		
	☐ Berms/Dikes (describe)		
	☐ Decontamination Equipment (describe)		
	☐ Emergency Tanks (describe)		
	☐ Exhaust Hoods		
	☐ Gas Cylinder Leak Repair Kits (describe)		
	☐ Neutralizers (describe)		
	☐ Overpack Drums		
	☐ Sumps (describe)		
	☐ Other (describe)		
Communications and Alarm Systems	☐ Chemical Alarms (describe)		
	☐ Intercoms/ PA Systems		
	☐ Portable Radios		
	☐ Telephones		
	☐ Underground Tank Leak Detection		
	☐ Other (describe)		
Additional Equipment (Use Additional Pages if Needed.)	☐		
	☐		
	☐		
	☐		
	☐		

* Describe location or Use the map to determine grid numbers.

** Describe the equipment and its capabilities. If applicable, specify any testing/maintenance procedures/intervals. Attach additional pages, numbered appropriately, if needed.

I. Employee Training Plan

Check all boxes that apply.

1. Personnel are trained in the following procedures:

   - ☐ Internal alarm/notification
   - ☐ Evacuation/re-entry procedures & assembly point locations
   - ☐ Emergency incident reporting
   - ☐ External emergency response organization notification
   - ☐ Location(s) and contents of Emergency Response/Contingency Plan
   - ☐ Facility evacuation drills, that are conducted at least (specify) (e.g., "Quarterly", etc.)

2. Chemical Handlers are additionally trained in the following:

   - ☐ Safe methods for handling and storage of hazardous materials
   - ☐ Location(s) and proper use of fire and spill control equipment
   - ☐ Spill procedures/emergency procedures
   - ☐ Proper use of personal protective equipment
   - ☐ Specific hazard(s) of each chemical to which they may be exposed, including routes of exposure (i.e., inhalation, ingestion, absorption)
   - ☐ Hazardous Waste Handlers/Managers are trained in all aspects of hazardous waste management specific to their job duties (e.g., container accumulation time requirements, labeling requirements, storage area inspection requirements, manifesting requirements, etc.) *

3. Emergency Response Team Members are capable of and engaged in the following:

   - ☐ Safe methods for handling and storage of hazardous materials
   - ☐ Location(s) and proper use of fire and spill control equipment
   - ☐ Spill procedures/emergency procedures
   - ☐ Proper use of personal protective equipment
   - ☐ Specific hazard(s) of each chemical to which they may be exposed, including routes of exposure (i.e., inhalation, ingestion, absorption)
   - ☐ Hazardous Waste Handlers/Managers are trained in all aspects of hazardous waste management specific to their job duties (e.g., container accumulation time requirements, labeling requirements, storage area inspection requirements, manifesting requirements, etc.) *

J. Record Keeping

All facilities that handle hazardous materials must maintain records associated with their management. A blank summary has been provided below as a guideline. Refer to local laws and regulations for required records and/or specific record retention requirements that are more stringent than these guidelines.

The following records are maintained at the facility. (Check all boxes that apply.)

- ☐ Current employees' training records (to be retained until closure of the facility) *

- ☐ Former employees' training records (to be retained at least three years after termination of employment) *
- ☐ Training Program(s) (i.e., written description of introductory and continuing training) *
- ☐ Current copy of this Emergency Response/Contingency Plan *
- ☐ Record of recordable/reportable hazardous material/waste releases *
- ☐ Record of hazardous material/waste storage area inspections *
- ☐ Record of hazardous waste tank daily inspections *
- ☐ Description and documentation of facility emergency response drills

Note: The above list of records does not necessarily identify every type of record required to be maintained by the facility.

K. Amendment of Contingency Plan

This plan must be reviewed, and immediately amended, if necessary, whenever:

1. Applicable regulations are revised.
2. The plan fails in an emergency.
3. The facility changes its design, construction, operation, maintenance, or other circumstances in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency.
4. The list of emergency coordinators changes.
5. The list of emergency equipment changes.

Waste Management

Typical Hazardous Materials Inspection Violations

The following is a list of typical violations often found by inspectors and a generic solution. You can use this list to improve the safety of your facility, to prepare for an upcoming inspection, or to develop your own self inspection program. Note that specific code requirements may vary somewhat from jurisdiction to jurisdiction, so if you have questions or would like to know the specific code sections, please contact your local agency. (The reference number is used to make it easier to identify specific items; it does not refer to a code or ordinance.)

I. Typical Secondary Containment Violations

No.	General type	Description
150	Repair	® Deterioration of secondary containment structure/coating observed. © Repair deterioration of the secondary containment structure.
151	Spill/Drainage Control	® Failure to provide adequate spill or drainage control for solid or liquid hazardous materials. © Rooms, buildings or areas used for the storage of solid and liquid hazardous materials shall be provided with a means to control spillage and to contain or drain off spillage and fire-protection water discharged in the storage area. © Rooms or areas where hazardous material liquids are dispensed, stored, or used, shall be provided with a means to control spills.
152	Secondary Containment	® Failure to provide secondary containment, or ® Secondary containment not adequately sized. © Provide acceptable secondary containment for hazardous materials storage system.
153	Dry	® Failure to maintain containment area clean and dry. © Clean secondary containment. Review procedures to prevent future releases.
154	Spills	® Failure to clean up spills of hazardous materials. © All hazardous materials spills must be cleaned up immediately and recorded. Spills that escape secondary containment must be reported to Hazardous Materials Division. Spills that enter the storm sewer or pose a fire, explosion, or toxic gas release shall be reported to 911 immediately.

II. Typical Separation Violations

No.	General type	Description
150	Separation	® Failure to separate incompatible materials. © Separate incompatible materials by: 1. Segregating incompatible hazardous materials storage by a distance of not less than 20 feet, 2. Isolating incompatible hazardous materials storage by a noncombustible partition extending not less than 18 inches above and to the sides of the stored material, or 3. Storing in hazardous materials storage cabinets or gas cabinets. Materials which are incompatible shall not be stored within the same cabinet.
151	Oxidizer Storage/ Contamination	® Oxidizers shall not be stored on or against combustible surfaces. © Organic peroxides shall be stored in their original DOT shipping containers. © During storage, care shall be taken to prevent contamination.

III. Typical Monitoring Violations

No.	General type	Description
300	Monitoring	Ⓡ Failure to provide monitoring for an existing storage system, storage facility, or secondary containment. Ⓒ Provide a monitoring device for the hazardous materials storage system, or Ⓒ Maintain a visual monitoring log, or Ⓒ Begin performing inspections and documenting the results of the inspections.
301	Securing	Ⓡ Failure to secure the storage system. Ⓒ Secure hazardous materials storage area from public access.
302	Inspection Records	Ⓡ Failure to maintain inspection records for three years. Ⓒ Maintain all monitoring/inspections records for a minimum of three years.
303	Limit Controls	Liquid level, temperature and pressure limit controls shall be provided for hazardous materials storage, use and dispensing systems.

IV. Typical Storage Violations

No.	General type	Description
401	704 Placarding	Ⓡ Failure to provide 704 placarding or labeling in accordance with Uniform Marking Guidelines. Ⓒ Provide 704 placarding and comply with Uniform Marking Guidelines
402	Oil Spill	Ⓡ Unauthorized discharge. Ⓒ Petroleum products and other hazardous materials shall not be discharged to the ground. (oil spills are not permitted.)
403	Cabinets	Ⓡ Flammable liquids not stored in cabinet Ⓒ Provide approved flammable liquid cabinet for all class I, II, and III-A liquids over 10 gal.
404	Electrical Rooms	Ⓡ Hazardous materials stored in boiler, mechanical, or electrical room(s). Ⓒ No storage in boiler, mechanical, or electrical rooms.
405	Heating Unit	Ⓡ Hazardous materials stored too near heating unit. Ⓒ No storage within three feet of any heating unit.
406	Gas Cylinders Restraints	Ⓡ Compressed gas cylinder(s) not secured to a wall or other fixed object. Ⓒ All compressed gas cylinders must be secured with one or more non-combustible restraints to prevent falling.
407	Under Stairs	Ⓡ Hazardous materials stored under stairs. Ⓒ Storage under stairs shall not be permitted unless space is protected or enclosed by one hour wall.
408	Automatic Sprinkler Clearance	Ⓡ Hazardous materials stored too close to automatic sprinkler heads. Ⓒ Maintain an 18 inch clearance below automatic sprinklers, 24 inches below ceiling in non sprinkled buildings.
409	Riser Clearance	Ⓡ Hazardous materials stored too near sprinkler riser. Ⓒ Maintain 3 foot clearance from Sprinkler riser.
410	Fume Hood	Ⓡ Failure to provide automatic fire-extinguishing system for Laboratory fume hoods and spray booths where flammable materials are used. Ⓒ Discontinue use of Laboratory fume hood/spray booth until an automatic fire extinguishing system isinstalled. Ⓒ Submit plans to install automatic fire-extinguishing system.
411	Outside Storage	Ⓡ Improper outside storage of hazardous materials. Ⓡ Hazardous materials stored where spills could enter a storm drain.

		© Outside storage shall be no higher than 20 ft. and 3 ft. from any wall or fence. © Exterior storage of hazardous materials shall not be within 20 feet of any building, property line, street, alley, public way or exit to a public way. © Storage areas shall be designed to prevent spills from discharging to a storm drain.
412	Piping	® Piping installed without a permit. © Submit plans to obtain permit.
413	Piping Labels	® Piping not labelled. © Label piping and tubing to identify contents every 20 feet and at changes in direction.
414	Toxic & Highly Toxic Piping	® Piping does not` meet code requirements. © Submit plans for upgrade.
415	Guard Posts	® Inadequate or missing Guard posts. © Guard posts or other means shall be provided to protect exterior dispensing or use areas from vehicular damage.
416	Non-combustible Floor	® Improper floor construction. © Submit plans to upgrade floor.
417	Liquid Tight Floors	® Floor not liquid-tight. © Submit plans to line or upgrade floor.
418	Cryogenic Storage	® Improper interior storage of cryogenic tank. © Submit plans for approved storage location.
419	Grounding/Bonding	® Improper or missing grounding/bonding for flammable liquids dispensing. © Discontinue dispensing until adequate grounding/bonding is provided.
420	MSDS	® Failure to provide material safety data sheet (MSDS). © The material safety data sheet (MSDS) shall be readily available for all Hazardous Materials on site.
421	Security	® Failure to secure the storage area or system from unauthorized access. © The storage of hazardous materials shall be safeguarded with such protective facilities as public safety requires.
422	Ignition	® Failure to restrict smoking in rooms where hazardous materials are stored or within 25 feet of outdoor storage areas. © Smoking shall be prohibited in rooms where hazardous materials are stored or within 25 feet of outdoor storage areas. © Open-flame and other heat-producing equipment shall be located a safe distance from areas where temperature sensitive materials, flammable materials and compressed gases are dispensed, used or handled.
423	Light Sensitive	® Failure to store light sensitive materials in containers designed to protect them for exposure to light.. © Materials which are sensitive to light shall be stored in containers designed to protect them from such exposure.
424	Mechanical Ventilation	® Inadequate ventilation for indoor hazardous materials storage areas and storage buildings. © Indoor hazardous materials storage areas and storage buildings shall be provided with mechanical exhaust ventilation.
425	Emergency Alarm System	® Failure to provide an emergency alarm system for hazardous materials. © Submit plans to install an emergency alarm system.
426	Waterproof Room	® Improper storage of water-reactive solids or liquids. © Submit plans to upgrade the room or storage area.
427	Exhaust Scrubber	® Failure to maintain exhaust scrubber. © Exhaust scrubbers or other systems for the processing of highly toxic liquid vapors or gases shall be properly maintained and serviced at least annually.
428	Defective Containers	® Defective container, cylinder or tank.

		© Defective containers, cylinders and tanks shall be removed from service, repaired or disposed of in an approved manner.
429	Static Accumulation	® Static electricity danger. © When process or conditions exit where flammable mixture could be ignited by static electricity, means shall be provided to prevent the accumulation of a static charge.
430	Dispensing	® Improper dispensing of hazardous materials from tank or drum. © When liquids having a hazard tanking of 3 or 4 are dispensed from tanks or drums, dispensing shall be only by approved pumps taking suction from the top. © When gases, liquids or solids having a hazard ranking of 3 or 4 are dispensed or used, mechanical exhaust ventilation shall be provided to capture fumes, mists or vapors at the point of generation. © When liquids having a hazard ranking of 3 or 4 in accordance with U.F.C. Standard 79-3 are dispensed from tanks or drums, dispensing shall be only by approved pumps taking suction from the top.
431	Labeling	® Containers inadequately labeled. © Provide proper labels for all containers.
432	Flammable Liquids	® Flammable liquids not stored in appropriate safety containers or cabinets. © Provide approved containers and cabinets for storing flammable liquids.

V. Typical Emergency Response Violations

No.	General type	Description
550	ER Equipment	® Failure to test and maintain emergency equipment, or ® Absence of emergency equipment specified in Hazardous Materials Business Plan (HMBP) or Emergency Contingency Plan (ECP). © Perform necessary tests and maintenance of all emergency equipment. © Provide proper emergency equipment or modify HMBP or ECP.
551	ER Procedures	® Failure to post emergency procedures. © Post emergency procedures in an easily accessible location.
552	ER Plan	® Failure to prepare an emergency response plan and emergency procedures in the event of an emergency. © Prepare and maintain an emergency response plan on-site. Note, this is a required component of the Hazardous Materials Business Plan.
553	Training	® Failure to document annual training for all new employees, including refresher training, for all employees in safety procedures. © Provide and document emergency and safety training for all employees.
554	Reportable Discharge	® Failure to report an unauthorized hazardous materials discharge to the Fire Department. © Prepare and submit a report to the Fire Department explaining the cause of the discharge and how future discharges will be prevented.
555	Recordable Discharge	® Failure to document a recordable unauthorized hazardous materials discharge. © Begin documenting all unauthorized recordable discharges.
556	Corrective Action	® Failure to implement all actions necessary to remedy the effects of an unauthorized discharge. © Develop plan and implement proposed remediation actions to prevent future discharges.

Waste Management

Typical Fire Safety Inspection Violations

The following is a list of typical violations often found by inspectors and a generic solution. You can use this list to improve the safety of your facility, to prepare for an upcoming inspection, or to develop your own self inspection program. Note that specific code requirements may vary somewhat from jurisdiction to jurisdiction, so if you have questions or would like to know the specific code sections, please contact your local agency. (The reference number is used to make it easier to identify specific items; it does not refer to a code or ordinance.)

I. Typical Extinguisher Violations

No.	General type	Description
150	Extinguishers	® Insufficient number of fire extinguishers. © Provide xx number of fire extinguishers.
151	Extinguisher Servicing	® Fire Extinguisher not serviced within last 12 months. © Provide annual servicing for all fire extinguishers.
152	Welding Cart	® Welding cart does not have a fire extinguisher. © Provide extinguisher for welding and cutting on or near the oxygen acetylene rack.
153	Fixed Fire System Service	® Failure to service system. © Service fixed system every 6 months or after activation
154	Portable Fire System Service	® Failure to service extinguisher(s). © Service fire extinguisher annually or after use.
155	Spray Booths	® Spray booth or spray room unprotected by an approved automatic fire extinguisher system. © Submit plans to install an approved automatic fire extinguisher system.
156	Spray Booth Residue	® Combustible residue buildup in spraying area. © Remove and properly dispose of combustible residue. Maintain spraying area clean and free from residue buildup.
157	Spray Paint Shut Off Valve	® Missing shut off valve. © Provide shut off valve between paint container and piping.
158	Fume Hoods	® Laboratory fume hoods and spray booths where flammable or hazardous materials are used unprotected by an automatic fire-extinguishing system. © Submit plans to install an approved automatic fire extinguisher system.
159	5-Yr Test	® Failure to provide an automatic sprinkler system in all interior and exterior storage areas, and gas cabinets (see Cabinets on page 259). © Submit plans to provide an automatic sprinkler system.
160	Fire Extinguishing Systems	® Indoor flammable or hazardous materials storage areas and storage buildings unprotected by an automatic fire sprinkler system. © Submit plans to install an approved automatic fire extinguisher system.
161	Heated Plating Baths	® Electroplating, electroless plating, or metal finishing operations using heated baths in unsprinklered buildings. © Submit plans to install an approved fire suppression system

II. Typical Electrical Violations

No.	General type	Description
250	Cover Plates	® Exposed cover plates on electrical junction boxes. © Replace cover plates on electrical boxes.
251	Zip Wiring	® Zip wiring, extension cords, and/or exposed romex wiring observed. © All permanent wiring must be in conduit and installed in accordance with the Electric Code. Fusible power strips are acceptable for some situations.
252	Multi-Plugs	® Multi-plug adapters observed in lieu of permanent wiring. © Multi-plug adapters may be used in temporary installations only.
253	Clearance	® Electrical control panel door blocked or obstructed. © Minimum 30 in. clearance in front of electrical control panel.
254	Motors	® Electrical motor covered with oil, dirt, or other materials. © All electrical motors shall be maintained free of oil, dirt, waste, etc.
255	Wiring	® Improper wiring observed. © Electrical wiring and equipment shall be installed in accordance with the Electrical Code.
256	Standby Power	® Standby power not provided or of insufficient capacity. © Mechanical ventilation, treatment systems, temperature control, alarms, detection systems shall be connected to a secondary source of power to automatically supply electrical power in the event of loss of power.
257	Limit Controls	® Appropriate limit controls absent or malfunctioning. © Liquid level, temperature and pressure limit controls shall be provided and maintained for hazardous materials storage, use and dispensing systems.

III. Typical Exit Violations

No.	General type	Description
300	Obstructions	® Blocked, locked, or obstructed exits observed © Exits shall be clear of storage or obstructions. Exits shall not be blocked.
301	Aisles	® Proper aisles not provided. © Aisle(s) leading to required exits shall be approved and provided for all portions of the building.
302	Exit Doors	® Improper latching devices on exit door(s). © Exit door(s) shall open from the inside without use of key or special knowledge or effort.
303	Self-Closing Doors	® Self-closing door blocked or obstructed. © Remove obstructions or repair self-closing door(s).
304	Horizontal Exit	® Insufficient number of exits for building or portion of building. © A horizontal exit shall not serve as the only exit from a portion of a building when two or more exits are required.
305	Second Exits	® Only one exit observed. © Second exits in garages required if over 1000 sq. ft.
306	Identification	® No visible exit sign. © Exit door identification shall be visible.
307	44-Inch Aisles	® Aisles too narrow or obstructed. © Maintain minimum 44 inch aisle way to exits.

IV. Typical Storage Violations

No.	General type	Description
400	Fire Hazard	® Combustible materials stored improperly. © Remove materials causing a fire hazard.
401	Oil Spill	® Oil spilled on ground or floor. © Clean and properly dispose of all spilled materials.
402	Vehicle Parts	® Improper location of motor vehicles or parts. © Motor vehicles or any part thereof, junk or other waste material shall not be stored or kept in such a manner to hinder or endanger fire fighting operations.
403	Rubbish	® Poor housekeeping. © Accumulations of waste, combustible, or flammable rubbish shall not be permitted to remain in any court, yard, vacant lot, or open space.
404	Cabinets	® Improper cabinets and/or cabinet doors not self closing and self latching. © Provide approved flammable liquid cabinet for all class I, II, and III-A liquids over 10 gal. Cabinets must be self closing and self latching.
405	Electrical Rooms	® Materials observed stored in boiler, mechanical, or electrical room. © No storage in boiler, mechanical, or electrical rooms.
406	Heating Unit	® Materials observed stored adjacent to heating unit. © No storage within three feet of any heating unit.
407	Passageways	® Aisles and passageways blocked or too narrow. © Aisles and passageways shall be provided to allow reasonable access for Fire fighting operations.
408	Gas Cylinders	® Gas cylinders observed without proper securing. © All compressed gas cylinders must be secured to prevent falling with non combustible restraints. Cylinders over 26 inches in height must have two restraints as close as practical to 1/3 and 2/3 of the cylinder's height.
409	Metal Cans	® Oily rags observed collecting in an open container. © All combustible rubbish (oily rags) shall be stored in metal cans with tight lids.
410	Under Stairs	® Combustible materials observed under stairs. © Storage under stairs shall not be permitted unless space is protected or enclosed by one hour wall.
411	Automatic Sprinkler Clearance	® Materials stored too close to sprinkler heads or ceiling. © Maintain an 18-inch clearance below automatic sprinklers, 24 inches below ceiling in non sprinkled buildings.
412	Riser Clearance	® Materials stored too close to riser. © Maintain 3 foot clearance from Sprinkler riser.
413	Outside Storage /Control Areas	® Improper outside storage. © Outside storage shall be no higher than 20 ft. and at least 3 ft. from any wall or fence. © Exterior storage of flammable solids shall not be within 20 feet of any building, property line, street, alley, public way or exit to a public way. © Exterior storage of toxic or highly toxic solids and liquids shall not be within 20 feet of buildings, property lines, streets, alleys, public ways or exits to a public way. © Exterior storage of corrosive liquids shall not be within 20 feet of buildings, property lines, streets, alleys, public ways or exits to a public way.
414	Attic Clearance	® Combustible materials observed in attic area. © Keep attics clear of combustible materials.
415	Spray Areas	® Combustible residue buildup in spray area. © Clean spray areas and maintain free from combustible residue buildup.
416	Spray Paint Dispensing	® No shut off valve provided between container and dispensing piping/tubing. © Provide shut off valve.
417	Guard Posts	® Insufficient protection from vehicles.

		© Guard posts or other means shall be provided to protect exterior storage tanks from vehicular damage. When guard posts are installed, they shall be: • Constructed of steel not less than 4 inches in diameter and concrete filled, • Spaced not more than 4 feet between posts on center, • Set not less than 3 feet deep in a concrete footing not less than 15 inches in diameter, • Set with the top of the posts not less than 3 feet above ground, and • Located not less than 5 feet from the tank. © Guard posts or other means shall be provided to protect exterior dispensing or use areas from vehicular damage.
418	Combustible Clearance	® Combustible materials collected or stored near © The area surrounding an exterior storage/dispensing or use area or tank shall be kept clear of combustible materials and vegetation for a minimum distance of 30 feet.
419	Cryogenic Storage	® Cylinder of cryogenic materials exceeding 1000 pounds water capacity observed inside building. © Cryogenic fluids in individual cylinders, containers or tanks which exceed a water capacity of 1,000 pounds shall not be stored inside of buildings.

V. Typical Miscellaneous Response Violations

No.	General type	Description
550	704 Placarding	® Inadequate placarding provided for building, room, or tank. © Provide 704 placarding.
551	Addresses	® Address missing, numbers are too small, or placed where they are not visible from street. © Approved numbers or addresses shall be placed on all new and existing buildings.
552	Holes in Walls	® Holes observed in walls of building or room. © Holes in walls and all fire resistive construction shall be repaired and maintained.
553	Room Capacity	® Room capacity signs missing or wrong. © Posting of room capacity is required in rooms w/o fixed seating and used as classroom, Assembly Room, or similar use where capacity exceeds 49.
554	Apparatus Access	® Fire access too restricted or obstructed by vehicles or equipment. © Provide a fire apparatus access road minimum 26 feet clear width curb to curb, and 14 feet vertical clearance front to back.
555	Grounding/Bonding	® Inadequate bonding and or grounding for flammable and combustible materials dispensing. © When class I and II liquids are dispensed, adequate grounding and bonding shall be provided to prevent static electricity.
556	Woodworking Shops	® Wood dust has accumulated and created a fire hazard. © Woodworking plants shall be equipped with refuse removal system which will collect and remove sawdust and shavings produced.
557	Ignition	® Personnel observed smoking in unsafe areas. © Smoking shall be prohibited in rooms where hazardous materials are stored or within 25 feet of outdoor storage areas. © Open-flame and other heat-producing equipment shall be located a safe distance from areas where temperature sensitive materials, flammable materials and compressed gases are dispensed, used or handled.
558	Mechanical Ventilation	® Inadequate ventilation for building or storage area. © Indoor storage areas and storage buildings shall be provided with mechanical exhaust ventilation.
559	Venting	® No smoke or heat ventilation provided. © Smoke and heat venting shall be provided.
560	Dispensing	® Improper dispensing of flammable and combustible materials.

		© When liquids having a hazard ranking of 3 or 4 are dispensed from tanks or drums, dispensing shall be only by approved pumps taking suction from the top. © When gases, liquids or solids having a hazard ranking of 3 or 4 are dispensed or used, mechanical exhaust ventilation shall be provided to capture fumes, mists or vapors at the point of generation. © When liquids having a hazard ranking of 3 or 4 in accordance with U.F.C. Standard 79-3 are dispensed from tanks or drums, dispensing shall be only by approved pumps taking suction from the top.
561	Heated Plating Baths	Ⓡ Failure to provide fire protection for heated plating or metal finishing baths. © Submit plans to install an approved fire sprinkler system for the building, or discontinue use of heating elements for plating or metal finishing baths.

Waste Management
Solid Waste Management

Benefits of a Waste Reduction Program

The following is a list and explanation of the benefits of waste reduction.

1. **More Efficient Operations and Reduced Costs**
   Through reduction of waste, the factory improves its efficiency. By practicing waste reduction, the company will purchase, use and throw away less due to cost-effective management. In addition to reduction of raw material costs, office supply expenses and equipment purchases, waste reduction practices will lower solid waste disposal and service costs while potentially generating revenue from recyclable materials. As land for landfills becomes more scarce, disposal costs will increase; by lowering waste production these increased costs can be minimized.

2. **Environmental Protection**
   An extremely important benefit to waste reduction is the protection of the environment. Through these efforts, fewer natural resources are used, pollution caused by extraction and is avoided, and landfill space is conserved.

3. **Enhanced Public Image**
   Waste reduction demonstrates an innovative and forward-thinking approach to environmental management. These efforts display a strong business sense for an environmentally- conscious society. Attempts such as waste reduction programs also show the factory's willingness to comply with legislation.

4. **Improved Worker Morale**
   Often overlooked, a waste reduction program is based on the "buy-in" of the workers. These guidelines give workers an opportunity to participate and help the company save resources and money.

Food Waste Minimization

General Tips:

- ☐ Buy products in bulk to minimize the amount of packaging. However, try to avoid waste through spoilage by purchasing only what you need.
- ☐ Examine the possibility of composting all leftover and off-spec food waste. This can be accomplished by purchasing an in- vessel or standard composter, or giving the produce waste to staff to place in their home units. Use finished compost on-site, or give it to staff or others who may be interested (e.g. customers, local nurseries). If this is not feasible, investigate local markets such as farmers or centralized composting facilities (contact local municipality for a list of viable markets).
- ☐ Purchase products in refillable, reusable or recyclable containers, and ask your suppliers to take back containers.
- ☐ Ensure staff members are aware of and familiar with all company waste reduction programs, policies and objectives. Keep them informed. Set up a staff waste reduction committee.

Kitchen:

- ☐ Set up a system to collect all grease, fat, and possibly meat and bone scraps. Then contract with a rendering facility to pick up the materials for use in the manufacturing of animal feed and tallow.
- ☐ Prepare and cook only what is needed.
- ☐ Sell or give leftover food to staff or food banks.
- ☐ Purchase reusable coffee filters.

Dining Room:
- ☐ Offer smaller portions at a reduced price for those who want them.
- ☐ Discourage the use of straws, paper napkins, and disposable stirring sticks.
- ☐ Provide bulk, refillable containers for cream, sugar, ketchup, mustard, and salt and pepper.
- ☐ Use cleaning rags, not paper towels.
- ☐ Use linen tablecloths and napkins in place of disposable ones.

Office Supplies Minimization

The centerpiece of recycling in office areas is office paper. Every effort should be made to recycle all forms of paper within the production facility. Most types of paper are recyclable including computer printout (colored or blank), white ledger, colored ledger, manila folders, pamphlets, brochures, phone books and newspapers. Paper around the factory that currently cannot be recycled includes glossy paper, paper with food contamination, and blueprint.

Office Paper:
- ☐ Use single-spaced format for the text of documents.
- ☐ Print only what is needed.
- ☐ Use electronic mail for sending and receiving business messages rather then printed memos.
- ☐ Set copiers to print double-sided photocopies automatically.
- ☐ Re-use scrap paper (with printing on one-side) for printing drafts, as scrap paper and/or office note pads.
- ☐ Recycle paper that cannot be re-used.
- ☐ Provide dedicated recycling containers for paper to be recycled to avoid contaminating paper with food.
- ☐ Purchase recycled paper in the office.

Supplies:
- ☐ Reduce the quantity of supplies that are purchased and maintained on hand.
- ☐ Purchase pens and pencils that can be refilled
- ☐ Re-use items such as paper clips and rubber bands
- ☐ Obtain printer and photocopier cartridges from companies that offer recycling programs, whenever possible.

Preventing Storm Water Pollution

Best Management Practices are general (i.e., not operation-specific) measures designed to control, prevent, or minimize exposure of potentially polluting materials to storm water in potential contact zones (such as material- handling areas, loading/ unloading areas, etc.).

Good Housekeeping

- ☐ Good housekeeping practices are designed to maintain a neat, clean, and orderly factory. These are primarily measures to eliminate or reduce exposure of waste materials to precipitation runoff prior to disposal. These practices, when implemented on a routine basis during the course of work activities, minimize storm water contact with potentially polluting materials. Good housekeeping practices at the factory should include the following:
  - ☐ Regular sweeping of the potential contact zone areas (e.g., trash dumpsters, materials storage and handling areas, loading docks and outdoor processing areas)
  - ☐ Regular removal of garbage, trash, unusable equipment, and waste material from the factory grounds
  - ☐ Storing materials away from direct traffic routes and in a manner that provides space for vehicles to maneuver
  - ☐ Controlling material inventories to reduce quantities of materials stored and handled
  - ☐ Routine inspection of potential contact zone areas for leaks or conditions that could lead to discharges of chemicals or fluids
  - ☐ Taking immediate action in the event a significant spill or release is detected, in accordance with established procedures
  - ☐ Properly labeling material packages and containers to show the type and name of material or substance
  - ☐ Staging, storing, or handling materials in areas that discharge to the wastewater treatment factory and not to the storm water drainage system
  - ☐ Maintaining closed lids on dumpsters, other waste containers, and chemical storage containers, whenever practicable
  - ☐ Maintaining dumpsters and other waste containers in good condition

Preventive Maintenance

- ☐ Preventive maintenance should be conducted on structural controls, factory equipment, and vehicles to minimize the potential for materials associated with their operation and maintenance to contact storm water. Preventive maintenance measures at the factory should include the following:
- ☐ Routinely cleaning out catch basins, containments, and control structures
- ☐ Routinely inspecting machinery, equipment, and vehicles used in potential contact zone areas (primarily forklifts) for indications of potential mechanical failures or fluid leakage
- ☐ Routinely inspecting/evaluating/replacing connections, valves, transfer lines, and pipes that carry chemicals and wastes
- ☐ Reporting leaks or potential problems to the appropriate supervisors and promptly scheduling repairs
- ☐ Ensuring equipment is kept well-maintained and in good service

Spill Prevention and Response

The occurrence of spills at the factory should be minimized through proper training of factory personnel, routine inspection and preventive maintenance of factory equipment, and implementation of other best management practices. These practices include the requirement for drums, tanks, and other containers of

chemicals to be stored in protected areas, away from drains, and to be clearly labeled. In addition, hazardous waste containers should be clearly marked to identify contents, storage dates, and special handling and disposal requirements.

- ☐ Particular attention should be paid to the inspection and evaluation of piping systems that carry chemicals and wastes, and the timely repair or replacement of connections, valves, pipes, and appurtenances to prevent releases from these systems. This inspection and evaluation program consists of the following elements:
  - ☐ routine visual inspections of accessible pipes, connections, valves, utility holes, pits, filters, screens, and other parts of the factory's industrial laundry process wastewater transfer system that carries water from process areas to the on-site treatment system;
  - ☐ routine testing to ensure the proper function of controls, sensors, and alarms designed to monitor liquid levels, flow rates, and line pressures, and to alert factory personnel in the event of an upset condition; and
  - ☐ repair, upgrade, or replacement of any wastewater transfer system components observed to be leaking, deteriorated, or otherwise deemed to represent a risk of future leaks or spills (e.g., cracked pipes or valve bodies).

Arrangements may be made with an outside contractor to respond to and remediate hazardous waste spills and significant spills involving non-hazardous substances that cannot be managed solely by factory Spill Response personnel.

Spill kits containing response materials such as absorbent pads, goggles, safety gloves, protective clothing, brooms, and vacuums, should be maintained in accessible locations within or near the potential contact zone.

Inspections
Routine inspections of each potential contact zone should be a part of daily work practices at the factory. The purpose of the routine inspections is to promptly identify and mitigate potential problems that could result in contact of significant materials by storm water.

Monthly inspections should ensure that appropriate materials handling practices are followed, specified best management practices are being implemented and are effective, required spill response equipment is maintained in a state of readiness, and factory equipment is maintained in good working condition. A Monthly Inspection Checklist (found at the end of this Appendix) should be used to document monthly inspections.

Worker Education and Training
Workers whose jobs involve industrial activities with the potential to contact storm water should be trained to perform their work in a manner that prevents contamination of storm water by observing best management practices, such as:

- ☐ Good housekeeping and material management practices, including the proper management and disposal of solvents, other petroleum products, dyes, and other chemicals
- ☐ Spill prevention and response procedures
- ☐ The purpose and correct implementation of best management practices

- ☐ Monitoring and inspection requirements and procedures, including sample collection and handling protocols
- ☐ Record keeping and reporting requirements

In addition, all workers should receive general awareness training, including education on the need to maintain a clean and orderly factory.

Sediment and Erosion Control
Sediment and erosion control measures should include paving and maintaining vegetative cover, mulch, or gravel in unpaved areas.

Structural Improvements
Structural improvements may be used to manage storm water runoff. Examples include:

- ☐ Site grading to direct runoff away from buildings and to segregate runoff generated in areas where industrial activities are conducted (e.g., loading docks) from runoff generated in other site areas such as worker parking lots and office areas
- ☐ Structural controls, such as secondary containments in outdoor industrial areas, that allow storm water to be collected and transported to a wastewater treatment plant
- ☐ A curb-and-gutter system to capture runoff and direct flow to appropriate outfall locations
- ☐ Roofs installed over equipment and storage areas to prevent exposure to precipitation

Structural features such as these are effective in limiting the potential for industrial activities to adversely impact storm water quality.

Record-Keeping
Copies of completed inspection forms, inventories of potentially polluting materials, spill histories, etc., should be retained on file for a minimum of 3 years.

Spill Log

Instructions: This Spill Log should be updated quarterly to record all spills or leaks that occur at the factory in areas exposed to storm water, or document that no spill has taken place. If a spill or leak does occur during a quarter, indicate this by entering "Yes" in the second column from left, and complete all other columns for the spill/leak incident. If no spills or leaks occur during a quarter, please indicate this by entering "No" in the second column from left.

Year &	Did spills or	Incident Date (D/M/Y)	Location	Spill Description		Did spilled material discharge offsite? (yes/No)	Response Description
	(Yes/No)			Type of material	Quantity spilled		Response and prevention measures taken & completion dates
Year							
Q1							
Q2							
Q3							
Q4							
Year							
Q1							
Q2							
Q3							
Q4							
Year							
Q1							
Q2							
Q3							
Q4							

Spill Response Materials

Located	Materials Description	Amount to be stocked Per [illegible]	Check	Amount to be re-stocked	Check
Sample	Goggles, safety gloves, apron, and protective clothing. Face shield, broom, vacuum, mop, and absorbents.	(3) sets of goggles, safety gloves, apron, and protective clothing. (1) of each of the following: face shield, broom, vacuum, mop, and some			

Storm Water: Monthly Inspection List

Instructions

1. Complete inspection of each area in which there is the potential for contact between rain water and hazardous materials. Indicate the area on the top row. N/A indicates that the inspection item is not applicable for the associated area.
2. Explain any failing results on page 2 of this form. Provide a list of required actions necessary to correct the failing result, including responsible personnel and completion dates.
3. Note any other comments or observations from the monthly inspection on next page.

	Area inspected			Area inspected			Area inspected			Area inspected			Area inspected		
Inspection Item :	**Pass**	**Fail**	**N/A**	**Pass**	**Fail**	**N/A**	**Pass**	**Fail**	**N/A**	**Pass**	**Fail**	**N/A**	**Pass**	**Fail**	**N/A**
Floor of storage areas is free of spilled material	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
No unusual odors	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Ground is dry and free of debris or spilled material	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Floor brooms and waste receptacles present / available	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Waste receptacles normally closed and regularly emptied	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Floor / ground free of equipment that should be shelved or otherwise stored	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
No significant leakage from stored vehicles or machinery	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
No leakage from drums, containers, tanks, piping, valves or connections	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Pavement free of significant oil stains and debris	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
All chemical containers and containerized liquids are clearly labeled and stored away from drains	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
All materials packaged or non-friable	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
No storage of unauthorized equipment or materials	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Area is free of spilled material	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Spill Response materials available and fully stocked	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Receptacle containment intact	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Dumpster lid is closed	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
No leakage from dumpster	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Area is free of significant erosion or sedimentation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Structural controls are intact and free of debris (curbs, gutters, catch basins, etc.)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Storm Water: Monthly Inspection List - continued

EXPLAIN FAILING RESULTS AND REQUIRED ACTIONS (specify the associated areas):	RESPONSIBLE PERSON	COMPLETED BY (DATE)	(DATE) COMPLETED

OTHER COMMENTS OR OBSERVATIONS (specify the associated areas):

Aboveground and Underground Storage Tanks
Best Management Practices

Discharge Prevention Procedures for Routine Handling of Products

The factory should implement the following procedures to prevent spills during routine handling of products, such as small-quantity transfers from drums to smaller containers that could result in a discharge:

- ☐ Product-handling personnel are trained in appropriate procedures for safely transferring products between containers and minimizing spills.
- ☐ Product loading and unloading is performed only by trained and authorized personnel.
- ☐ Small-quantity transfers of oil between bulk containers and points of use are accomplished using equipment designed to provide maximum manual control over the amount and rate of product transferred, to avoid minor spills. Such equipment includes hand pumps and dispenser valves/faucets for retrieving products from drums and other portable containers, funnels, and small-diameter hoses or tubing.
- ☐ Oil drums are delivered and collected using a vehicle that is equipped with appropriate equipment for raising and lowering drums from the vehicle to the loading area. Drums and other portable containers are moved individually between locations using only equipment designed for such operations (e.g., forklifts, pallets, drum dollies, hydraulic hoists, loaders, etc.) to avoid dropping or tipping the containers.
- ☐ Product transfers are typically conducted in areas with local containment structures (e.g., secondary containment sheds or drum stands with secondary containment).
- ☐ Drip pans are positioned at points of use to catch drips and overfills.
- ☐ Products are transferred between factory areas in closed containers to avoid splashes and drips.
- ☐ Containers are maintained closed when personnel are not conducting product transfers.
- ☐ Sorbent materials are maintained in product-handling areas for rapid deployment to contain and absorb small quantities of spilled product.

Tank Truck Unloading Procedures

The following procedures are required for tank truck unloading of oil:

- ☐ All tank truck unloading operations will be monitored fulltime by a properly trained factory worker, in addition to the tank truck operator.
- ☐ Tank truck unloading will not be conducted during rain events that produce storm water runoff at the unloading area.
- ☐ Tank truck tires will be chocked after the truck has parked and before fuel or transformer oil unloading begins, to prevent departure of the truck before complete disconnection of transfer lines.
- ☐ An absorbent boom will be placed on the pavement and/ or ground surface, before unloading begins, in a location and position that will provide temporary secondary containment in the event of a spill during fuel or oil unloading.
- ☐ Fuel levels in the factory's aboveground tanks and/or underground tanks will be checked and the volume of fuel to be unloaded from the tank truck determined before filling of the tank(s) begins.
- ☐ Visual displays of fuel level gauges at the tank(s) will be monitored continually during the unloading operation.
- ☐ Fuel hose disconnects will be managed to ensure small amounts of fuel remaining in the hose drain into the overfill reservoirs of the tank(s) (where present) or back to the truck tank.

Before removing wheel chocks from the tank truck, the lowermost drain and all outlets of the tank truck will be inspected for leaks; hoses and valves will be checked to ensure they are tightly secured/closed; and any necessary adjustments will be made.

Underground Storage Tank System—General Guidelines
This document is provided to assist tank owners and operators responsible for maintaining their underground storage tank systems to implement best management practices. By reviewing your factory's conformance with each of these required items, you can improve your working knowledge of your underground tank system and minimize the potential for environmental contamination.

A. Administrative

Leak Detection System:

- ☐ An approved leak-detection monitoring system or program has been installed and is functioning properly.

Written Monitoring Records:
All leak-detection monitoring records are maintained on site, including but not limited to:

- ☐ Maintenance records for the last 3 years (including periodic equipment calibration)
- ☐ Inspection log verifying that the leak-detection system has power and is NOT in alarm
- ☐ Alarm printouts (for electronic leak-detection equipment)
- ☐ Groundwater or vapor well sampling records (if applicable)
- ☐ Inventory reconciliation records

Written Monitoring Procedures:

- ☐ The written leak-detection monitoring procedures have been reviewed to ensure that they include:
  - ☐ Frequency of the leak-detection monitoring
  - ☐ Methods and equipment used to perform the leak detection monitoring
  - ☐ Location of monitoring probes and control (alarm) units

Written Emergency Response Plan:

- ☐ The written emergency response plan has been reviewed to ensure that it includes:
  - ☐ Who to call for equipment service or to investigate alarm conditions
  - ☐ Procedures for notifying the local fire/hazardous materials agency

B. Dispensers

Hoses and Nozzles:

- ☐ Hoses are not crimped or collapsed. Nozzles are product tight.

Leaks/Weeping Joints:

- ☐ Pipes are not leaking. Joints are not weeping.

Containment:

- ☐ The containment or area under the dispensers is kept dry at all times. Fuel filters are carefully removed to avoid spillage into the containment or area under the dispensers.
- ☐ Fittings/Hose Connectors: Fittings and hose connectors are not disconnected.
- ☐ Electrical: Electrical wires are not exposed. There is no open conduit.

Shear Valves:

☐ Shear valves have been installed under dispensers to stop product flow resulting from an accident which damages the dispenser. These valves are inspected periodically to verify that they are functional.

C. Underground Tanks/Piping

Overspill Containment:

☐ Each tank fill opening is equipped with an overspill container of at least 20 liter (~5 gallon) capacity. The container is connected to the tank via a plunger or drain. The container is kept dry at all times.

Overfill Prevention:

☐ To prevent tank overflow during product delivery, each tank is equipped with either:
- ☐ A mechanical "flapper-valve" tube which is inserted inside the product fill tube; or
- ☐ An electronic sensor which alarms when delivered product reaches 95% of the tank capacity.

Manway Sumps:

☐ All manway sumps are maintained in a dry condition. There is no leakage from pipeline detectors or other equipment located inside the sumps. For sumps containing liquid sensors, the sensors are located at the bottom of the sumps.

D. Leak-Detection Equipment

Inspections:

☐ All leak-detection equipment is routinely inspected to verify that:
- ☐ there is power to the equipment; and
- ☐ the equipment is NOT in alarm.

Calibration:

☐ All leak-detection equipment (including pipeline leak detectors) is tested and calibrated at least annually.

E. Miscellaneous

Emergency Shut-Off Switch:

☐ A master Emergency Shut-Off Switch is located in an accessible area within sight of all dispensers. This switch is labeled and is maintained in working condition at all times.

Fire Extinguishers:

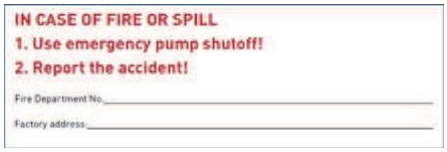
☐ Fire extinguishers with a minimum rating of 2-A:20-B:C are located in accessible areas no further than 23 meters (75 feet) from pumps and dispensers. All extinguishers have been serviced within the last 12 months (verifiable via service tag).

Cathodic Protection:

☐ For steel tank systems, a cathodic protection system is installed to protect tank(s)/piping from rusting and deterioration. The system is inspected every three months.

Signs:

The following signs are provided in the local language: "Smoking Prohibited"; "Dispensing Into Unapproved Containers Is Prohibited"; "Vehicles Must Stop During Fueling Operations"; and:



Guidelines for Testing of Underground Storage Tanks Secondary Containment Systems
These guidelines are applicable to underground storage tank systems (tanks and piping) that store hazardous materials that are liquid at standard temperature and pressure.

A. Test Frequency

- ☐ All secondary containment systems (i.e. tank annular spaces, secondary piping, piping sumps, dispenser containment, etc.) should be tested upon installation, six (6) months after installation, and every 36 months thereafter.
- ☐ **Exception**: Testing is not necessary for secondary containment systems where a continuous monitoring device automatically monitors both the primary and secondary containment, such as systems that are hydrostatically monitored (e.g. brine-filled annular spaces) or under constant vacuum.

B. Test Methods and Procedures

- ☐ All secondary containment testing should be performed by either a qualified tank tester, or if required by local laws, a licensed tank tester.
- ☐ Periodic testing of secondary containment systems should be conducted using a test procedure that demonstrates that the system performs at least as well as it did upon installation. For example, if the secondary containment system was tested upon installation by using a test method that applied a pressure of 0.34 atm (5 psi), then the periodic test must be conducted using a method that tests the system at an equivalent pressure.
- ☐ All testing should be performed in accordance with the secondary containment system manufacturer's guidelines or standards. If there are no manufacturer's guidelines or standards, testing should be performed using an applicable method specified in an industry code or engineering standard. (Note: In the case of pressure/vacuum testing, any loss in pressure/vacuum during the course of the test should be considered a failed test, regardless of the manufacturer or other criteria for declaring a passed test.)
- ☐ Under no circumstances should any primary containment system for flammable or combustible liquids, or secondary containment system holding a potentially explosive atmosphere, be pressurized with air.
- ☐ When a tank manufacturer's installation guidelines/ standards allow a choice between either pressure or vacuum testing of a tank annular space, it is recommended that vacuum testing be performed. If pressure testing is performed, the primary containment should first be pressurized using nitrogen (or another approved inert gas) to a pressure equal to the intended secondary containment test pressure, so as to prevent undue stress to, or structural failure of, primary containment. Pressure should be maintained on the primary containment until pressure is released from the annular space at the conclusion of testing.
- ☐ In cases where water is used for testing of secondary containment systems (e.g. lake testing of sumps), a means should be provided for removing all water at the conclusion of testing. Removed water should be analyzed for contamination by hazardous materials and, if contaminated, properly disposed of at an authorized disposal factory.
- ☐ Water removed from secondary containment systems should not be disposed of to the storm water systems or waterways.

C. Test Notification and Reporting

- ☐ If required by local law, owners/operators of underground storage tanks should notify the local agency prior to conducting testing of secondary containment systems.
- ☐ Test reports should be maintained on file, and submitted to the local government authority, if required by law.

Designated Operator Training Program

Factory Name: _____

Factory Site Address: _____ City: _____

Designated Underground Storage Tank Operators should provide training to factory workers who have responsibilities associated with the operation and/or maintenance of underground storage tank systems. This training should be provided annually. Initial training should be provided within 30 days of the date of hire. At least one of the factory workers present during operating hours should have current training. This should include the following items:

- ☐ Operation of the underground storage tank system in a manner consistent with the factory's best management practices
- ☐ The worker's role with regard to underground storage tank monitoring equipment as specified in the written underground storage tank monitoring plan
- ☐ The worker's role with regard to spills and overfills as specified in the written underground storage tank response plan
- ☐ Name(s) of contact person(s) for emergencies and monitoring equipment alarms
- ☐ For factories that are not routinely staffed, factory worker responsibilities as specified in the training program approved by the local regulatory agency.

Factory Worker Name	Training Date	Hire Date	Trainer Name

Quarterly Inspection Sheet for Site-Owned, Oil-Filled Transformers

	T-1	T-2
Any signs of leakage from transformer surfaces? (Signs might include droplets, drip marks, discoloration)	☐ Yes ☐ No	☐ Yes ☐ No
If yes, describe.	**Recommended Action**	**Date of Implementation**
Any readily visible signs of damage or deterioration of secondary containment? (Signs might include cracks, discoloration)	☐ Yes ☐ No	☐ Yes ☐ No
If yes, describe.	**Recommended Action**	**Date of Implementation**

Additional notes:

_____
_____
_____
_____
_____
_____
_____
_____

Discharge Report Form

Name of Person Making Report :		
Organization : Name & Address Phone No.		
Date of Spill :	Time of Spill :	Material spilled :
Quantity of Spill :		Spill Source :
Location of Spill :		
Person/Organization Discovering the Spill:		
Surface Water Impacted :		Supply Wells Impacted :
1. Did material reach a storm drain or waterway? (If yes, indicate amount)		
2. Cause and circumstances of spill:		
3. Method used to stop spill:		
4. Method used to remove spilled material:		
5. Method used to mitigate effects of discharge:		
6. Method and location of absorbent material or device disposal:		
7. Were any damages or injuries caused by the spill? Was evacuation needed?		
8. Individuals and/or organizations contacted:		
Individual / Organization, Phone #		Date and Time Contacted
9. Time spill originated:		Time spill clean-up completed:
10. Unusual circumstances or pertinent data:		
Signature of person making report:		Date :

Glossary

Aerobic Treatment: A treatment method for wastewater in which the water is aerated to provide oxygen for the microorganisms to convert organic carbon to CO and new cells. This is a very common treatment for wastewater.

Agent: In LS&Co. the term "agent" has 2 meanings:

> If used when referring to the hiring of workers, agents are organizations or individuals who supply workers for factories. These organizations/individuals can be linked to the government in a country or can be independent. Usually the agent is paid a fee to provide a guaranteed number of workers. Often, the workers' labor contracts are with the agent, rather than the supplier who uses the workers. These (hiring) agents are sometimes called Labor Recruitment Services.
> TOE problems can arise if the hiring Agent's contract with the workers does not meet TOE requirements (e.g. minimum wage, maximum 60 hours per week).
>
> If used in a sourcing relationship, agent refers to a legal relationship between LS&Co. and an external sourcing organization. The sourcing agent has the legal authority to place production with suppliers for LS&Co. (or the division or brands that have entered into the relationship). Often it is the agent's responsibility to select the supplier, quality control the goods and deliver the products on time to the chosen LS&Co. destination. Sourcing agents tend to be used in remote parts of the world, where sourcing requires specialized local knowledge or for unique items that are only available from a few suppliers.
>
> TOE problems can arise if the sourcing agent is not aware of the TOE requirements and/or the need to TOE assess the suppliers before production is placed with them.

Annual Assessment: The yearly TOE assessment that follows the Initial Assessment in an active supplier.

Applicable Laws and Regulations: Governing laws, regulations, and authorized agency guidance in both the Sending Country and Receiving Countries.

Aquifer: The underground layer of water-soaked sand and rock that acts as a water source for a well.

Asbestos: Naturally occurring mineral which separates into long thread-like fibers; which does not burn, does not conduct heat or electricity and are resistant to chemicals. Materials that might contain asbestos include: fire-proof clothing, piping insulation, and sprayed-on ceiling texture.

Asbestos-Containing Material (ACM): Any material containing more than 1% asbestos.

Analytical Report: A laboratory-generated document containing the results of analyses carried out on wastewater samples, along with other pertinent information relating to the sampling/ analysis exercise.

Ballast (Electrical Light Ballast): A component of a fluorescent light fixture that may contain polychlorinated biphenyls ("PCBs"). Usually applies only to ballasts manufactured before 1978.

Benefits: Compensation paid to employees in addition to remuneration (wage/salary). Benefits can be classified as legal when stipulated by labor or federal agencies such as overtime, holiday or vacation pay. Companies can also provide voluntary benefits, which are not required by law, such as tuition reimbursement or food baskets.

Berm Walls: See Secondary Containment.

Bonded Labor (or Bondage): An illegal practice in which employers give high-interest loans to workers who either individually or as an entire family then labor at low wages to pay off the debt.

Biochemical Oxygen Demand (BOD): This is the measure of the organic polluting strength of wastewater. The BOD is determined by measuring the oxygen used by microorganisms in the biochemical oxidation of the organic matter, in a given volume of waste or natural water. Reported as milligram oxygen per liter (mg/l), essentially equivalent to parts per million (ppm) by weight in the case of liquid water.

Biodegradability: The susceptibility of a substance to decomposition by living organisms, mainly microorganisms. Biological Oxygen Demand5 or BOD5: An indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria.

Broker: A person who is contracted by an employer to recruit workers from the country of origin. Also known as a 'labor agent'.

Bunding/Bund Walls: See Secondary Containment.

Chemicals: "Chemicals" is a common term that describes many different solids, liquids and gases that are used to produce specific effects on other substances. For the purposes of a TOE assessment, "chemicals" include substances that may be present in all facilities such as paint, oil, degreasers, spot removers and solvents. It also includes specialist laundry and dyeing chemicals used in wet finishing facilities and mills, such as detergents, softeners, surfactants, oxidizers and bleaching agents. TOE requires that all chemicals at a facility site have Material Safety Data Sheets.

Bypass: An intentional diversion of wastewater from the collection system or wastewater treatment plant.

Child Labor: The employment of workers under 15 years of age, or below the minimum work age required by law, if such age is above 15.

CI: See Continuous Improvement Item.

COD (Chemical Oxygen Demand): A measure of the polluting strength of wastewater (especially industrial effluents). COD is determined by measuring the oxygen used by a strong oxidizing agent to chemically oxidize the organic matter in a given volume of waste or natural water. Normally COD is higher than BOD is, as more inorganic and organic substances can be oxidized chemically than biologically. Reported like BOD, as mg/l.

Code of Conduct: The internationally applied name for company work place standards such as the LS&Co. Terms of Engagement.

Coercive Behavior: Any behavior that threatens or pressures individuals to work against their will. This can be direct or indirect.

Collective Bargaining: Negotiations between an employer and a group of employees that determine the conditions of employment. The result of collective bargaining procedure is called the collective (bargaining) agreement. Often employees are represented in the bargaining by a trade union or other labor organization.

Collective (Bargaining) Agreement: An agreement negotiated between a group of employees (often a trade union) and an employer that sets forth the terms of employment for the employees who are members of that group of employees. This type of agreement may include provisions regarding wages, vacation time, working hours, working conditions, and health insurance benefits.

Combustible Liquid: Any liquid having a flash point at or above 37.8° Celsius.

Community Involvement: Activity (usually philanthropic) conducted by a company within the community in which the company or in which its employees reside. Examples include supporting children's athletic leagues, providing construction materials for schools, financial contributions for emergency relief, etc.

Compliance: Following or meeting the obligations of a rule, agreement or guideline.

Composite Sample: A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be a "time-composite" (collected at constant time intervals) or "flow- proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each grab sample as the flow increases, while maintaining a constant time interval between the grab samples).

Continuous Improvement Item: Labor, health & safety, and environmental issues that can be improved in the factory for the well being of workers and/or betterment of its reputation or management practice. Production can be placed in proposed suppliers with CI issues. For proposed and existing suppliers with CI issues, a reasonable corrective action plan can be proposed over a 6 month period.
Examples of CI include operating permits (if company has already applied for them), establishment of company policies on hiring practices, etc., records documentation, health & safety issues such as PPE, chemical storage, first aid, machine guarding, signage, etc.

Contract Workers: Workers who are hired for a specific period of time to conduct a certain kind of work as described and agreed to on the basis of a contract. In some parts of the world contract workers are taken into a second country under a labor contract that may not provide the workers with the same rights as the local workers. For example, the contract may prohibit the worker from quitting his/her job and seeking work at another facility.

Contractor: Supplier, factory, vendors or any person or entity that provides goods and services to the Brand or to another person or entity for use in the Brand's products.

Corrosive: Corrosive materials are acidic or basic materials that are capable of corroding metal such as tanks, containers, drums, and barrels.

Corporal Punishment: Any disciplinary practice that involves bodily contact or harm, or the threat of bodily harm.

Country Assessment: The Country Assessment is one part of LS&Co.'s Global Sourcing and Operations Guidelines. The country assessment evaluates a country's sourcing potential based on the general conditions found in that country for the following issues: Health and Safety; Political Conditions; Economic Conditions; and Social Conditions. LS&Co. Government Affairs and Public Policy is responsible for developing Country Assessments and making recommendations to the business. Recommendations are based on criteria that assess whether the desired sourcing country has met LS&Co.'s requirements.

CPR: Cardiopulmonary Resuscitation. A first aid technique used to start a person's heart beating again after the heart has stopped beating due to accident or illness. CPR is a specific technique that requires proper training.

Decibel (dB): Unit of measure used to evaluate noise level of equipment or machinery during use. Acceptable noise levels should not exceed 85 decibels during an eight hour (or longer) work period.

Detection Limit: The minimum concentration of a substance that can be measured and reported with 99% confidence that the parameter concentration is above zero and is determined from analysis of a sample in a given matrix containing the parameter.

Disciplinary Practice: Actions used by managers or supervisors to change the behavior of employees.

Discrimination: Practices that use religion, sex, ethnicity or national origin, disability, political affiliation, social status, sexual orientation, actual or perceived HIV status or legal migrant worker status as a basis for hiring, compensation, promotion, termination and retirement practices and access to training and not a person's ability to perform a job.

Domestic Worker: An individual whose nationality/country of origin is the same as that of the country in which Supplier's facility is located.

Ecolabels: Official or unofficial marks of ecological or environmental approval.

Egress: Means of exit out of a building or area.

Electrical Light Ballast: See Ballast.

Emergency Alarm: System used to identify or warn of emergency within a work site. The system can utilize electrical or manual warning devices.

Engineering Report: A report produced and signed by a professional licensed engineer, which thoroughly examines the technical, engineering and administrative aspects of a wastewater treatment plant.

Environment: Surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation.

Ergonomic Assessment: Review of the worker and his/ her working environment that determines the frequency of repetitive actions and identifies hazards of specific workplace conditions. The areas of ergonomics are such tasks as computer data entry or sew, press or cut fabrics.

Export Processing Zones (EPZs): Free Trade Zones (FTZs) or Qualified Industrial Zones (QIZs) are government approved industrial areas that are exempt from some (or all) of the normal commercial laws of the country that they are in. Sometimes the country's minimum wage laws and/or other labor laws do not apply to workers in these zones.

External Monitor: A third-party hired by LS&Co. or one of LS&Co.'s business partners to conduct TOE assessments, in place of an internal TOE assessor.

Facility Headquarters: The registered office of the company that owns the facility that is being TOE assessed.

Facility Site: The specific factory that is being TOE assessed, including workplaces and all facility land, structures and other improvements on the land owned or leased by the facility.

First Aid: Emergency treatment for injury or sudden illness administered before regular medical care is available.

Flammable: Capable of being easily ignited and of burning with extreme rapidity. Examples include liquids, such as solvents and fuels that readily catch fire when exposed to a spark or flame.

Flammable Liquid: Any liquid having a flash point below 37.8° Celsius, except any mixture having components with flash points of 37.8° Celsius or higher, the total of which make up 99 percent or more of the total volume of the mixture.

Flash Point: The lowest temperature of a liquid at which it gives off enough vapor to form an ignitable mixture with air near the surface of the liquid with the storage container open.

Follow Up Assessment: The assessment that usually follows an initial or annual TOE assessment. The TOE assessor conducts a follow up assessment if the factory had corrective actions to make based on discoveries in the initial or annual assessment.

Foot Candle: A unit for measuring illumination; it is equal to the amount of direct light thrown by one international candle on a square foot of surface every part of which is one foot away.

Forced Labor: Any arrangement in which workers are forced to work against their will or do not have the choice to leave their working arrangement when they choose.

Freedom of Association (FoA): Freedom of association is often referred to in the context of forming, or joining a workers trade union. Joining a union is an example of people exercising their right to freely associate, however FoA is not limited to trade union activities. FoA means that people should be able to form any type of organization or join any type of organization, without persecution or hindrance from the government or other people (such as their employer). Some governments place legal restrictions on what

type of organizations can be formed under the right to freely associate e.g., a common restriction is preventing the formation of an organization for criminal purposes.

Friable: Material that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. This includes non-friable materials that, during the course of renovation or other activities, can become "friable".

Global Sourcing and Operating Guidelines (GSOG): The LS&Co. requirements that are applied to every contractor or supplier that manufactures or finishes product for LS&Co. The GSOG have 2 parts: the Country Assessment Guidelines and our Terms of Engagement.

Global Warming: The increasing temperature of the atmosphere due (principally) to the burning of fossil fuels like coal, gas and oil in power stations and vehicles.

Grab Sample: A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Groundwater: The supply of freshwater found below the Earth's surface (usually in aquifers) which is also used for supplying wells and springs.

GSOG: See Global Sourcing and Operating Guidelines.

Hazardous Labor: Labor or work that places the worker in physical or psychological harm; requires the use of dangerous machinery; places the individual in unhealthy environment due to the materials used; or places the worker in difficult physical conditions. (Review the section on Child Labor for the definitions of hazardous work in regards to young workers.)

Hazardous Waste: Waste that poses a risk to human health or the environment and requires special disposal techniques to make it harmless or less dangerous. These wastes may be regulated by national or international guidelines. A waste may be considered hazardous if it is ignitable (i.e., burns readily), corrosive, or reactive (e.g., explosive). Waste may also be considered hazardous if it contains certain amounts of toxic chemicals. Hazardous waste takes many physical forms and may be solid, semi-solid, or even liquid.

Hiring Agent: See Agent.

IA: See Immediate Action Item.

Illegal Activity: Engaging in activity which is against established law. Examples of illegal activity or behavior: keeping two sets of payroll documents in order to defraud the local government on payroll taxes; or management willfully ignores the law in contractual agreements; or company willfully ignores legal judgments in a lawsuit.

Immediate Action Item: Breach of Terms of Engagement that results in negative impact to individual rights and life safety and/or LS&Co.'s corporate reputation. Production cannot be placed in proposed suppliers with IA violations. For existing suppliers with an IA, the violation must be remediated fully (e.g., underpaid wages must be repaid) and within a maximum period of 2 months, or the issue becomes a ZT. Some IA violations may require a remediation period of less than 2 months.

Examples of IA include excessive working hours, non-payment of overtime premiums or contracted wages, non-provision of required government benefits, documentation on important labor issues such as age, hours, wages; proper disciplinary processes, discrimination, infringements on freedom of association, violations of local law, non-functioning water treatment facility, life safety violations (emergency exits, fire prevention).

Incompatible materials: When certain materials are mixed together and produce a reaction such as a fire or explosion. Incompatible materials should be physically separated in the storage area.

Indentured Labor: Work, performed by an individual contractually bound to an employer for a specific time period, which is usually in return for payment of travel and living expenses. Indentured laborers may work on behalf of another person's debt. For example, a child who works as an indentured laborer to pay off a parent's debt.

Independent Evaluation: The use of an independent, third party to evaluate specific activities, behavior or facilities.

Independent Monitoring: A program or system in which an independent, third-party organization assumes the responsibility for monitoring specific activities, behavior or facilities.

Indicator: Something used to show the existence of a particular activity, behavior, substance or state of being.

Industrial Wastewater: Water or liquid-carried waste from wet processing of apparel.

Initial Assessment: First TOE assessment conducted at a specific facility site.

Labor Recruitment Services: See (Hiring) Agent.

Leachate: Liquid from waste dumps (landfill sites) which forms when rainfall, or other water, drains through the site and picks up polluting materials.

Licensee: LS&Co. has 2 types of licensee—Country Licensee and Product Licensee.

> Country licensees include all persons or entities that have a written Licensing Agreement with LS&Co. (or its divisions or brands) to manufacture and sell products bearing the name, trademarks and/or images of LS&Co., within a specified country.
> Product licensees include all persons or entities that have a written Licensing Agreement with LS&Co. (or its divisions or brands) to manufacture specified products bearing the name, trademarks and/or images of LS&Co.

Local Limits: Specific limits on pollutant parameters developed by local country legislation, regional or municipal authorities.

Lock Out/Tag Out: Procedures designed to prevent accidental release on an electrical, pneumatic, hydraulic or any mechanical equipment; the machinery is "locked" or "tagged" to prevent it from operating.

Lux: Unit of illumination, equal to one lumen per square meter or to the illumination of a surface uniformly one meter distant from a point of source of one candle.

Machine Guard: A machine guard is a device designed to protect workers from points of operations, revolving and rotating parts, live electrical contacts, and other parts of machines and operations.

Material Safety Data Sheet ("MSDS"): Provides detailed information on each hazardous chemical contained in a chemical product, including the proportion of each chemical, and the potential hazardous effects, physical and chemical characteristics, and recommendations for appropriate human protective measures. An MSDS does not identify whether a material is a hazardous waste.

Mental Coercion: The act of restraining or dominating by nullifying individual will. Examples include humiliation, insults, peer pressure or social intimidation.

Migrant Worker, Migrant: A person who is to be engaged, is engaged or has been engaged in a remunerated activity in a State of which he or she is not a national.

Monthly Net Wages: The amount equivalent to one month's expected wages for the Worker including anticipated overtime hours. This monthly amount shall not exceed the amount of wages based on a 60-hour workweek, including regular and overtime hours after deductions.

MSDS: See Material Safety Data Sheet.

NGO: See Non-Governmental Organization.

Non-compliance: Violation or failing to follow the obligations of a rule, agreement or guidelines.

Non-friable: Material that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Non-Governmental Organization (NGO): An organization that is neither a private or public business, nor a government entity. These organizations take many forms and have a variety of missions. Often, NGOs must meet certain legal requirements and be registered with the government to be officially recognized as an NGO. Sometimes, but not always, the NGO is also a "not for profit" organization.

Not for Profit: Organizations which provide services or review/assessment without generating revenues but receive monies from grants issued by public groups, corporations or government agencies. Examples of not for profit organizations: Save the Children, Amnesty International, OXFAM. (See NGO)

On-Premise Supplier: Workers on a facility site that are engaged in the daily work of the factory but are on the pay role of another organization, such as a hiring agent. Examples of common on- premise suppliers are Cleaners and Security Guards.

Overall Rating: When all the sections of the TOE questionnaire have been completed and all the Section ratings have been assigned, the overall rating is given as the most serious of the Section ratings (e.g., ZT is more serious than IA).

Overtime Premium: This is a wage paid above the normal daily or hourly wage to compensate for time worked beyond the normal working schedule. This premium should be described in a country's labor laws.

Oxidation: The addition of oxygen, removal of hydrogen, or the removal of electrons from an elements or compound. In wastewater treatment, organic matter is oxidized to more stable substances.

Oxidizer: A substance that gains electrons in a chemical reaction. Oxidizers are generally recognizable by their structures or names. They tend to have oxygen in their structures and often release oxygen as a result of thermal decomposition. Oxidizers often have prefixes (peroxides) and often end in "ate" (nitrate).

PCB: See Poly-Chlorinated Bi-phenyl.

Personal Protection Equipment (PPE): Safety equipment worn by employees to protect against physical hazards. Examples of PPE: eyewear, face shields, ear plugs, hard hats, gloves, foot protection.

pH: An expression of the intensity of the basic or acid condition of a liquid. Mathematically, pH is the logarithm (base 10) of the reciprocal of the hydrogen ion condition. An exactly neutral solution has a pH value of 7.0.

Physical Coercion: Physically restraining or dominating by nullifying individual will. This may be in the form of physical actions or threats of bodily harm.

Poly-Chlorinated Bi-phenyls (PCBs): Exposure to PCBs can cause adverse health effects. PCBs are chemicals manufactured for a variety of industrial uses. PCBs are usually clear or yellow oils and exhibit excellent electrical insulating and fire-resistant properties. Primary uses include: Electrical light Ballast insulators; Electrical insulating fluids found in common electrical equipment such as transformers, capacitors, electromagnets, etc; Heat transfer fluids found in many heat exchangers. PCBs belong to a broad family of organic chemicals called chlorinated hydrocarbons. There are over 200 different PCB compounds that are classified according to their chlorine content.

Pre-Treatment: Any wastewater treatment process which takes place on site prior to the discharge of the wastewater to the municipal sewers leading to the POTW, usually consisting of screening and sludge conditioning and dewatering.

Prison Labor: Arrangements in which prisoners are used as part of the work force. Under prison labor arrangements, prisoners may be brought to the facility, or the production may occur in the prison facilities. Although prisoners may be paid, because they often have no choice to refuse the work, this is often a kind of forced labor.

Publicly Owned Treatment Works (POTW): Publicly owned systems for treating liquid municipal sewage and industrial waste. May also be referred to as wastewater treatment plants and/or waste pollution control plants.

Quality Assurance: A series of planned, routine activities which a laboratory carries out to ensure that a product or service complies with the specified quality requirements.

Quality Control: A series of operating methods and activities which are used to satisfy compliance with the established quality requirements.

Reactive: Materials that are unstable when they come in contact with air and water. They can create explosions and/or toxic fumes, gases, and vapors when mixed with water or air. Some reactive materials are often referred to as oxidizers.

Receiving Country: A State where the migrant worker is to be engaged, is engaged or has been engaged in a remunerated activity at the contractor's facility.

Recruitment: The engagement of a person in one territory on behalf of an employer in another territory, or the giving of an undertaking to a person in one territory to provide him with employment in another territory, including the seeking for and selection of would-be emigrants and the preparation for departure of the emigrants.

Recruitment Agencies: A fee-charging employment agency that carries out, under contract, and in exchange for financial compensation, operations on behalf of the Contractor, to ease or speed up access to employment procurement or career progression by filling a vacancy.

Rules of Origin: Rules referring to governmental requirements for properly labeling products with the "Made in (country)" statement. Where garment production begins in one country, is finished in a second country and returned to the first country for packing and shipment, the Rules of Origin can be complex. Often Export Processing Zones (EPZs) have special rules that allow them to make garments with another country's "Made in . . . " label.

Secondary Containment: Apparatus installed around storage devices, such as tanks or containers, to prevent wastes or accumulated liquids from leaking into the soil, groundwater or surface water by capturing any leaks. Secondary containment devices include double-walls, liners, vaults, spill baths, Bund(ing) or Berms. Sometimes secondary containment is an area that is sloped to drain into a sump or holding area where materials are collected.

Sending Country: The country of which the migrant worker is a national; country of origin.

Seniority (Tenure): A privileged status attained by length of continuous service at a company.

Sludge: Sludge is a term used to describe solids that are removed from wastewater after treatment. Sludge is a slurry of solids and liquid and may be thought of as one of three types: raw, biological or chemical.

Solids: The matter that remains a residue upon evaporation and drying at 103° to 105°C.

Solvent: A liquid that is used to dissolve active ingredients in a product.

Sourcing Agent: See Agent.

Spill: When a chemical product, waste or material is released from its proper container into an area where it was not intended to be.

Standard: A technical document stating the accepted rules for conducting a specific analytical test.

State Entities: Agencies or organizations that are sponsored or managed by the government and/or act on behalf of the government.

Stormwater: Rainwater and other runoff from natural storms. Storm water discharge associated with industrial activity is sometimes regulated when the storm water has contacted manufacturing, processing or raw material storage areas at an industrial plant and which is discharged to the environment.

Sub-Contracting/Subcontractor: When a supplier or contractor of LS&Co. pays another company to do the work that LS&Co. has paid the primary supplier/contractor to provide, this is sub contracting. For example, a tops supplier agrees to deliver 10,000 woven tops, but does not have the capacity to make these tops for the agreed delivery date. The supplier sub-contracts with another tops manufacturer to make 5000 tops so that the supplier can make the LS&Co. delivery date. Another example of subcontracting is when a supplier cuts the fabric pieces for a garment and then sub- contracts the sewing of the garment to another company. The sewn garment is then returned to the original supplier for packing and shipment. LS&Co. does not allow sub-contracting without prior TOE approval. The LS&Co. Terms of Engagement apply to sub-contractors.

Supplier: A company, individual or organization that supplies goods or services to LS&Co. (see contractor).

Terms of Engagement (TOE): The LS&Co. Business Partner Terms of Engagement are part of the LS&Co. Global Sourcing and Operating Guidelines (GSOG) that apply to individual companies that supply LS&Co. These guidelines deal with issues that are substantially controllable by the individual business owners, e.g., workplace conditions and hiring practices. The other part of the GSOG is the Country Assessment Guidelines.

TOE: See Terms of Engagement.

TOE Questionnaire: The document that is completed during the Terms of Engagement assessment. From the information gathered on this questionnaire, the TOE rating for the facility is determined.

Total Solids: The combined total of dissolved solids and suspended solids.

Total Suspended Solids (TSS): Particulate matter contained in a water or wastewater samples.

Toxic: Materials are harmful or fatal when ingested or absorbed into the body. Another term that means the same or similar thing is “poisonous.”

Verification Assessment: An assessment that takes place in addition to the Annual Assessment, with the aim of verifying that the information in the TOE report accurately represents the conditions in the factory assessed.

Wages: Monetary compensation (money) paid to workers for producing goods or providing services.

Waste Water: Process water that contains chemicals or additives generated throughout manufacturing processes.

Zero Tolerance Violation (ZT): Serious breach of Terms of Engagement that results in severe impact to individual rights, life safety and/or LS&Co.'s corporate reputation. Production cannot be placed in proposed suppliers with ZT violations confirmed by more than one source of information. For existing suppliers with a ZT confirmed by more than one source of information, LS&Co.'s approach is to work with existing suppliers to remediate ZT violations immediately and exit only in circumstances when a supplier is unwilling to remediate or does not have the capability to remediate.

Examples of ZT include underage workers, forced labor, corporal punishment, violation of ethical standards (falsification of records, unauthorized subcontracting, or failure to provide access to records or workers), failure to complete ZT or IA corrective actions within the agreed upon timeframe

Acknowledgements:
Image on page 137: Created by Nensuria - Freepik.com
Icons used on page 8 and throughout from the Noun Project: Gathering Point by Fatahillah, Presentation by Jesus Puertas, Eco factory by Eucalyp, Diagnostic Review by Yogesh More, Eye by Josy Dom Alexis