



Levi Strauss & Co.

Environment, Health and Safety Handbook



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Purpose of Handbook

Levi Strauss & Co. has prepared this Environment, Health and Safety (EHS) Handbook to help our business partners meet the EHS requirements listed in Chapters 11 and 12 of our Terms of Engagement Guidebook. As the following example demonstrates, meeting our TOE requirements is no less important than meeting our quality standards or delivery time.

Importance of meeting TOE Requirements

One of our TOE requirements for Health and Safety focuses on emergency preparedness. Several years ago, one of our factories in central Mexico installed additional emergency exits and conducted evacuation drills to comply with this requirement. Four months later, a massive earthquake occurred. The factory's recent efforts to fulfill TOE requirements ensured that its 800 employees were able to evacuate quickly and safely. As you can see, careful attention to meeting our requirements is critical to providing a safe and health working environment for your employees.

Using the Handbook

We have prepared this Handbook to help you meet Levi Strauss & Co.'s EHS requirements, but we do not herein identify all circumstances which might constitute "findings" in a TOE Assessment. Rather, we address topics which are of particular importance. Each business partner must make a careful assessment of each of its workplaces to determine what measures it needs to put in place to meet our requirements, and, of course, the requirements of the countries where it operates. To help our partners with this site-specific analysis, we not only include specific information in this Handbook, but we also identify where additional information may be found regarding each TOE requirement.

Each of the EHS topics in the Handbook is organized into 4 sections: Application, Purpose, TOE Requirements, and Implementation of TOE Requirements. **Please note that LS&CO. will hold its business partners accountable for those items identified as "TOE Requirements" only.** The sections labeled "Implementation of TOE Requirements" provide examples of ways to comply with the TOE requirements. These sections close with a "Plan-Do-Check-Act" cycle, illustrating a sample strategy for implementing a specific EHS program—for example, emergency

preparedness, electrical safety, etc. This strategy will help business partners integrate their EHS programs into an EHS management system.

Finally, **we encourage our business partners to pay close attention to the documentation and record keeping requirements.** LS&CO. TOE Assessors rely on written records to verify that business partners meet TOE requirements such as: having established EHS procedures, conducting regular inspections, and training workers.

TOE Ratings Defined

Zero Tolerance Violation

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 endeavor to limit exit to circumstances when a supplier is unwilling to remediate or does not have the capability to remediate.

Examples of ZT violations 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), and failure to complete ZT or IA corrective actions within the agreed upon time frame.

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.

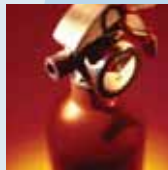
Examples of IA items include excessive working hours, non-payment of overtime premiums or contracted wages, non-provision of required government benefits, documentation on important labor issues such as age, hours, wages; proper disciplinary processes, discrimination, infringements on freedom of association,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

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 the factory's 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 items include operating permits (if company has already applied for them), establishment of company policies on hiring practices, etc., records documentation, establishment of safety committees, and review of purchases of new building materials to ensure they don't contain asbestos.

SECTION I:
Safety Guidelines



A. SAFETY COMMITTEE





Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

Safety committees can identify and correct factory health and safety issues, increase safety awareness, and improve workers' job satisfaction. The purpose of this section is to describe the requirements for having a well-run and effective safety committee.

TOE Requirements

1.  Factories must have active safety committees.
2.  Safety committees must meet at least once per month, and more often if needed.
3.  Safety committees must include management representatives, workers from various factory operations, and union representatives (if the factory has a union).
4.  A written record of the safety committee meetings must be agreed upon by the committee leaders, posted in a workplace location for factory workers to read, and kept on file for a minimum of five (5) years.

Implementation of TOE REQUIREMENTS

Training, Rules, and Record Keeping

- Safety committee members should be trained to:
 - Investigate accidents and other health and safety events at the factory.
 - Conduct inspections and recognize hazards (see Risk Assessment section).
 - Identify and evaluate health and safety trends.
 - Use health and safety resources within the factory or community.
- A management representative and a factory worker should be chosen as leaders. The leaders should plan the agenda prior to the meeting.
- The safety committee should agree on rules to run the meetings effectively.

Hazard Assessment

- A safety committee member should be involved in all accident and event investigations.
- Safety committees should review accident or event reports to make sure actions are taken to correct hazards and to avoid a similar event in the future. (Note: the privacy of the person(s) involved in the accident or event should be respected.)

- Safety committees should thoroughly inspect the factory once per month and record the results. (See Risk Assessment, Aisles and Exits, and Housekeeping sections.)
- Safety committees should be able to use factory health and safety data to analyze accident and event trends. This will help safety committees focus on activities to better control hazards.

Hazard Controls

- Once they have identified hazards in a factory inspection, safety committees should prioritize actions to correct these hazards as soon as possible. Safety committees should follow up on the corrective actions until they have been completed.
- Health and safety resources should be made available to safety committees, including:
 - Website link for EU: <http://europe.osha.eu.int/info>
 - Website link for U.S. OSHA: <http://www.osha.gov/>
 - The LS&CO. Environmental, Safety and Health Handbook

Program Strategy for Safety Committee



Further Information

- See Appendix

B. RISK ASSESSMENT


Application

This information applies to all factories that manufacture and finish products for Levi Strauss & Co.

Purpose

The purpose of this section is to identify all hazards within the workplace which could reasonably be expected to cause harm and to assess the risks presented by those hazards. Hazards include, but are not limited to, those which are the subject of the other sections of the *EHS Handbook*.

TOE Requirements

1.  Factories must have a procedure for identifying workplace hazards and assessing their risks.

Implementation of TOE Requirements

Training, Rules, and Record Keeping

- Individuals or teams should be trained to identify hazards, assess their risks, and evaluate the effectiveness of control measures.
- Risk assessments should be recorded in writing and made available to factory workers.

Hazard Assessment

- Individuals responsible for risk assessment should tour the entire factory, looking for operations or work practices that could harm workers or the environment. The EHS Handbook sections should be used as a guide for the types of hazards to look for, but those touring the factory should look for hazards that may not be covered by the Handbook, as well.
- Before the tour, review Material Safety Data Sheets and worker accident and injury records. During the tour, ask workers to help identify workplace hazards. Focus on hazards that could result in significant harm, such as flammable materials, unguarded moving machinery parts, lack of fall protection railings (where needed), pressurized systems, chemicals without labels, chemical containers that lack secondary containment, damaged electrical wiring, fumes, extreme temperatures or noise, and high-speed ejection of material.

- Determine who may be harmed by these hazards and how. Assess the risk by evaluating (a) the severity of the harm that may be caused and (b) the likelihood that an event that results in that harm will occur. For example, consider workers on an elevated platform without fall protection railings. What's the worst harm that might result? (Broken bones, even death.) How likely is it that an event resulting in broken bones or death might occur? (This is a serious risk and action should be taken immediately to install fall protection railings!)

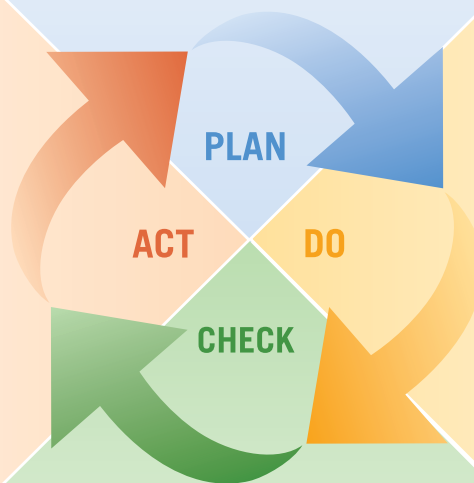
Hazard Control

- The risk assessors should evaluate the existing precautions for the hazards identified in the tour. Are they adequate? Can the risk be eliminated or reduced by taking additional action?
- Prepare a report, summarizing the hazards identified, the assessment of risks, and any recommendations for new risk control measures. Factories must make sure this report is available for workers to read.
- Make sure to do the hazard tour and risk assessment each year or whenever there have been significant changes to factory operations.

Program Strategy for Risk Assessments

- Prepare procedure for identifying hazards and assessing risks at factory.
- Train Safety Committee members and anyone responsible for using this procedure.

- Safety Committee makes changes to procedure to respond to feedback and improve performance.



- Individuals/groups identify hazards, conduct risk assessments using the procedure.
- Make recommendations for corrective actions, prepare report.
- Conduct hazard tour and risk assessment at least every year and whenever significant changes occur.

- Safety Committee and factory management periodically review effectiveness of procedure; recommend changes, as necessary.

Further Information

- EU: http://agency.osha.eu.int/good_practice/sector/agriculture/faq_agriculture/faq_entry.2005-09-19.3015163534/view?searchterm=risk%20assessments
- U.K. [Linked from EU]
http://www.eihms.surrey.ac.uk/robens/erg/Test%20area/GRA_revised_doc.pdf

C. EMERGENCY PREPAREDNESS

Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

Emergency events include fires, earthquakes and accidents. Injuries to workers and damage to buildings and equipment can be reduced if emergencies are planned for in advance. This section describes the requirements for planning and preparing to protect workers in the event of an emergency.

TOE Requirements

1. 🏭 A senior factory manager must be assigned responsibility for making sure that the factory has procedures in place to prepare for, and respond to, emergency situations.
2. 🏭 Factories must have procedures to prepare for possible emergencies such as fire, earthquakes, hurricanes, and chemical spills. These procedures must be written in a language that all workers understand.
3. 🏭 Factories must have an emergency evacuation plan, and evacuation routes must be posted in each work area.
4. 🏭 Factories must have assigned locations that can shelter the entire worker population in case of a severe weather event.
5. 🏭 Factories must hold emergency evacuation drills often enough that workers know the drill procedure and consider it routine.
6. 🏭 Factories must have a fire prevention plan.

Implementation of TOE Requirements—Emergencies That Require Evacuation:

Training, Rules, and Record Keeping

- Workers on all shifts should be trained to use fire extinguishers. This training should include hands-on practice with fire extinguishers, as well as reading materials and demonstrations. Factories should keep written records to show this training has been given.
- Factories should assign individuals with responsibility for planning and holding emergency evacuation drills. These individuals should be qualified to lead the drills. Drills should be held at various times and under various conditions to model an actual emergency.
- Workers should be trained on emergency evacuation procedures. Visitors should also be informed about evacuation plans.
- Factories should keep records of emergency evacuation drills. These records should include details about the drill (e.g., the time the last person exited the building, an accounting of all workers, any issues noticed during evacuation, plans to correct such issues). Records should also be kept on the maintenance and testing of emergency equipment (such as fire extinguishers, lighting, alarms, etc.).
- Factories should post “Danger,” “Warning,” and “No Smoking” signs where needed, and in a language that all workers understand.

Hazard Assessment

- Factories should consider all the types of emergencies that may occur at their location (e.g., fire, chemical spill, earthquake, typhoon, etc.) and include them in emergency preparedness procedures. (See Appendix.)

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Hazard Controls

- Factories should have rules and procedures to make sure that aisles and exits are kept clear, are properly and clearly marked, and allow workers to quickly and safely leave the factory in an emergency. (See Aisles and Exits section.)
- Factories should have emergency evacuation procedures that require all workers and managers to participate in drills. During a drill, workers and managers should leave the building, go to an assigned location (assembly area) and remain there until a signal is given to return to the factory. The focus should be on orderly evacuation, rather than on speed.
- Factories should hold at least one emergency evacuation drill every year during which all workers are evacuated within 3 minutes.
- Emergency lights should be tested regularly and kept in proper working order. (See Lighting section.)
- Fire extinguishers should match the potential fire hazard and should be located within 15 m (50 ft) of flammable liquids and 23 m (75 ft) of every worker. (See Appendix.)
- Fire extinguishers should have maintenance tags attached to them to indicate the date they were last checked and serviced. In addition, there should be a diagram that shows workers how to use fire extinguishers in the immediate area.
- A reasonable number of battery-operated emergency lights should be placed in useful locations in order to light aisles, halls, and stairways along evacuation routes. (See Lighting section.)
- Factories should have a separate fire alarm that:
 - has a sound that only means “fire” (and not any other type of emergency);
 - may be heard throughout the factory; can be activated at various points throughout the factory; and
 - has a back-up battery or an uninterruptible power supply.
- Alarms should be tested regularly and maintained in proper working order.
- In addition to the factory’s audible alarm, a visible fire alarm (such as a flashing light) should be installed in all work areas that require workers to wear hearing protection.



Good Practice: Fire extinguisher types for potential hazards are provided and tagged.

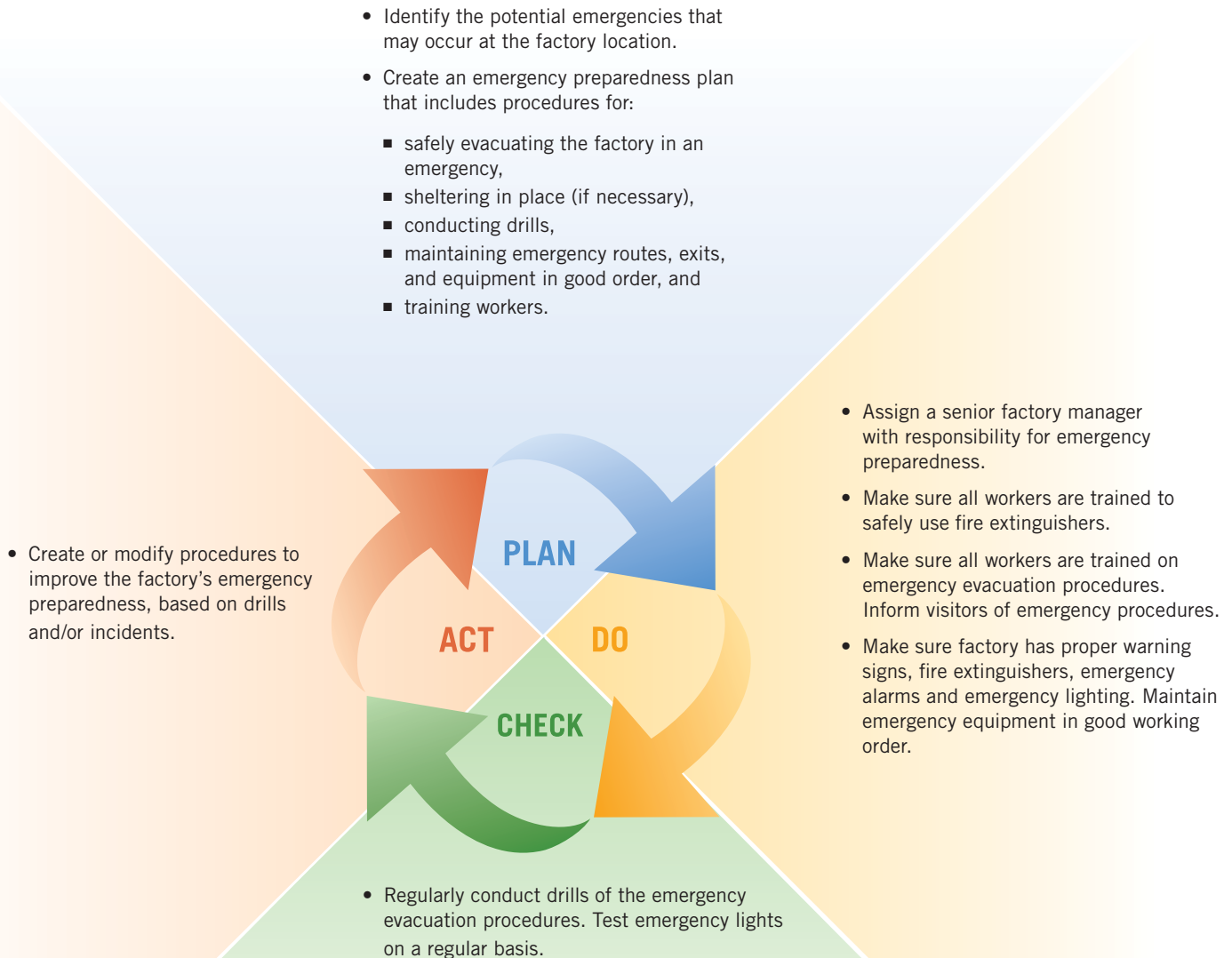


Good Practice: Fire alarm switch in native language.

Implementation of TOE Requirements—Emergencies That Require Shelter-in-Place: Training, Rules & Record Keeping

- Factories should hold at least one shelter-in-place drill every year. Records should be kept of this drill.
- Workers should be trained on shelter-in-place procedures. (See Appendix.)
- Shelter-in-place locations should be located in the most stable areas of the building (e.g., near structural supports such as load-bearing walls).

Program Strategy for Emergency Preparedness



Further Information

- See Appendix.
- Emergency Preparedness
<http://agency.osha.eu.int/search?SearchableText=emergency+preparedness>
- Emergency Preparedness [U.S. OSHA, linked from EU]
<http://www.osha.gov/SLTC/emergencypreparedness/index.html>
- Fire Extinguisher Class Reference (See Finishing Safety Guidelines)

D. AISLES AND EXITS






Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.


Purpose

The purpose of this section is to make sure that factory aisles and exits are kept clear, are well marked, and allow workers to quickly and safely exit the factory in an emergency.



TOE Requirements

1.  Factories must have enough exits to safely serve the number of workers and the height and type of building or structure:
 - Factory floors with 150 or fewer workers must have at least 2 (non-elevator) exits. Factory floors with more than 150 workers must have at least 3 (non-elevator) exits. Exits must lead to a safe location outside the building and must be within 61 meters (200 feet) of every workstation.
 - Buildings with 1000 or more workers must have at least 4 exits.
 - Additional exits must be provided in every section of a building where size, worker population, and work area arrangement would endanger workers trying to use a single exit that is blocked by fire or smoke.
2.  Aisles and exits must be kept clear and unblocked at all times. Exits must be unlocked at all times during working hours.
3.  Exit doors must open outward (in the direction of the way out of the building). They must require no special operation.
4.  Exit doors, routes, and aisles must be wide enough to safely evacuate workers in an emergency:
 - Exit doors must be at least 81 cm (32 in) wide.
 - New exits must be at least 91 cm (36 in) wide.
 - Exit routes must be at least 91 cm (36 in) wide.
 - Aisles must be at least 91 cm (36 in) wide.
5.  Factories must have a fire alarm system that will notify occupants throughout the entire building. This alarm must be different from other building alarms, must be used for fire and evacuation only, and must be capable of being heard throughout the entire building. It must take priority over all other alarms, and be monitored at an outside location that is constantly attended, such as the local fire and/or police department or alarm company. (Also see Emergency Preparedness section.)




 Fire exit is blocked by trash container and equipment!

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6.  Exit doors and exit routes must be marked so that they are clearly visible to factory workers throughout the factory:
 - Exits must be marked with signs that are visible from 30 m (100 ft).
 - All signs and markings must be in a language(s) that can be understood by all workers. Lettering must be at least 15 cm (6 in) high, brightly colored, contrasting with surrounding surfaces, illuminated to make them more visible.
 - Any door, aisle, or stairway that is NOT an exit or does NOT lead to an exit and may be mistaken for an exit shall be posted with a sign that reads “NO EXIT.”
7.  An assembly area must be assigned outside the factory so that evacuated workers can be accounted for in an emergency.



Good Practice: “Exit” sign in local language.

8.  Any changes to building design must be reviewed to make sure that they meet the requirements of this topic before they are implemented.

Implementation of TOE Requirements

Training, Rules, and Record Keeping

- When they are first hired, workers should be trained on the location of exits and evacuation routes, and on the importance of keeping aisles and exits clear. (See Emergency Preparedness section.)
- All workers should be able to show they understand the above training and any related documents the factory or LS&CO. may provide on this topic.

Hazard Assessment

- Factories should inspect all areas of buildings to ensure they meet the requirements listed in the checklist in the Appendix.

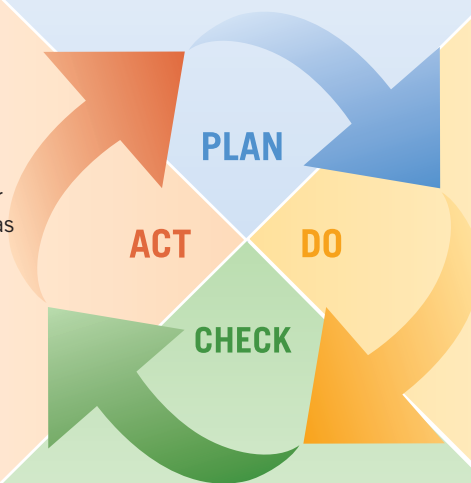
Hazard Control

- Factories should inspect building areas each month to make sure they meet the aisles and exits requirements. (See Safety Committee requirements for further information.)

Program Strategy for Aisles and Exits Safety

- Determine number of workers and height and type of factory building or structure. Establish a plan to meet requirements for proper number and location of exits.
- Establish procedures and identify responsible persons to make sure factory meets all TOE requirements for aisles and exits.

- Make changes to procedures if TOE requirements (e.g., keeping aisles clear) are not met.
- Maintain fire alarm system and/or improve evacuation procedures, as necessary.



- Add exits, if necessary. Modify aisles and exit doors, if necessary to meet TOE requirements.
- Ensure that factory fire alarm system meets TOE requirements.
- Mark evacuation routes on factory floors and assign an assembly area outside the factory where workers meet after exiting the building.
- Review any changes to building design to make sure they meet the Aisles and Exits TOE Requirements.

- Inspect building areas each month to make sure they meet requirements.
- Periodically test fire alarm system and evacuation procedures to verify they are in working order.

Further Information

- See Appendix.

E. LIGHTING



Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

Poor lighting, or a complete lack of lighting (in the event of a power failure), may prevent workers from seeing possible hazards. The purpose of this section is to describe requirements for workplace and emergency lighting to help provide a safe working environment for all factory workers.

TOE Requirements

1.  Factories that have night shifts or low natural lighting levels must provide emergency lighting in case of a power failure.
2.  Lighting must meet the following required lux levels in the workplace:

Working Condition	Minimum Lighting Value (lux)
Rarely visited locations, with limited perception of detail required (e.g., storage rooms)	50
Factory floor and other continuously occupied areas (e.g. walkways) where fine detail perception is not required	200
General Office	500
Machine operator workstations, drawing board workstations, bench work, and other work stations that require fine detail perception.	750

¹ Source: Evaluation of Human Work, Second Edition, 1995, Wilson and Corlett

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Implementation of TOE Requirements

Emergency Lighting:

Hazard Assessment

- Factories with night shifts should make sure that emergency lighting meets the following requirements:
 - Average required lighting should be 10 lux (1 ft-candle) at floor level.
 - Emergency lighting should be supplied for at least 1.5 hours if normal lighting fails, and lighting should be no less than 10 lux (1 ft-candle) at the end of that time.
 - If maintaining light requires a change from one energy source (e.g., a public utility) to another (e.g. a private energy generator), any delay in providing lighting may be no more than 10 seconds.
- Factories without night shifts should evaluate natural lighting of the exit routes and determine whether it is at least 0.1 ft candle (1 lux) at floor level. If it is not, the factory should act to install emergency lighting (that meets the above requirements) in the building.

Hazard Controls

- Factories should test the emergency lighting system every 30 days for no less than 30 seconds.
- Once each year, factories with night shifts should practice emergency evacuation of the building using only emergency lighting.
- If battery-powered emergency lighting systems are used, they should be tested each year for no less than 1.5 hours. Factories should keep written records of these tests.

Required Workplace Lighting Levels:

Hazard Assessment

Factories should evaluate all areas and working conditions to make sure they meet the minimum lighting values described in the TOE Requirements section above.

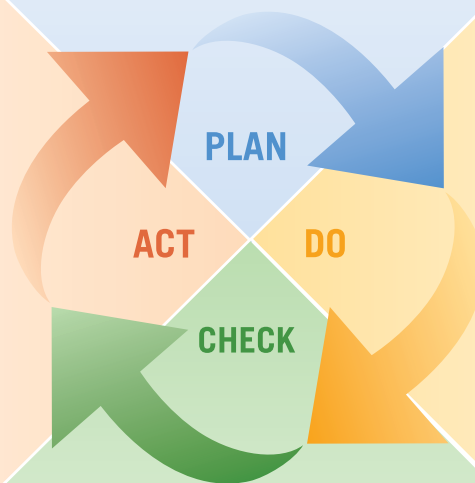
• Hazard Controls

- Where areas or working conditions fail to meet the minimum lighting values, factories should act immediately to correct the situation.
- Factories should assign responsibility for maintaining proper lighting (cleaning, replacing, repairing lighting fixtures, etc.).

Program Strategy for Lighting

- If factory has night shifts and/or low natural lighting levels, create a plan for emergency lighting that considers the various working conditions throughout the factory (e.g., offices, factory floors, machine operators, etc.). Assign responsibility for maintaining proper lighting.
- Evaluate all factory areas and working conditions to make sure they meet TOE Requirements.

- Modify the emergency lighting plan, if necessary based on results of tests and evaluations, and if factory conditions change.



- Act immediately to correct any lighting conditions that do not meet the TOE Requirements.
- Maintain lighting in good working order.

- Test emergency lighting every 30 days.
- Once each year, practice building evacuation using only emergency lighting.
- Test battery-powered emergency lighting once each year.
- Periodically evaluate all factory areas to make sure they meet TOE Requirements.

Further Information

- UK: Society of Light and Lighting:
<http://www.cibse.org/index.cfm?go=home.show&PageID=68&TopSecID=11>

F. HOUSEKEEPING

Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.









Purpose

Good housekeeping is an important factor in preventing injuries, illnesses, and property damage that may result from hazards such as trips, slips and falls, falling objects, fires, and pest infestation. Examples of accidents caused by poor housekeeping include:

- tripping over loose objects on floors, stairs and platforms
- being hit by falling objects
- slipping on greasy, wet or dirty surfaces
- striking against poorly stacked items or misplaced material projecting into aisles
- cutting, puncturing, or tearing the skin of hands or other parts of the body on projecting nails, wire or steel strapping

The purpose of this section is to promote good housekeeping to protect workers and factory property.

TOE Requirements

1.  Flammable and combustible chemicals and materials must be properly stored. Drips and spills must be cleaned up immediately.
2.  Lint traps in dryers must be routinely cleaned and the lint removed and discarded.
3.  Factories must keep stairs, aisles and exits clear. (See Aisles and Exits for further requirements.) Materials must be kept neat and orderly.
4.  Scrap materials must be cleaned up daily or often enough to prevent them from collecting on floors, tabletops, in aisleways, or other areas.
5.  Litter must be stored in non-combustible containers with lids.
6.  Building roofs and roof drains must be kept clean and unclogged.
7.  Outside storage must be at least 7.5 meters (25 feet) away from building walls.
8.  Heating, ventilation and air conditioning systems must be cleaned and maintained regularly.

Note: See also the TOE requirements regarding Solid Waste Management.

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Implementation of TOE Requirements

Training, Rules, and Record Keeping

- Workers should be trained on how to properly store tools and equipment, and where and how to dispose of waste.

Hazard Assessment

- Factories should create and use a housekeeping inspection checklist to make sure TOE housekeeping requirements are being met. (See sample checklist in Appendix.) Individuals should be assigned responsibility for doing housekeeping inspections on a regular basis.

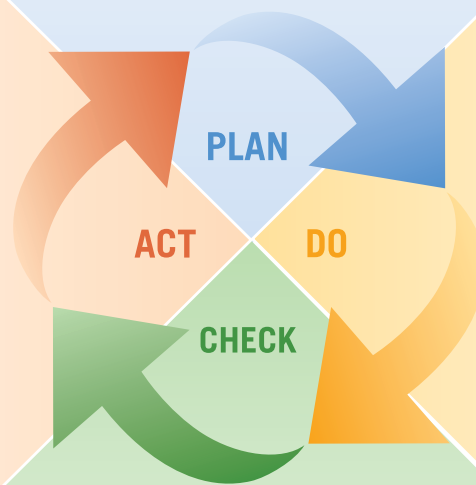
Hazard Controls

- Factories should take action to correct conditions or situations that do not meet the housekeeping requirements. This may include improving cleaning procedures, doing building and equipment maintenance work, and changing work area design to create proper storage areas for tools, equipment, and materials.
- Tools and equipment should be provided to clean up waste (brooms, dust pans, vacuums, etc.).
- Factories should assign responsibilities for the following:
 - clean up during the shift
 - day-to-day cleanup
 - waste disposal
 - removal of unused materials

Program Strategy for Housekeeping

- Create a housekeeping inspection checklist to make sure TOE Requirements are being met.
- Establish procedures for cleaning up wastes. Assign responsibilities for clean-up tasks and for housekeeping inspections.
- Make sure factory has proper tools and equipment for cleaning up waste.

- Improve cleaning procedures, building and equipment maintenance procedures, and/or change work area design to improve housekeeping if inspections show it is necessary.



- Properly clean and maintain work areas, buildings (including roofs) and equipment.
- Properly store waste materials.
- Clean up spills immediately.

- Inspect factory areas on a regular basis to make sure they meet the TOE Requirements for housekeeping.

Further Information

- Housekeeping
<http://agency.osha.eu.int/search?SearchableText=housekeeping>
- Housekeeping [Canada, linked from EU]
<http://www.ccohs.ca/oshanswers/hsprograms/house.html>

G. ELECTRICAL SAFETY





Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

Accidental contact with electric current may result in electric shocks, contact burns and even death, if proper protective measures are not taken. Wiring and electrical systems such as sockets, panels, motors, fuse boxes, and transformers that are not well maintained can overheat and become a fire hazard. The purpose of this section is to help reduce threats to workers, equipment, and buildings from electrical shock or electrical fires.

TOE Requirements

1.  Factories must maintain wiring and electrical systems in safe condition.
2.  All workers who work with high-tension, live electricity must be trained on its hazards and the control measures that must be taken. Written records must be kept of this training.
3.  All electrical equipment must be properly grounded.
4.  Permanent and stationary equipment must have hard-wired electrical connections only.

Implementation of TOE Requirements

Training, Rules, and Record Keeping

- Provide maintenance workers with electrical safety training when they are first hired, and make sure they are retrained each year after that.
- Only those workers that have been trained and authorized may work with electrical systems.
- Factories should keep written records to show this training has been completed.

Hazard Assessment

- Perform regular inspections of equipment and electrical installations to make sure they are in good working condition and do not present electric shock or fire hazards.
- Identify each piece of equipment or machinery that presents electrical or mechanical hazards to maintenance workers. Contact the equipment manufacturer to obtain appropriate electrical safety information, if necessary. Prepare a written procedure for de-energizing and locking and tagging each machine out before performing any maintenance on it. (See the LOTO interactive training program identified in “Further Information” section below.)

Hazard Control


- Grounding is an electrical connection to earth. A ground wire carries electrical current to earth when there is a leak in a circuit. Use building ground for all 120V AC outlets, motor grounds, etc. Never use the neutral circuit wire as the electrical ground.
- A Ground Fault Circuit Interrupter is an electrical breaker that protects against an accidental short or overload of an electrical circuit. This device trips, cutting off electrical current at the slightest indication of an electrical short. Ground Fault Circuit Interrupters should be used in areas where there is moisture or humidity is high (for example, outlets close to water hose line, water faucets, etc.).
- Regularly test and maintain electrical panels, tighten electrical connections, and test electrical motors at “full load” (maximum electrical current or amperage) to identify loose connections that may create a fire hazard.

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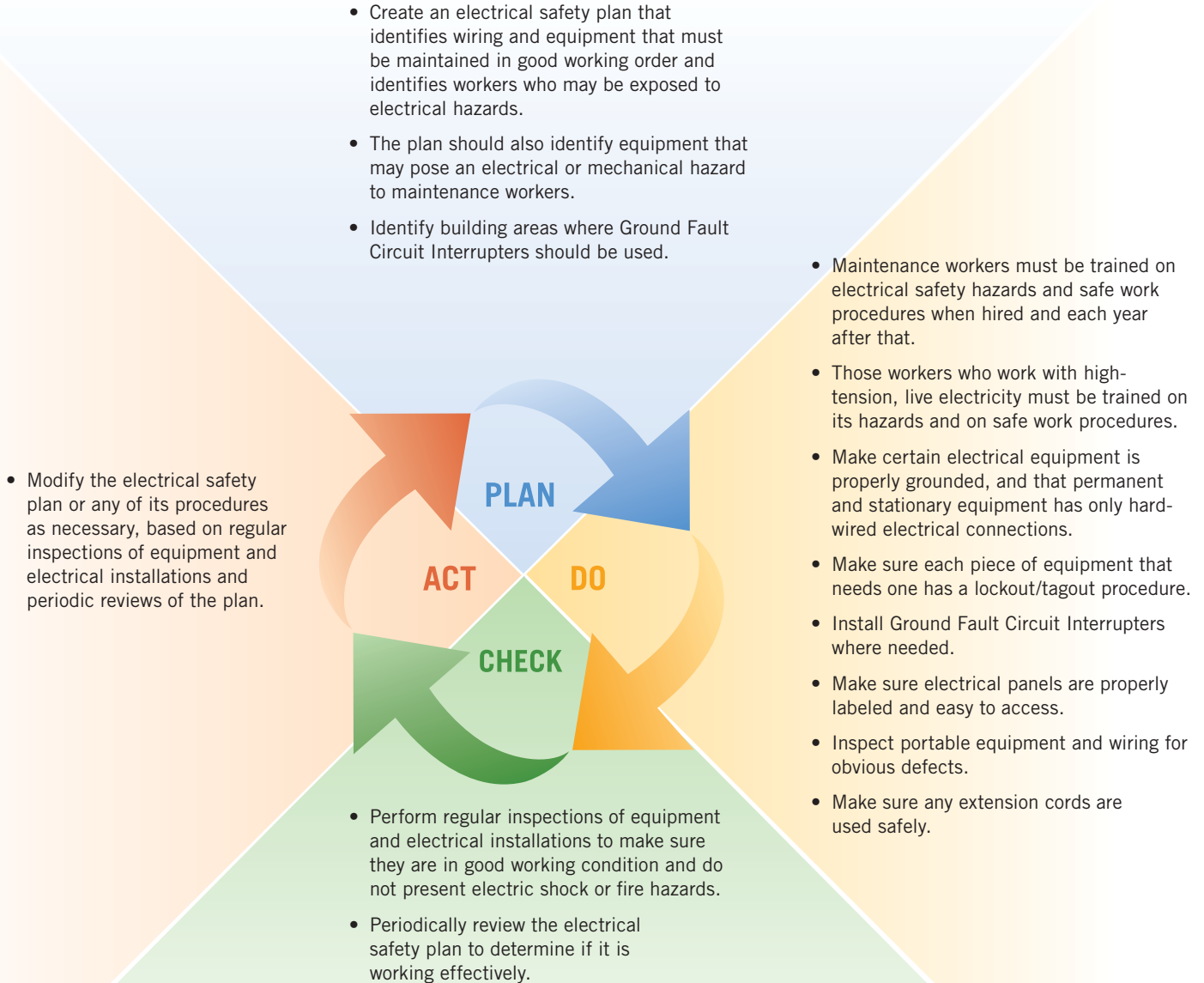
- Use adequate wire size and connectors, according to current load, for temporary electrical connections. Undersized wire or loose connectors are the most common causes for wire overheating that may lead to fire hazards. Temporary installations should be kept only for a length of time specified by the work.
- Label and identify electrical panels as to the type of voltage (480V / 220V; 240V / 120V, etc.). Label each circuit breaker.
- Electrical panels should always be closed and locked. Keys for electrical panels should be kept in a centralized area and made available only to authorized personnel.
- Make sure there is easy access (approximately 1 meter or 3 feet) to electrical panels and transformers. Do not allow electrical panels or transformers to be blocked by equipment or stored materials, and keep flammable or combustible materials away.
- To reduce the risk of electrical shock, cap or otherwise close any openings left in electrical enclosures (electrical panels, boxes, etc.) from removed electric piping, circuit breakers, etc.
- Before using portable cord and plug-connected equipment and extension cords on any shift, inspect them for defects such as loose parts, deformed and missing pins, or damage to the outer jacket or insulation. Do not allow the use of damaged or defective equipment or cords. Such items should be repaired (if possible) or discarded.

- Avoid hanging electric extension cords from the ceiling, if possible. If these are to be used, make sure to have a strain-relief mesh or similar device to prevent strain on the outlet or damage to the extension cord.



 *Circuit breaker with exposed and damaged wiring!
Circuit breakers must be labeled and enclosed.*

Program Strategy for Electrical Safety



Further Information

- See Appendix.
- Lockout Tagout [U.S. OSHA, linked from EU]: <http://www.osha-slc.gov/dts/osta/lototraining/index.htm>
- Lockout tagout [EU]: <http://agency.osha.eu.int/search?SearchableText=lockout+tagout>
<http://agency.osha.eu.int/search?SearchableText=electrical+>
http://www.cpsc.gov/cpsc/pub/pubs/elec_sfy.html
- Controlling Electrical Hazards: <http://www.osha.gov/Publications/osha3075.pdf>
- Ground Fault Protection on Construction Sites: <http://www.osha.gov/Publications/osha3007.pdf>

H. CONTROL OF HAZARDOUS ENERGY / LOCK-OUT TAG-OUT




Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

“Control of hazardous energy” refers to the practices and procedures that are needed to disable machinery or equipment to prevent it from unexpectedly re-energizing or starting up while workers perform servicing and maintenance activities on it. These types of controls (typically referred to as “Lock-Out/Tag-Out”) prevent many deaths and injuries each year. The purpose of this section is to describe requirements for control of hazardous energy that will help make sure servicing and maintenance activities are safely performed.

TOE Requirements

1.  Factories must have written lock-out/tag-out and maintenance procedures to keep maintenance personnel and equipment operators safe during operations such as maintenance, un-jamming of machines, needle changes, or changing of dies or machine parts.
2.  Each piece of machinery or equipment must have its own electrical, pneumatic, or hydraulic disconnect switch or valve so that the individual machine or piece of equipment can be isolated from the others.
3.  Before a worker may be authorized to lock out and tag out equipment, he/she must be trained in lock-out and tag-out techniques and procedures by experienced personnel.

Implementation of TOE Requirements

Training, Rules, and Record Keeping

- Factories should make sure that new equipment, or modification and repairs done to existing equipment, includes the capability of having all energy sources locked out (rather than simply tagged out).
- Factories should establish and maintain lock-out or tag-out procedures that are specific for each piece of equipment that requires service or maintenance. Procedures should provide for group lock out (using a group lock-out device to which individuals lock their personal devices), for the orderly transfer of lock-out devices during shift changes, and for emergency removal of locks.
- Factories should provide authorized workers with standardized lock-out/tag-out devices and a reliable means of locking or tagging equipment.
- In addition to the training in #3 of the TOE Requirements (above), factories should provide training to all workers who operate or work with machinery and equipment on the related hazards, including electrical hazards.
- Conduct and maintain records of the:
 - Annual program assessment (see Appendix)
 - Evaluation checklist (see Appendix)
 - Authorized worker certified annual audit forms (see Appendix)
 - Training for all machine operators/workers and for those authorized to do lock-out/tag-out work.
- Inform any contractors working on equipment of the lock-out/tag-out procedures and the requirement to follow them.

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Hazard Assessment

- Factories should identify the types of activities and the machines and equipment that require lock-out/tag-out of hazardous energy sources, including new equipment.
- Make sure new or modified equipment is capable of having all energy sources locked out (rather than simply tagged out).
- Factories should evaluate the lock-out/tag-out program each year, to make sure there are proper lock-out/tag-out procedures for machines and equipment that require them and that workers are following these procedures.

Hazard Controls

- Factories should create and use procedures for safe service and maintenance of equipment. These procedures will differ for equipment that is cord-and-plug connected. Below are procedures for powering off and servicing cord-and-plug-connected equipment and for general lock-out / tag-out of equipment. Factories should write specific procedures for individual devices or equipment.

Power-Off Procedure For Cord- and Plug-Connected Electric Equipment

The following procedure applies to work to be done on electric equipment which is connected to its energy source by a cord and a plug. By unplugging the equipment from the energy source (electrical outlet) and having control over that plug, the worker performing the service or maintenance prevents unexpected re-energizing or start-up of the equipment.

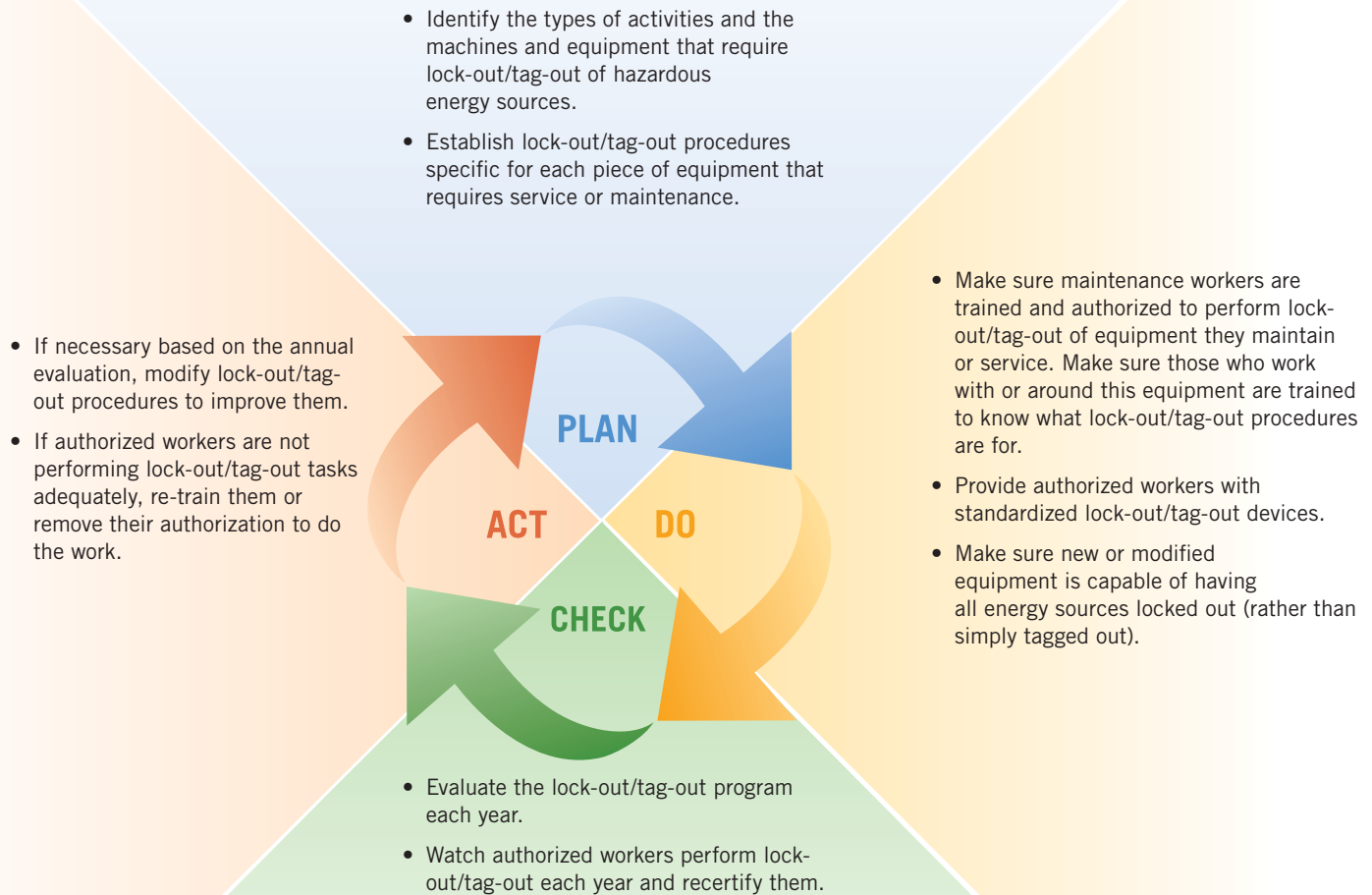
1. Stop work and turn the control switch to the “OFF” position.
2. Unplug any electrical power sources, and keep the plug under your control.
3. Wait for all machine or equipment action to stop.
4. Test equipment to make sure the machine has stopped (e.g., depress treadle, push hand controls).
5. Perform the service or maintenance task (e.g., needle, bobbin changes), and do not place any part of the body in a dangerous location or position.
6. Reinstall all removed safety devices.

7. Plug the equipment back into the energy source and turn the control switch to the “ON” position to test and ensure adjustments were correctly performed.

General Lock-Out/Tag-Out Procedure

1. Identify the primary equipment to be maintained, and any additional equipment associated with it.
2. Review the specific lock-out/tag-out procedure(s) for the device or equipment.
3. Notify the workers (e.g., operator, team members, and supervisors) who use the equipment or work around it that lock-out/tag-out and maintenance work is to be performed.
4. Turn the equipment off (follow normal shut-down procedures).
5. Isolate all associated energy sources and discharge the stored energy until you have achieved a zero state (e.g., bleed all pressurized lines, discharge electrical circuits).
6. Block and/or restrict all machine parts that may move and therefore pose a hazard during maintenance work.
7. Attach a tag to the affected equipment.
8. Attach a lock to isolate equipment from energy sources.
9. Turn the machine’s power sources on as a test. The equipment should not be operable and any stored energy should be completely discharged.
10. Turn equipment power sources back to the “OFF” position.
11. Complete service, repairs, and/or adjustments.
12. Restore equipment to service:
 - Replace all covers and safety devices.
 - Inspect equipment.
 - Verify all workers are clear of the equipment.
 - Remove locks and tags.
 - Turn equipment energy source(s) back to the “ON” position.
 - Test equipment for proper function.
13. Notify affected workers that equipment is ready for use and lock-out/tag-out is no longer in use.

Program Strategy for Control of Hazardous Energy (Lock-Out/Tag-Out)



Further Information

- See Appendix.
- Lock-out Tag-out
<http://agency.osha.eu.int/search?SearchableText=lockout+tagout>
- Lock-out Tag-out [U.S. OSHA, linked from EU]
<http://www.osha-slc.gov/dts/osta/lototraining/index.htm>

I. MACHINE GUARDING





Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

Machine guards can prevent injuries to workers caused by machine hazards such as moving parts, high temperatures, and lasers. Workplace injuries that may be caused by machine hazards include crushed fingers or hands, amputated fingers or hands, burns, and blindness. The purpose of this section is to explain the requirements for machine guarding to help prevent such injuries.

TOE Requirements

1.  All machinery with exposed, moving, mechanical parts must be equipped with safety devices. For these parts, all required protective guards must be in place.
2.  Workers must be given machine guarding safety training on the machines they operate.
3.  Factories must assess the hazards of new and existing equipment to determine whether existing guards are effective in protecting workers, or if other machine guards should be added to control hazards.
4.  Factories must routinely inspect equipment to make sure equipment guards are in place and working properly.

Implementation of TOE Requirements

Training, Rules, and Record Keeping

- Anyone who will be operating or servicing machines that may pose safety hazards should first be trained on the specific procedures for safely operating or servicing the equipment. They should be trained about the hazards of the equipment and about how to use machine guards to operate the equipment safely. (See Appendix.)
- Factories should keep written records of equipment service.

Hazard Assessment

- Check any new equipment (that is, powered or power-transmission equipment) to make sure that it has the right machine guards for the hazards it poses.
- Make and keep a list of the equipment that has machine guards. Include the equipment location, the type of equipment and the type and numbers of machine safeguards on the equipment.
- Factories should keep written records to show this training has been completed.

Hazard Controls—General

- Guards should be made of metal or, where visibility is required, they may be made of sturdy plastic or safety glass.
- Guards may be made of wood in areas where materials are present (acids and bases) that would corrode (wear away) a metal guard.
- Nip points on conveyors should be guarded.
- Steam irons and fabric presses should have handle and pedal guards to protect the operator's arms and legs from burns.
- Work areas should be arranged to protect workers from contact with surrounding equipment, such as the cables for steam irons.

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Hazard Controls—Machine/Maintenance Shops

- Eye shields should be installed on grinding wheels to prevent flying objects from injuring the operator.



Good Practice: Grinding wheel with eye shield in place

- Grinding wheels should be permanently secured to a bench top.
- Tool rests and tongue guards should be installed and properly adjusted on grinding wheels to safely direct any flying objects away from the operator.
- Cutting blades and other points of operation on workshop machinery should be guarded to prevent wood chips, splinters, or pieces of a broken cutting blade from flying off the equipment and injuring the operator.
- Belt-sanding machines should have guards at each nip point where the sanding belt runs onto a pulley.
- All portable, power-driven, circular saws with blades greater than 5 cm (~2 inches) in diameter should have guards.
- The lower guard of a portable, power-driven, circular saw should automatically and instantly return to cover the blade when the saw is not in use.
- Machine tools should be bolted to the floor so they don't tip or fall when operated.

Hazard Controls—Sewing Factories

- All sewing machine needles should have needle guards to prevent injuries to the operator from broken needles. Sewing needles that are permanently protected by fabric folders or guides do not require the needle guards.
- Operators should wear safety glasses when operating sewing equipment unless the machines have eye shields.
- Moving machine parts and drive belts should be guarded at the point of operation (the area where the machine performs work). In a fabric cutter, for example, the point of operation is where the blade contacts (and cuts) the fabric.

Hazard Controls—Laundry Facilities

- Laser-etching machines should have barrier guards and interlocks to keep operators from opening them while the laser is on. Interlocks will automatically shut off the machine if the barrier guard is removed or opened.
- Gears, drive belts, and other moving parts on washers and dryers should be guarded.
- Gears, drive belts, and other moving parts on washers and dryers should be guarded.

Program Strategy for Machine Guarding



Further Information

- See Appendix.

J. POWERED INDUSTRIAL TRUCKS

Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.








Purpose

Powered industrial trucks can cause serious injury to operators and co-workers if they are not properly maintained or if operators are not properly trained. Equipment collisions can also damage property and interrupt production. The purpose of this section is to help make sure that workers are properly trained and qualified to operate powered industrial trucks.

Powered industrial trucks include the following:

- Forklifts
- Material pickers
- Turret trucks
- Golf carts
- Lowboys
- Highboys
- Powered hand trucks

TOE Requirements

1.  Only qualified workers, who have been properly trained and evaluated, may operate or maintain powered industrial trucks.
2.  Each powered industrial truck must be inspected at the beginning of every shift to make sure it:
 - functions properly and safely, and
 - does not create hazards.
3.  All workers who use, adjust, or maintain powered industrial trucks must be trained to perform these jobs safely.
4.  All industrial truck operators must complete the requirements for re-qualification periodically. Operators' safety performance must be evaluated frequently.
5.  Industrial truck operators must be re-trained and disciplined if the operator has been:
 - observed to operate the equipment in an unsafe manner or
 - involved in an accident or near-miss incident.
6.  Industrial truck operators shall be re-trained if, at any time, they are assigned to drive a different type of equipment, or there are changes in the workplace that affect the safe operation of the equipment.
7.  Factories must make sure that all contractors, vendors and visitors that may use powered industrial trucks understand that they must become qualified to use this equipment and how to meet the qualification requirements.

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Implementation of TOE Requirements

Training, Rules & Record Keeping

- All workers should be instructed that they may not use or maintain powered industrial trucks unless they have been trained and qualified to do so.
- Operators of powered industrial trucks should be trained and qualified for the specific equipment they operate or maintain. Training should include:
 - Formal instruction (e.g., lecture, discussion, interactive computer learning, videotape, written material)
 - Practical or hands-on instruction (e.g., demonstrations by the trainer, exercises done by the trainee)
 - Observation and evaluation of the operator's performance with the equipment in the workplace
- Operators should pass written and operational tests in order to be qualified to operate powered industrial trucks.
- Trainers should have the knowledge and experience to train equipment operators and evaluate their ability to safely operate powered industrial trucks.
- Factories should certify that each powered industrial truck operator has been trained and has passed the qualification test. The written certification should include the: (a) operator's name, (b) training date, (c) date of evaluation, and (d) trainer's name.

- Equipment operators should be re-tested at least every 3 years. The re-qualification test evaluates:
 - the operator's prior knowledge and skill,
 - the types of equipment he or she will operate in the workplace,
 - the types of hazards in the workplace, and
 - the operator's ability to operate the equipment safely.
- Operators who pass the re-qualification test should be re-qualified for at least three years. Current operators who do not pass the re-qualification test should be re-trained, following the requirements for the initial training program. Operators may not use powered industrial trucks until they have been formally re-qualified.

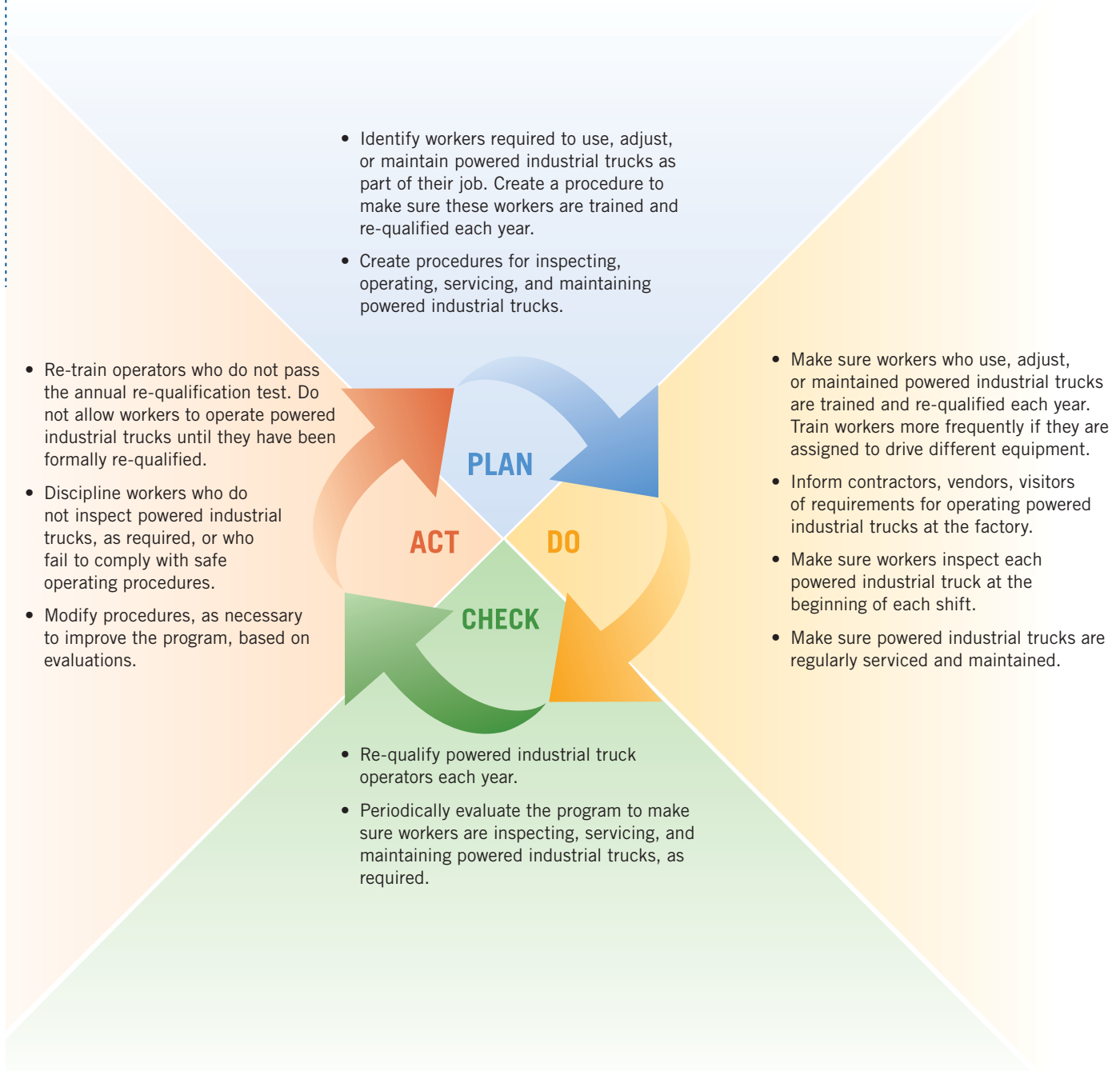
Hazard Assessment

- Factories should make sure there is a procedure in place that requires workers to inspect each powered industrial truck at the beginning of every shift to make sure it is in good working condition.

Hazard Controls

- If, during a pre-use inspection, an operator finds that a powered industrial truck is not working properly, he or she should inform a supervisor and should not operate the vehicle until it has been repaired and it is safe to do so.
- Factories should make sure that powered industrial trucks are serviced and maintained on a regular schedule.

Program Strategy for Powered Industrial Truck Safety



K. NOISE MANAGEMENT





Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

Permanent hearing loss may be caused by a number of things, including disease, aging, sudden loud noise or long-term exposure to loud noise. The purpose of this section is to describe requirements to manage workplace noise levels to help prevent workers from experiencing work-related hearing loss.

TOE Requirements

1.  Factories must identify workers who work in areas with noise levels that are higher than 85 decibels. These workers must wear hearing protection and be trained on the proper use of hearing protection and the health and safety risks of not wearing hearing protection. Factories must supply workers with the necessary hearing protection (ear plugs, ear muffs). Factories must keep written records that show this training has been completed.
2.  Factories must meet legal requirements to test workers' hearing to determine whether they have experienced any hearing loss.
3.  Factories must conduct noise hazard evaluations each year to identify any areas where noise levels exceed 85 decibels.
4.  Factories must first attempt to reduce noise levels that are higher than 85 decibels through proper maintenance of equipment and engineered noise controls.

Implementation of TOE Requirements

Training, Rules & Record Keeping

- Workers in areas where noise levels are higher than 85 decibels should have an audiometric test to determine if hearing loss has occurred. This test should be conducted at 2000, 3000, and 4000 Hz frequency range for both ears.
- Warning signs should be posted in areas where noise levels exceed 85 decibels, telling workers (and visitors) that the area is a “Mandatory Hearing Protection” area.
- Factories should keep records of noise monitoring results.

Hazard Assessment

- Noise levels within buildings should be monitored each year to determine which areas (if any) exceed 85 decibels.
- Noise output on new equipment should be evaluated and engineered controls used to reduce noise.

Hazard Control

- Where noise levels are higher than 85 decibels, factories should provide workers with hearing protection, such as earplugs or ear muffs with a noise reduction ratio of 20. Workers should be trained and required to wear the hearing protection.
- Where noise levels are higher than 85 decibels, factories should use engineered controls to reduce noise levels, including:
 - Rubber padding to reduce machine vibration
 - Sound barriers
 - Noise curtains
 - Sound-absorbing materials
 - Enclosures
 - Sound insulation
- Noise levels should not exceed a 140-decibel peak sound pressure level at any time.

Program Strategy for Noise Management

-
- Evaluate noise levels throughout the factory to identify any areas where noise levels exceed 85 decibels.
 - Identify workers who work in areas with noise levels higher than 85 decibels.
 - Create procedures for training these workers and rules requiring them to wear hearing protection. Develop a plan to meet any legal requirements to test workers' hearing.
 - Create procedures to evaluate noise levels and to use engineered controls to reduce noise on new equipment and in areas with noise levels higher than 85 decibels.
- Post warning signs in areas with noise levels greater than 85 decibels.
 - Provide workers in these areas with hearing protection (ear muffs, ear plugs) that has a noise reduction ratio of 20.
 - Train these workers on noise hazards and on how to use hearing protection. Require them to wear hearing protection. Make sure they receive hearing tests, if required.
 - Use engineered controls and proper equipment maintenance to reduce noise levels in areas where noise levels are greater than 85 decibels and on new equipment.
- Re-train and/or discipline workers who don't wear required hearing protection.
 - Modify procedures, or establish new requirements for engineered noise controls, if reviews (of noise monitoring results, hearing test results) indicate this is necessary.
- Monitor noise levels within the factory each year.
 - Periodically check to make sure workers are wearing required hearing protection.
 - Review results of any hearing tests to determine whether workers are experiencing hearing loss.

Further Information

- See Appendix.
<http://www.ascc.gov.au/ascc/HealthSafety/HazardsSafetyIssues/NoiseHearing/NoiseControl.htm>
<http://www.cdc.gov/niosh/pdfs/79-117.pdf>

L. PERSONAL PROTECTIVE EQUIPMENT








Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

Personal protective equipment (e.g., safety glasses, ear plugs, safety shoes) is worn by workers to prevent or minimize exposure to workplace hazards. Personal protective equipment must only be considered as a hazard control measure after all practical engineering controls (e.g., enclosing equipment to make it quieter, installing ventilation equipment to remove air contaminants, etc.) and administrative controls (e.g., limiting the amount of time workers may do a task) have been used and there still remains a need for additional protection. The purpose of this section is to describe the requirements for proper use of personal protective equipment.

TOE Requirements

1.  Factories must try to lower noise levels by properly maintaining equipment, installing rubber padding, etc. In areas where noise levels remain higher than 85 decibels, factories must supply workers with hearing protection (such as earplugs or ear muffs) that has a noise reduction ratio of 20. Workers must be trained to properly use the hearing protection and must be required to wear it. In addition, factories must designate these areas as “Mandatory Hearing Protection” areas by posting signs. (See the Noise Management section.)
2.  Factories must supply cutting room workers with metal mesh gloves, train workers to use them properly, and require that they be worn.
3.  Workers must wear shoes or boots that will protect against foot injury.
4.  Factories must provide workers with protective eyewear to guard against flying objects, glare (e.g. from laser usage), liquids, dust, etc. Prescription lenses typically do not provide enough protection. Eyewear must meet the applicable standard for impact resistance (see, for example, ANSI Z87.1 -1989) and must not disturb the proper positioning of prescription lenses.
5.  Sewing factories must provide finger guards for sewing workers to protect against needle punctures.
6.  Factories must supply workers who do potentially hazardous work (e.g., drilling, sanding, grinding, construction, loading or materials handling) with suitable personal protective equipment. Factories must train these workers to use protective equipment properly, and require that it be worn.
7.  Factories must inform workers about the health and safety risks of not wearing required personal protective equipment.

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Typical Personal Protective Equipment:

- Eye protection—such as safety glasses or goggles to guard against flying objects and dust.
- Face shields to protect against chemical or hot metal splashes, flying chips and sparks, heat and other hazards. These are often made of a heavy-duty plastic that is attached to a visor that must shield the entire face (and often shield the head and neck, as well).
- Hearing protection — such as ear muffs and ear plugs for noise levels that exceed 85 decibels. (See Noise Management section.)
- Head protection — such as hard hats and bump/laceration caps. These protect against impact from falling, moving, flying objects and from knocking into objects. They also serve to protect workers from rain or other weather elements.
- Hand/Arm protection — such as finger guards, thimbles, gloves, and sleeves. Fingers, hands, and arms must be protected from exposure to cuts, scratches, bruises, burns, and chemicals. The right personal protective equipment must be used for the specific hazard.
- Aprons are worn to protect the body from chemical splashes.
- Foot protection — such as safety shoes with toe guards designed to protect against impact, crushing injuries and punctures. Where acids, bases, lubricants, water and other liquids are used, workers must wear slip-resistant and/or chemical-resistant shoes.
- Respiratory protection — such as masks to protect against dust, and air-purifying respirators to protect against chemicals, dusts or vapors. The appropriate respirator type must be selected for the specific hazard and it must be tested to make sure it fits the wearer. Medical exams and training must be completed before a worker may wear any respirator.

Implementation of TOE Requirements

Training, Rules & Record Keeping

- Factories should choose suitable protective equipment for the hazards identified in the assessment (see “Hazard Assessment” below), provide workers with it, and require them to use it.
- Factories should train workers who are required to wear personal protective equipment on the following:
 - when the equipment is necessary,
 - what equipment is necessary (and required),
 - how to use and adjust the equipment,
 - limitations of the equipment, and
 - proper care and maintenance of the equipment.
- Factories should regularly review how well the personal protective equipment program is working and take action to improve it, if necessary.

Hazard Assessment

- Factories should review and assess the workplace to identify hazards that require the use of personal protective equipment. (See the Risk Assessment section.)

Hazard Control – Sewing Factories

- Operators should make sure that needle guards, eye shields, and machine guards are in place.
- Pressing and ironing operators should wear gloves, sleeves, and face shields (when appropriate) to protect against burns.
- Shoes with hard, non-slip soles should be worn to avoid puncture wounds from needles, pins, etc.
- While cutting fabric, workers should wear metal mesh gloves.

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Hazard Control – Laundry Facilities

- Laundry facilities should make sure that operators of laser-etching machines are provided with and required to wear laser safety glasses.
- Workers using chemicals and dyes should wear eye/face protection, gloves, and protective clothing such as aprons to protect them from chemical splashes.
- Laundry facilities should make sure there is adequate ventilation to protect workers from breathing toxic dusts or vapors. Respirators should be used only when an area cannot be ventilated properly.

Hazard Control – Machine/Maintenance Shop

- Workers should wear eye/face protection when drilling, sanding, grinding, welding, etc. to avoid contact with flying sparks, chips, and other objects.
- Mechanics should wear safety shoes to protect their feet from falling tools or heavy parts.
- When using (or cleaning up) any chemical, workers should follow recommendations for personal protective equipment that are outlined on the Material Safety Data Sheet.

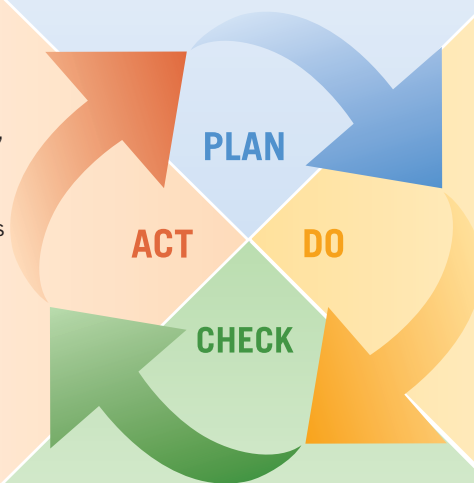
Hazard Control – Shipping & Receiving

- In areas where feet can be crushed by forklifts, carts, or dropped materials, workers should wear safety shoes.
- Leather or puncture-resistant gloves should be worn when handling pallets.

Program Strategy for Personal Protective Equipment

- Review and assess the workplace to identify hazards that require the use of personal protective equipment. (See the Risk Assessment section.)
- Create procedures to comply with TOE Requirements for supplying workers with personal protective equipment, training them on it, and requiring them to use it.

- Modify procedures, as necessary, to improve the program's effectiveness.
- Re-train and/or discipline workers who do not use the required personal protective equipment.



- Assign individuals with responsibility for creating and implementing procedures.
- Inform all workers, contractors, vendors, and visitors of the factory's requirements for personal protective equipment.

- Regularly check to verify that workers are using required personal protective equipment.
- Periodically evaluate the program to verify that personal protective equipment is effective in protecting workers from health and safety hazards.

Further Information

- U.S. OSHA, linked from EU:
http://agency.osha.eu.int/data/products/oshinfo_2871/view?searchterm=ppe
- ANSI Standards:
Eyewear: ANSI Z87.1-1989
Face Shields: ANSI Z87.1-1989
Head Protection: ANSI Z89.1-1986
Foot Protection: ANSI Z41.1-1991

M. VENTILATION



Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

The purpose of this section is to make sure that ventilation is used properly to remove air contaminants from the workplace to protect workers' health.

TOE Requirements

1.  Chemical mixing must take place in a well-ventilated or open area, using appropriate personal protective equipment.
2.  Factories must use ventilation that directs air flow away from workers for tasks such as welding, or handling or mixing chemicals.

Implementation of TOE Requirements

Hazard Assessment

- Factories should periodically evaluate the ventilation system to check that it is working effectively.

Hazard Control

- Factories should never discharge contaminated air flow close to (or at the same level as) a heating, ventilation, or air conditioning vent or an open area where exhausted fumes might be drawn back into the building through a make-up air unit, by fans, etc.
- In areas where friable asbestos-containing material is present, factories should never use forced ventilation or any ventilation that disrupts the asbestos-containing material. (See Asbestos section for the definition of “friable” and a description of the important role of a qualified contractor in evaluating workplace asbestos-containing material.)

- Factories should make sure that welding areas have a local exhaust ventilation system or forced ventilation to direct the air flow away from workers.
- Factory ventilation systems should use mechanical or electronic air filters to remove particles, and activated charcoal filters to remove gases and vapors.

Further Information

- See *Finishing Safety Guidelines*.
- Guidance on selecting general and local exhaust ventilation systems is available at http://www.osha.gov/dts/osta/otm/otm_iii/otm_iii_3.html.

N. CHEMICAL STORAGE







Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

Certain chemicals must not be mixed or stored with other chemicals because they could react, creating a volatile or toxic reaction product. (For example, contact between a concentrated oxidizing acid and a flammable solvent would likely result in a fire or explosion.) Proper storage of chemicals can help minimize the risk of accidentally mixing incompatible chemicals. The purpose of this section is to describe the requirements for proper storage of chemicals to help protect worker health and safety, as well as factory equipment and building structures.

TOE Requirements

1.  Chemicals must be stored in an organized way, following guidelines for recommended storage compatibilities to avoid contact between incompatible chemicals.
2.  Workers handling chemicals must have immediate access (within 10 seconds) to an eyewash/shower that can be easily operated.
3.  Factories must meet legal requirements to notify government or other local agencies (such as fire departments) about chemicals used or stored on site.
4.  All chemicals must be properly labeled in the language(s) spoken by workers.
5.  Chemicals must be stored and used in designated areas which are well ventilated.
6.  Material Safety Data Sheets must be kept on site and must be available for review by workers.

Implementation of TOE Requirements

Training, Rules, and Record Keeping

- Workers whose activities involve storing, handling, or using chemicals should be trained on the physical and health hazards of the chemicals they work with. The training should include methods for workers to protect themselves from hazards, including proper storage of chemicals, safe work practices, emergency procedures, and personal protective equipment. Factories should keep written records that show this training has been completed.
- Material Safety Data Sheets (MSDSs) for each chemical used at the factory should be kept on site and located so that workers have easy access to them.
- All containers, including secondary containers, should be labeled with the identity of the chemical(s) they contain.

Hazard Assessment

- Factories should routinely inspect areas where chemicals are stored and used to make sure they meet the TOE requirements.

Hazard Controls

- Liquid propane gas tanks/cylinders, acetylene tanks, and chemical storage areas should be safely located away from sources of heat and flammable materials. In addition, they should be stored at a reasonable (safe) distance from workers.

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- Chemicals stored in amounts larger than 200 liters (~100 kg) should have secondary containment. (Secondary containment is a container or other structure outside the primary container that is used to keep chemicals from leaking onto building or equipment surfaces.) The secondary containment should be able to hold 110% of the stored chemical volumes.



Bad Practice: Secondary containment is too small for these chemical drums!

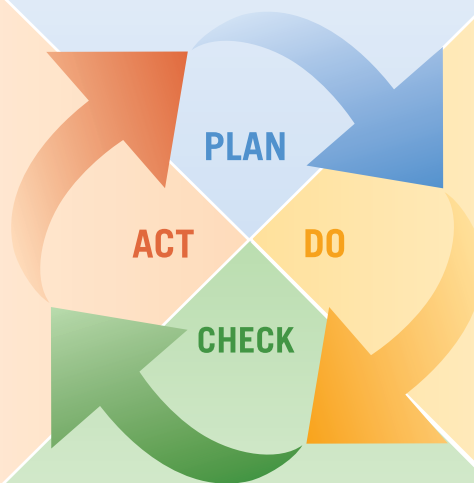
- Workers who handle or use chemicals should be given the proper face and body protective equipment (such as respirators, safety glasses, gloves, or clothing) and should be trained as specified in the MSDS. Workers should be required to wear personal protective equipment if indicated by the MSDS. Signs should be posted in the appropriate locations if use of personal protective equipment is required.
- Caps and lids on all chemical containers should be kept tightly closed to prevent evaporation of contents.
- Flammable storage cabinets should be used to store flammable liquids.

Program Strategy for Chemical Storage

- Establish procedures for complying with legal requirements to notify local agencies about chemicals used or stored on site.
- Establish procedures to ensure chemicals are properly and safely labeled, contained, and stored. Train workers on these procedures and on the hazards of the chemicals in their work areas.
- Establish a procedure to make sure that MSDSs for all chemicals stored and used at the factory are kept on site and available to workers.

- Assign individuals with responsibility for creating and implementing the procedures.
- Follow chemical storage compatibility guidelines to avoid contact between incompatible chemicals.
- Make sure workers have immediate access to eyewash/shower stations.
- Train workers about the hazards of the chemicals they work with and on proper storage and use practices.
- Make sure chemicals are properly labeled, and that those stored in large quantities have secondary containment.
- Make sure chemical storage areas are well ventilated and equipped with explosion-proof lights and switches.

- Create or modify procedures, if necessary to improve chemical storage, based on regular inspections.



- Regularly inspect chemical storage areas to verify chemicals are labeled, properly contained, kept closed, and that containers are not leaking. Make sure incompatible chemicals are not stored together. Ensure that chemical storage meets the TOE requirements.

Further Information

- See Appendix.
- <http://agency.osha.eu.int/search?SearchableText=chemical+storage>

O. EXTREME TEMPERATURES




Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

Under extreme conditions of temperature, humidity, airflow, and workload, workers may experience heat or cold stress, which is the body's attempt to maintain a normal body temperature. Factory conditions that are very hot or very cold may cause workers to suffer from a variety of heat or cold stress symptoms, including heat cramps, heat exhaustion, heat rash, heat stroke, frostbite and hypothermia. Heat stroke (from extreme heat) and hypothermia (from extreme cold) are both conditions that may lead to death, if not treated immediately. The purpose of this section is to describe the requirements for safely working in extremely hot or cold temperature conditions.

TOE Requirements

1.  Factories must have satisfactory temperature controls and must provide a working environment that does not routinely expose workers to excessive heat or cold.
2.  Plenty of water must be available for workers who work in areas with high temperatures (near ovens, dryers, etc.).
3.  Proper personal protective equipment must be provided to workers who work in conditions involving extreme heat or cold.

Implementation of TOE Requirements

Training, Rules, and Record Keeping

- Anyone who works around equipment or works in an area that may be extremely hot or cold should first be trained to recognize the symptoms of heat or cold stress and should be trained to respond to these symptoms. (Symptoms may include nausea, fatigue, dizziness, confusion and irritability, among others.) These workers should also be given five days to gradually adjust to conditions of extreme heat or cold.
- Workers should be trained to give first aid to other workers who may be showing stress symptoms from working in extremely hot or cold temperatures. Factories should keep written records to show that training been completed.

Hazard Assessment

- Make sure that thermometers are working properly.
- Evaluate whether a job scheduled to be done during an extremely hot or cold time of day can, instead, be done when the temperature is more comfortable.
- Plan rest breaks that take into account the type of work (light, moderate, or heavy) and the temperature and humidity conditions.
- Consider a worker's physical condition when determining his or her fitness to work in hot or cold environments.
- Before a worker begins work in an extremely hot or cold environment, make sure he/she has had a physical exam to determine whether he/she is fit to work in such conditions.

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Hazard Control

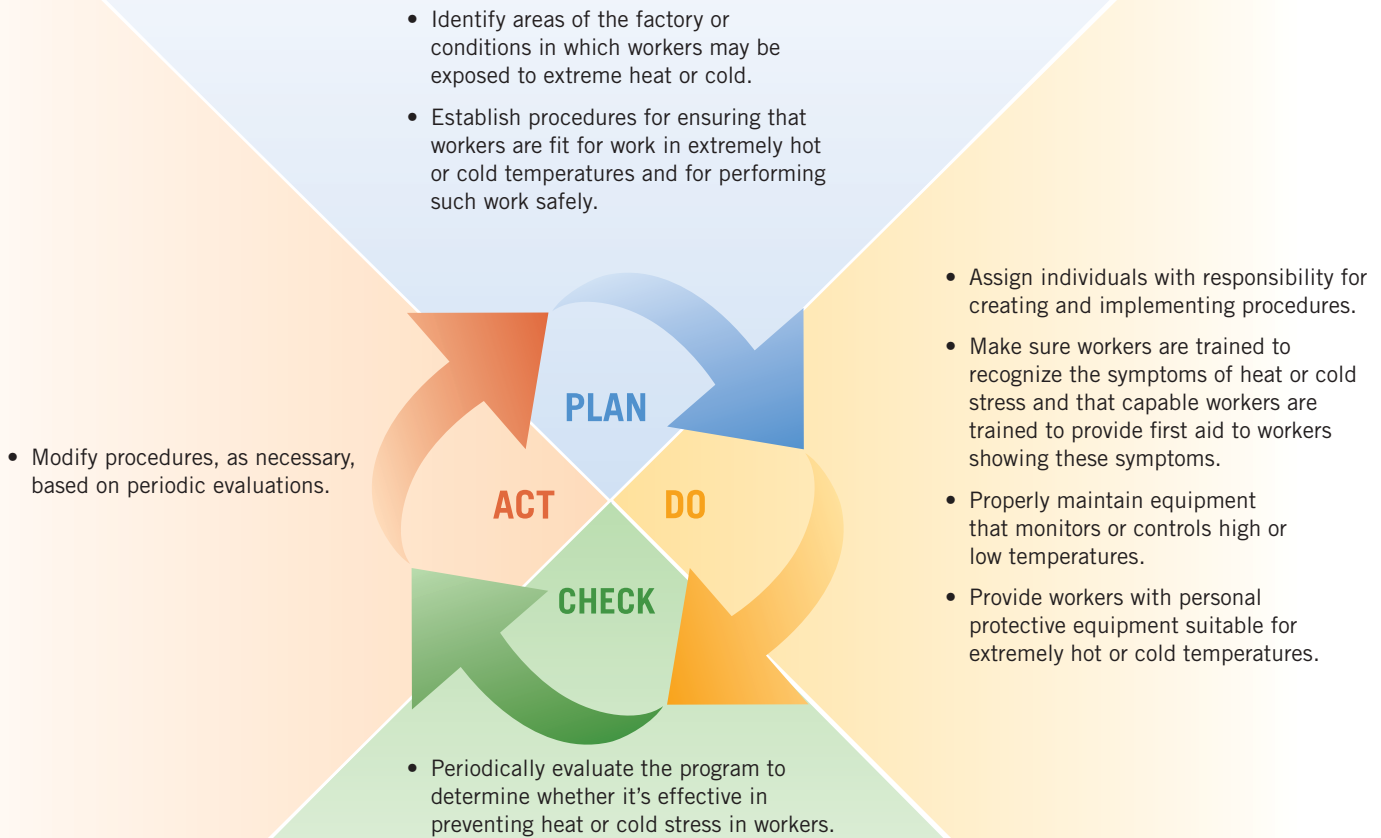
- Make sure that equipment to control high or low temperatures is in place and working properly. This equipment may include ventilation, heaters, air conditioning, cooling fans, shields, and insulation.



Good Practice: Typical fan used to cool workspace

- Make sure workers have personal protective equipment to protect against heat stress when they work around hot equipment (ovens, dryers, etc.) or to protect against cold stress when they work in cold temperatures.
 - Allow new workers to have a five-day period to adjust to extreme temperature conditions. Similarly, give this five-day adjustment period to workers who have been away from work for two weeks or more.
- Allow workers have adequate recovery time when they are working in areas of extreme heat or cold. Rest breaks should take into account the type of work (light, moderate, or heavy) and the temperature and humidity conditions.
 - Offer plenty of drinking water (as much as a quart per worker per hour) to reduce the risk of heat stress.
 - Where there is a chance that workers will suffer heat stress caused by hot equipment, workers should wear clothing that reflects heat (aprons, jackets, suits, etc.). Any reflective clothing should be worn loose to allow air flow through it. Workers wearing such clothing should be careful to avoid trapping it in machinery with moving parts.

Program Strategy for Working Safely in Extreme Temperatures



Further Information

- See Appendix.
- <http://agency.osha.eu.int/search?SearchableText=temperature>
- http://agency.osha.eu.int/publications/reports/405/index_23.htm/view?searchterm=temperature

P. ASBESTOS MANAGEMENT





Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.





Purpose

Asbestos is a naturally-occurring mineral that has been mined and used in numerous ways because it is fire resistant, chemical resistant, and a good insulator. Asbestos has been used in building materials such as floor and ceiling tiles, pipe insulation, sprayed fireproofing, roofing products, sealants, mastics, and gaskets. Asbestos fibers may be released into the air if the asbestos-containing material ages and starts to fall apart or if it is disturbed by sanding, sawing, or other activity. Some types of asbestos fibers, if they are released into the air, may enter the lungs and cause serious illness, including cancer. Exposure to asbestos fibers is especially hazardous for smokers. The purpose of this document is to provide guidance to reduce or avoid worker exposure to asbestos fibers in the air.

TOE Requirements

1.  All Factories must assess their buildings and make a list of areas that are known to have, or may have, suspected asbestos-containing materials. If a factory determines it has suspected asbestos-containing materials, it must comply with TOE requirements numbered 3 through 8 below as well.
2.  All factories must review purchases of new building materials to make sure they do not contain asbestos.
7.  Asbestos-containing materials must be properly marked. If a qualified contractor decides that it is not necessary to remove these materials, the factory must have a procedure to inspect them periodically, to make sure these materials remain in good condition.
8.  If a qualified contractor finds that the asbestos-containing material contains “friable” asbestos (defined in the Appendix); a qualified contractor must repair, enclose, or remove the material according to applicable laws and regulations.

The following apply to factories that have asbestos:

3.  Factories must have an asbestos management program and must work closely with a qualified contractor to:
 - a. train workers,
 - b. inspect building areas for asbestos-containing materials, and
 - c. create safe work practices, clean-up procedures, and a plan to prevent the release of asbestos into the air.
4.  Factories must review and comply with applicable asbestos laws and regulations.
5.  Maintenance workers must be trained to recognize materials that may contain asbestos.
6.  Damaged building materials that may contain asbestos must be sampled and tested by qualified consultants and laboratories to determine whether they contain asbestos and what additional action is needed.

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Implementation of TOE Requirements

Training, Rules, and Record Keeping

- Maintenance workers should receive asbestos training when they are hired, and should be retrained each year after that.
- Factories should keep written records to show this training has been completed.
- A factory's list of building areas that are known to have, or may have, asbestos-containing materials should include the location, description, and condition of all asbestos-containing materials.

Hazard Assessment

- All areas of the factory building (e.g., mechanical areas, common areas, work areas, laundries, kitchen) should be inspected for asbestos-containing materials. Both friable and non-friable asbestos-containing materials should be identified.
- Each year, the physical condition of any asbestos-containing materials should be evaluated and any changes should be noted and included on the list referred to in the "Training, Rules, and Record Keeping" section.

Hazard Control

- Factories should establish procedures to ensure that workers and work practices do not damage or disturb asbestos-containing materials, which might release asbestos fibers into the air.
- Signs should be posted to indicate the location of asbestos-containing materials.
- All asbestos waste should be labeled before disposal.
- Containers used to dispose of asbestos waste should be properly sealed.

Program Strategy for Asbestos



Further Information

- See Appendix.
- <http://www.osha.gov/SLTC/asbestos/>
- http://www.osha.gov/dcsp/compliance_assistance/spanish/spanish_publications.html
- <http://www.osha.gov/SLTC/asbestos/checklist.html>
- http://osha.eu.int/good_practice/risks/dangerous_substances/index_topic?topicpath=/good_practice/risks/dangerous_substances/asbestos#BE
- <http://europe.osha.eu.int/data/legislation/25>

APPENDIX I: Safety Guidelines

1. SAFETY COMMITTEES

Sample Safety Committee–Mission Statement

Purpose

The purpose of the _____ Safety Committee (“the committee”) is to promote a safe working environment at the 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 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 turn over 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

continued on next page

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 Safety Committee Agenda

1. Attendance
2. Minutes of last meeting (circulated prior to meeting)
3. New issues/matters (only if not on this agenda)
4. Report from Health and Safety Coordinator
 - Regular items: Incident Investigations, Inspection Results, Metrics (e.g., training attendance, injury rate, etc.)
 - Progress towards improving systems
5. Outstanding issues from previous meetings
6. 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

2. EMERGENCY PREPAREDNESS

Contents

1. Sample Fire Prevention Plan
2. Sample Earthquake Preparedness Procedure
3. Sample Shelter-in-Place Procedure

1. Sample Fire Prevention Plan

Purpose

The _____ 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.

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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 corrosivity also should 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:

1. Class A fires involve materials such as wood, paper, and cloth, which produce glowing embers or char.
2. Class B fires involve flammable gases, liquids, and greases, including gasoline and most hydrocarbon liquids, which should be vaporized for combustion to occur.
3. Class C are fires in live electrical equipment or in materials near electrically powered equipment.
4. 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 than 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

[Titles 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.

[Titles 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., "Store-room"). 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 that 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, AND have been trained and know how to use it.
5. 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 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.

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

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).

2. Sample Earthquake Preparedness Procedure

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 newspaper, blanket, 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.

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3. 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 OF AREA

NAME/LOCATION OF AREA

NAME/LOCATION OF AREA

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.

3. 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].)	<input type="checkbox"/> Yes <input type="checkbox"/> 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).	<input type="checkbox"/> Yes <input type="checkbox"/> No
Exit doors should swing in the direction of the way out from the building (generally outward).	<input type="checkbox"/> Yes <input type="checkbox"/> No
Exit doors should not be equipped with locks or keys or other mechanisms which require special knowledge or effort to operate.	<input type="checkbox"/> Yes <input type="checkbox"/> 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.	<input type="checkbox"/> Yes <input type="checkbox"/> 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.	<input type="checkbox"/> Yes <input type="checkbox"/> No
All exits should end in an outdoor public way.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Stairs Stairwell doors should allow a worker to re-enter from the stairwell.	<input type="checkbox"/> Yes <input type="checkbox"/> No
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.	<input type="checkbox"/> Yes <input type="checkbox"/> 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.	<input type="checkbox"/> Yes <input type="checkbox"/> 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.	<input type="checkbox"/> Yes <input type="checkbox"/> 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.	<input type="checkbox"/> Yes <input type="checkbox"/> 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).	<input type="checkbox"/> Yes <input type="checkbox"/> No
All exit routes should have at least 10.7 lux (one foot-candle) of light.	<input type="checkbox"/> Yes <input type="checkbox"/> 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).	<input type="checkbox"/> Yes <input type="checkbox"/> No
The route to each exit should be clearly marked.	<input type="checkbox"/> Yes <input type="checkbox"/> No






¹N = 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).

²Lbf = pound-force

4. HOUSEKEEPING CHECKLIST

Aspect	Housekeeping Item	Meet Requirement?
Buildings	Walls and windows clean.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Lint and combustible fiber regularly swept or vacuumed up.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Walls free of unnecessary hangings.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Proper light provided.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Stairs clean and well lit. Handrails and steps are well constructed and well maintained.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Floors	Clean and free of loose or scrap material. Clean in corners, behind radiators and other equipment, along walls, around pillars or columns.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Free of oil, grease, other drips or spills.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Free of unnecessary materials.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Non-combustible containers, with lids, provided for waste. Waste regularly removed.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Aisles	Free of obstacles.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Safe and free passage to fire-fighting equipment and exits.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Safe and free access to workstations.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Clearly marked.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Machinery & Equipment	Clean and free of unnecessary material. Lint and combustible fiber regularly swept or vacuumed up.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Free of dripping oil or grease.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Area around machines is clean and free of rags, paper, etc.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Lockers and cupboards clean and free of unnecessary material both on top and inside.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Benches and seats clean and in good condition.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Toilet facilities clean and well ventilated.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Proper machine guards provided and in good condition.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	First-aid facilities and equipment fully stocked and in clean condition.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Stock & Material	Properly piled and arranged.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Neatly kept in storage areas.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Storage areas clearly marked, kept in orderly condition.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Storage does not block exits, first-aid stations, fire extinguishers, electrical panels, eyewash stations/showers, or sprinkler heads.	<input type="checkbox"/> Yes <input type="checkbox"/> 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.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Tools	Properly arranged in place.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Free of oil and grease.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Inspected and maintained in good order.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Tool room and racks in clean and orderly condition.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Grounds	Building grounds are free of refuse such as food scraps, scrap metal, other waste material.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Waste materials removed frequently.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Outside storage is at least 25 m (7.5 ft) from building walls.	<input type="checkbox"/> Yes <input type="checkbox"/> No

5. ELECTRICAL SAFETY INSPECTION CHECKLIST

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

6. 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.

1. The lock-out/tag-out program was reviewed and revised by _____.

2. All specific equipment procedures were reviewed and revised to ensure applicability and effectiveness.

This was performed by _____.

3. All authorized workers were trained using the revised program and the revised equipment-specific procedures.

4. Each authorized worker participated in an inspection of the lock-out/tag-out procedures on specific equipment.

Health & Safety Coordinator _____

Date _____

Factory Manager _____

Date _____

7. 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 TOE 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:

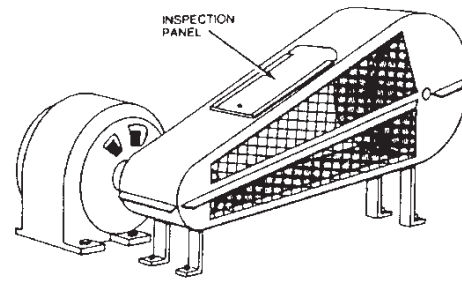
1. a description and identification of the hazards associated with particular machines;
2. the safeguards themselves, how they provide protection, and the hazards for which they are intended;
3. how to use the safeguards and why;
4. how and under what circumstances safeguards can be removed, and by whom (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

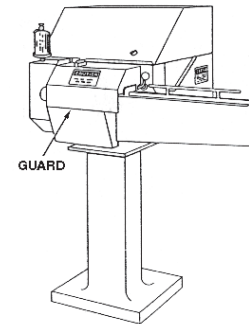
Fixed Guard

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.



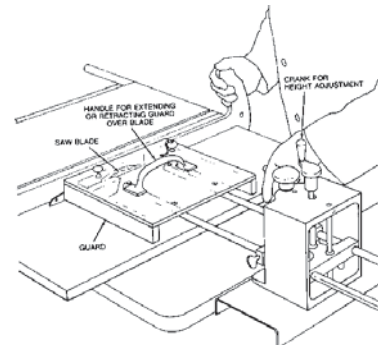
Interlocked Guard

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.



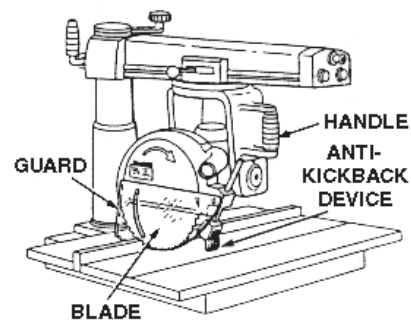
Adjustable guards

Adjustable guards are useful because they allow flexibility in accommodating various sizes of materials to be cut, shaped, or formed.



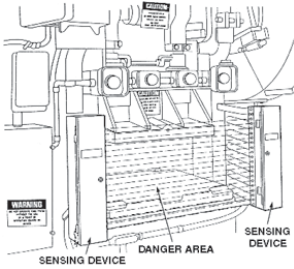
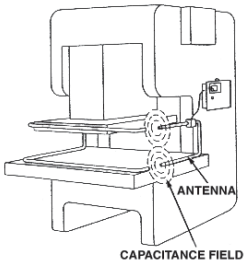
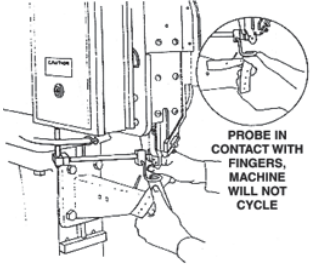
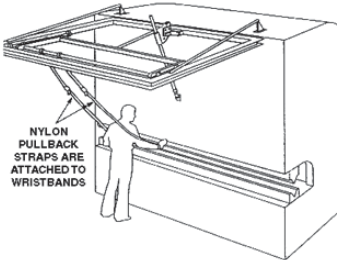
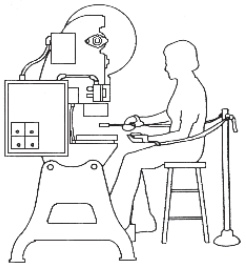
Self-Adjustable Guards

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.



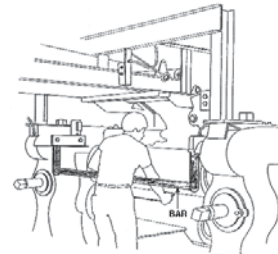
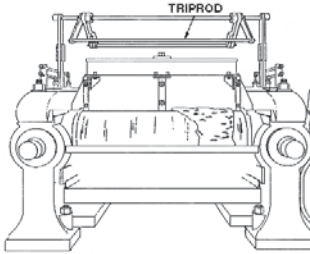
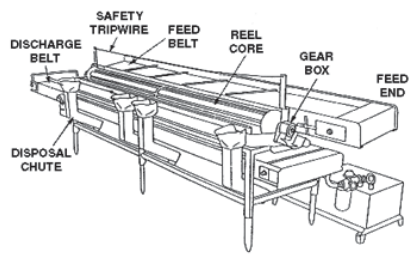
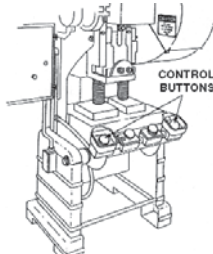
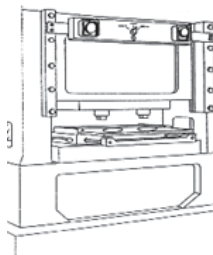
Presence-Sensing Devices

A presence-sensing safety device may perform one of several functions: it may stop the machine if a hand or any part of the body is inadvertently placed in the danger area, restrain or withdraw the operator's hands from the danger area during operation, require the operator to use both hands on machine controls, or provide a barrier that is synchronized with the operating cycle of the machine in order to prevent entry to the danger area during the hazardous part of the cycle.

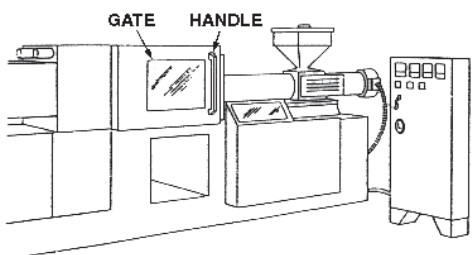
<p>A photoelectrical (optical) sensing device uses a system of light sources and controls that can interrupt the machine's operating cycle. If the field of light is broken, the machine stops and will not cycle. This device should be used only on machines that can be stopped before the worker can reach the danger area.</p>	
<p>A 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.</p>	
<p>An electromechanical sensing device has 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.</p>	
<p>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.</p>	
<p>A 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.</p>	

Safety Trip Controls

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

<p>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.</p>	
<p>Tripod—A safety tripod, 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.</p>	
<p>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.</p>	
<p>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.</p>	
<p>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.</p>	

Gates

<p>Gates—Gates are movable barriers that protect the operator at the point of operation before the machine cycle can be started. Gates are, in many instances, designed to be operated with each machine cycle.</p>	
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Advantages and Disadvantages

Guard Type	Application	Advantages	Disadvantages
Fixed	Provides a barrier.	<ul style="list-style-type: none"> • 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, repetitive operations. 	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Can provide maximum protection. • Allows access to machine for removing jams without time-consuming removal of fixed guards. 	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Can be constructed to suit many specific applications. • Can be adjusted to admit varying sizes of stock. 	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Off-the-shelf guards are often commercially available. 	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Can allow freer movement for operator. • Simplicity of use. • Used by multiple operators. • Provide passerby protection. • No adjustment required. 	<ul style="list-style-type: none"> • May interfere with visibility. • Does not protect against mechanical failure. • Limited to machines that can be stopped.

Guard Type	Application	Advantages	Disadvantages
Electro-mechanical	Contact bar or probe travels a predetermined distance between operator and danger area. Interruption of this movement prevents machine cycle starting.	<ul style="list-style-type: none"> • Can allow access at the point of operation. 	<ul style="list-style-type: none"> • Contact bar or probe should be properly adjusted for each application; this adjustment should be maintained properly.
Pullback	As the machine begins to cycle, the operator's hands are pulled out of the danger area.	<ul style="list-style-type: none"> • Eliminates need for auxiliary barriers or other interference at the danger area. 	<ul style="list-style-type: none"> • Limits movement of operator. May obstruct work space around operator.
Restraint (holdback)	Prevents the operator from reaching into the danger area.	<ul style="list-style-type: none"> • Little risk of mechanical failure. 	<ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Pressure-sensitive body bar • Safety triprod • Safety tripwire 	Stops machine when tripped.	<ul style="list-style-type: none"> • Simplicity of use. 	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Can prevent reaching into or walking into the danger area. 	<ul style="list-style-type: none"> • 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)

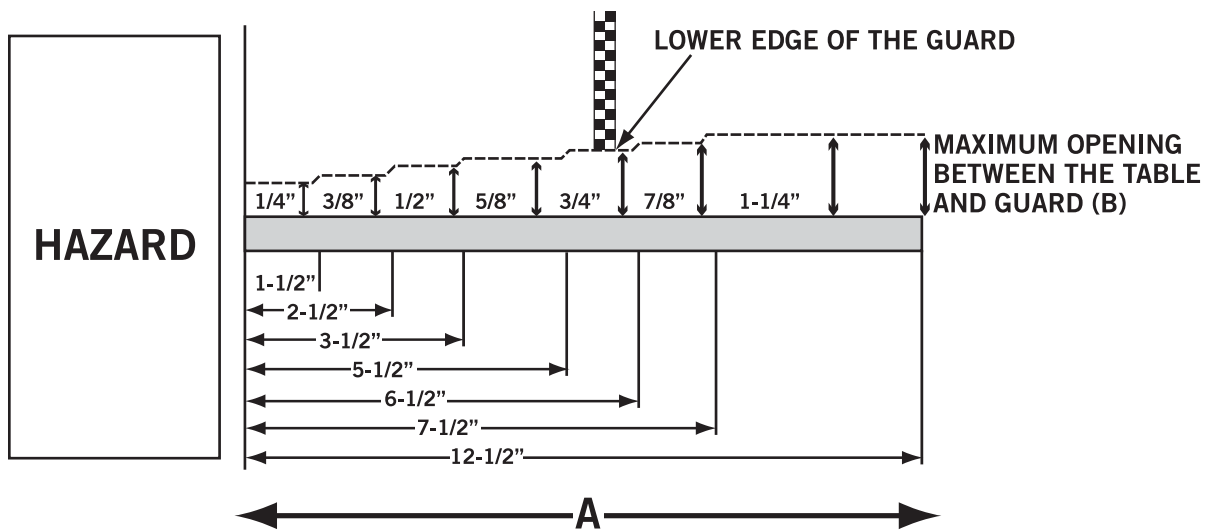


Diagram shows distance in inches.

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.

Safeguards	Requirements	Meet Requirement?
	1. Do the safeguards provided meet the minimum TOE requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	2. Do the safeguards prevent workers' hands, arms, and other body parts from making contact with dangerous moving parts?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	3. Are the safeguards firmly secured and not easily removable?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	4. Do the safeguards ensure that no object will fall into the moving parts?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	5. Do the safeguards permit safe, comfortable, and relatively easy operation of the machine?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	6. Can the machine be oiled without removing the safeguard?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	7. Is there a system for shutting down the machinery before safeguards are removed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	8. Can the existing safeguards be improved?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Mechanical Hazards	The point of operation:	
	1. Is there a point-of-operation safeguard provided for the machine?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	2. Does it keep the operator's hands, fingers, body out of the danger area?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	3. Is there evidence that the safeguards have been tampered with or removed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	4. Could you suggest a more practical, effective safeguard?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	5. Could changes be made on the machine to eliminate the point-of-operation hazard entirely?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Power transmission apparatus:	
	1. Are there any unguarded gears, sprockets, pulleys, or flywheels on the apparatus?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	2. Are there any exposed belts or chain drives?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	3. Are there any exposed set screws, key ways, collars, etc.?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	4. Are starting and stopping controls within easy reach of the operator?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	5. If there is more than one operator, are separate controls provided?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Other moving parts:	
	1. Are safeguards provided for all hazardous moving parts of the machine, including auxiliary parts?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Non-Mechanical Hazards	
	1. Have special guards, enclosures, or personal protective equipment been provided, where necessary, to protect workers from exposure to harmful substances used in machine operation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Electric Hazards	1. Is the machine installed in accordance with TOE and applicable local requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	2. Are there loose conduit fittings?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	3. Is the machine properly grounded?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	4. Is the power supply correctly fused and protected?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	5. Do workers occasionally receive minor shocks while operating any of the machines?	<input type="checkbox"/> Yes <input type="checkbox"/> No

	Requirements	Meet Requirement?
Training	1. Do operators and maintenance workers have the necessary training in how to use the safeguards and why?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	2. Have operators and maintenance workers been trained in where the safeguards are located, how they provide protection, and what hazards they protect against?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	3. Have operators and maintenance workers been trained in how and under what circumstances guards can be removed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	4. Have workers been trained in the procedures to follow if they notice guards that are damaged, missing, or inadequate?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Protective Equipment and Proper Clothing	1. Is protective equipment required?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	2. 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?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	3. Is the operator dressed safely for the job (i.e., no loose-fitting clothing or jewelry)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Machinery Maintenance and Repair	1. Have maintenance workers received up-to-date instruction on the machines they service?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	2. Do maintenance workers lock out the machine from its power sources before beginning repairs?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	3. Where several maintenance workers work on the same machine, are multiple lock-out devices used?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	4. Do maintenance workers use appropriate and safe equipment in their repair work?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	5. Is the equipment used by maintenance workers properly guarded?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	6. 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?	<input type="checkbox"/> Yes <input type="checkbox"/> No

8. NOISE MANAGEMENT

Permissible Exposure Levels

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

9. CHEMICAL STORAGE

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: <http://www.uos.harvard.edu/ehs/enviro/EPACChemicalCompatibilityChart.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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Store bases away from acids, metals, explosives, organic peroxides and easily ignitable materials.
Solvents (Flammable and Halogenated Solvents)	<ul style="list-style-type: none"> • 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.
Oxidizers	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Store away from acids and oxidizers.
Water Reactive Chemicals	<ul style="list-style-type: none"> • Store in a cool, dry place away from any water source. • D Class fire extinguisher must be nearby.

Table 1

The 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		KEEP APART	Segregate From OR KEEP APART	Segregate From	Segregate From	Segregate From	Segregate From	ISOLATE	KEEP APART	KEEP APART	
2.2 Non-flammable/ non-toxic		KEEP APART	KEEP APART	KEEP APART	Separation may not be Necessary	Segregate From	Separation may not be Necessary	Separation may not be Necessary	Segregate From	Separation may not be Necessary	KEEP APART
2.3 Toxic		Segregate From OR KEEP APART	KEEP APART	Segregate From	KEEP APART	Segregate From	KEEP APART	Separation may not be Necessary	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		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		Segregate From	Segregate From	Segregate From	Segregate From	KEEP APART	KEEP APART	Segregate From	ISOLATE	KEEP APART	KEEP APART
4.3 Dangerous when wet		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		Segregate From	Separation may not be Necessary	Separation may not be Necessary	Segregate From	Segregate From	KEEP APART	KEEP APART	Segregate From	KEEP APART	KEEP APART
5.2 Organic peroxides		ISOLATE	Segregate From	Segregate From	ISOLATE	Segregate From	ISOLATE	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.

10. EXTREME TEMPERATURES

Contents

1. Checklist for Extreme Temperatures
2. Heat Stress: General Workplace Review

Section 1: Checklist for Extreme Temperature Hazards

Item	Meets Requirement?	Corrective Action
Thermometers: Properly working?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Temperature control equipment: properly working? (thermostats, heaters, fans, air conditioners)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Adequate water supply for worker population in extremely hot conditions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
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)?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The right kinds of personal protective equipment are provided for work in extremely cold conditions or around hot equipment?	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Section 2: 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?

continued on next page

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?

11. 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 cigarettes¹.

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. stem 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.

¹Cigarette smoking increases the likelihood of an individual developing a type of asbestos-related disease (mesothelioma).

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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.

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SECTION II:

Finishing Guidelines



A. FINISHING SAFETY GUIDELINES

Application

The Finishing Safety Guidelines apply to all factories that are covered by Terms of Engagement and finish/laundry garments for Levi Strauss & Co.

Background

Finishing involves a variety of physical and chemical processes that give garments a desired appearance (e.g., faded or tinted) or quality (e.g., wrinkle free or stain resistant). The following processes are covered in this section:

- Hand Work is the use of a hand-held sanding tool to abrade fabric or garments. Hand work includes: sanding, scraping, whisks, use of Dremel tools, etc.
- Hand Painting is the use of a hand-held brush to apply paints, tints or dye to fabric or garments.
- Laser Etching uses lasers to fade dyes, giving garments a worn and abraded appearance. This technique may also be used to create faded images or letters.
- The Resin/Curing process applies a chemical resin solution to a garment, using a liquid bath or spray. After applying the resin, garments are cured in either a batch or continuous oven, resulting in a coating on the garment that imparts a desired effect or property (i.e., water repellence). Curing is the process of heating garments in an oven for a preset period of time at a defined temperature. Curing allows resins to bind with the fabric, giving it the desired performance properties.
- Sand Blasting uses pressurized air to spray solid particles (aluminum oxide, silica sand, or others) against garments to abrade the fabric and achieve a worn and faded look.
- Screen Print uses a hot press, or similar type of equipment to apply a design or logo onto a garment.
- Spraying uses pressurized air to apply bleaching or tinting agents to garments.

Purpose

The purpose of this section is to ensure that factories have hazard controls in place to protect workers from exposure to chemicals, high noise levels, airborne silica, high temperatures, and machine hazards associated with finishing processes.

Checklists

The following checklists identify environmental, health, and safety (EHS) requirements for the various finishing processes. Finishing factories are required to meet all the requirements that apply to their processes (e.g., laser etching, hand work, etc.).

1. HAND WORK

Location _____ Date _____

Contact _____ Assessor Name _____

Description

Hand work is any manual abrasion of fabric or garments by hand, with a hand held sanding tool, or manual application of paint to a garment. Hand work includes: sanding, scraping, whiskers, use of Dremel tools, etc.

Hand Work

Primary Safety Checkpoint

Operation should optimize ergonomic practices, avoid electrical hazards, and keep airborne dust to a minimum.

Safety Guidelines

	Yes	No	TOE Rating
Position garment on air bladders so work on vertical bladders can be performed between worker's standing elbow and shoulder height. Work on horizontal bladders is positioned between standing elbow and waist height.	<input type="checkbox"/>	<input type="checkbox"/>	
Periodic rest breaks are allowed, including morning and afternoon breaks. Company break periods are strictly enforced.	<input type="checkbox"/>	<input type="checkbox"/>	
Floor mats are available when standing is required	<input type="checkbox"/>	<input type="checkbox"/>	
Training is provided on proper work method.	<input type="checkbox"/>	<input type="checkbox"/>	
Airborne dust levels are minimized.	<input type="checkbox"/>	<input type="checkbox"/>	
Fans and ventilation systems direct airflow away from the worker.	<input type="checkbox"/>	<input type="checkbox"/>	

Personal Protective Equipment

- Hearing protection is worn if noise level is over 85 dBA.
- Protective eyewear, including goggles, spectacles, or prescription safety glasses, is worn when using power tools.
- N95* dust mask is worn to protect against inhalation of dust.

Electrical Cords

- are to be in good condition without frayed or exposed wires.
- are plugged into a hard wired outlet or power strip, not an extension cord.

Electrical Outlets

- Outlets are covered.
- Cover plates are in good condition and not broken.
- Wiring is not exposed.
- Wires into junction boxes are not exposed and covered with conduit.

Best Management Practice

- Electrician has reviewed electrical distribution in facility to prevent circuit overloads.
- Local exhaust ventilation is installed to reduce airborne dust from hand work.

*N-series filters and dust masks are used for any solid or liquid airborne particulate that does not contain oil.

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Hand Painting

Hand painting is the manual application of paints, tints or dye, using a hand-held brush

Primary Safety Checkpoint

Operation should optimize ergonomic practices, avoid skin or eye contact, inhalation, or swallowing of paints and chemicals.

Safety Guidelines

	Yes	No	TOE Rating
Position garment on air bladders so work on vertical bladders can be performed between worker's standing elbow and shoulder height. Work on horizontal bladders is positioned between standing elbow and waist height.	<input type="checkbox"/>	<input type="checkbox"/>	G
Periodic rest breaks are allowed, including morning and afternoon breaks. Ensure that company break periods are strictly enforced.	<input type="checkbox"/>	<input type="checkbox"/>	G
Floor mats are available when standing is required.	<input type="checkbox"/>	<input type="checkbox"/>	G
Training is provided on proper work method.	<input type="checkbox"/>	<input type="checkbox"/>	G
Material Safety Data Sheet (MSDS) for paint is available for review.	<input type="checkbox"/>	<input type="checkbox"/>	G
Wear personal protective equipment as recommended in the MSDS.	<input type="checkbox"/>	<input type="checkbox"/>	G
Store oil-based paints away from heat sources.	<input type="checkbox"/>	<input type="checkbox"/>	G
Best Management Practice			
Use half-face respirator with N-series* filter cartridge.	<input type="checkbox"/>	<input type="checkbox"/>	

*N-series filters and dust masks are used for any solid or liquid airborne particulate that does not contain oil.

2. LASER ETCHING

Location _____ Date _____

Contact _____ Assessor Name _____

Description

This process involves the use of lasers to fade dyes, giving garments a worn and abraded appearance. This technique may also be used to create faded images or letters.

Laser Etching

Primary Safety Checkpoint

During operation, administrative and engineering systems should be in place to prevent physical contact with the laser beam. Administrative and engineering controls should be in place to prevent being struck by moving machinery during operation. Avoid inhalation of smoke fumes resulting from machine operation.

Safety Guidelines








	Yes	No	TOE Rating
Robotics —During operation, physical barriers are erected to prevent a worker from being pinned or hit by moving robotic equipment.	<input type="checkbox"/>	<input type="checkbox"/>	
Signs —Danger, Warning or Caution signs, indicating hazards, are posted conspicuously to warn onlookers.	<input type="checkbox"/>	<input type="checkbox"/>	
Ventilation —Exhaust ventilation directs laser generated air contaminants away from the work area and out of the building.	<input type="checkbox"/>	<input type="checkbox"/>	
Laser Activation Warning System —An alarm, warning light, or verbal countdown is used to indicate that the laser is about to start up.	<input type="checkbox"/>	<input type="checkbox"/>	
Protective housings —Protective housings around the laser are interlocked so the laser shuts down if the housing is opened during operation or for maintenance.	<input type="checkbox"/>	<input type="checkbox"/>	
Interlocks —Protective barriers around the laser system are interlocked using sensors, (i.e., light curtains, floor mats, infrared sensors, etc.) to prevent accidental entry during operation.	<input type="checkbox"/>	<input type="checkbox"/>	
Fire Extinguishers —Fire extinguishers are in immediate area and operators are trained on their proper use. Extinguishers should be rated for Class A, B, & C fires.	<input type="checkbox"/>	<input type="checkbox"/>	
Personal Protective Equipment			
• Protective eyewear, including goggles, face shields, spectacles, or prescription eyewear with special filters and coatings, is worn to protect the eyes from laser.	<input type="checkbox"/>	<input type="checkbox"/>	
• Eyewear is specifically designed for protection against radiation emitted from the laser being used (the indicated wavelength and optical density which protective eyewear affords matches that which is generated by the laser).	<input type="checkbox"/>	<input type="checkbox"/>	
• Hearing protection is worn if noise levels are over 85 dBA.	<input type="checkbox"/>	<input type="checkbox"/>	
Best Management Practice			
Respiratory protection using N95* dust masks if smell and fumes from laser process causes worker irritation.	<input type="checkbox"/>	<input type="checkbox"/>	

*N-series filters and dust masks are used for any solid or liquid airborne particulate that does not contain oil.

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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
<p>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.</p> <p>Class A Extinguishers will put out fires in ordinary combustibles, such as wood and paper.</p>		
<p>Class B fires involve flammable liquids and gases, such as gasoline, paint thinner, kitchen grease, propane, and acetylene.</p> <p>Class B Extinguishers should be used on fires involving flammable liquids, such as grease, gasoline, oil, etc.</p>		
<p>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.</p> <p>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.</p>		
<p>Class D fires involve exotic metals, such as magnesium, sodium, titanium, and certain organometallic compounds such as alkyllithium and Grignard reagents.</p> <p>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.</p>	NONE	

3. RESIN / CURING

Location _____ Date _____

Contact _____ Assessor Name _____

Description

This finishing process involves the application of a chemical resin solution to a garment, using a liquid bath or spray. After application of the resin, garments are cured in either a batch or continuous oven, resulting in a coating on the garment that imparts a desired affect or property (i.e. water repellence).

Resin

Resin is a chemical solution applied to a garment either in a bath or by spray. Resin chemicals may be polyurethane, polyacrylate, formaldehyde, fluorochemicals, extenders, crosslinkers, etc.

Primary Safety Checkpoint

Resin does not contact the skin or eyes; it is not inhaled or swallowed.

Yes	No	TOE Rating
<input type="checkbox"/>	<input type="checkbox"/>	

Safety Guidelines

Fans and ventilation systems direct air flow away from workers.

<input type="checkbox"/>	<input type="checkbox"/>	
--------------------------	--------------------------	--

Personal Protective Equipment

• Gloves that protect against resin permeation are worn.

<input type="checkbox"/>	<input type="checkbox"/>	
--------------------------	--------------------------	--

• Protective eyewear, including goggles, face shields, spectacles, or prescription glasses, is worn.

<input type="checkbox"/>	<input type="checkbox"/>	
--------------------------	--------------------------	--

• Boots are worn to prevent skin contact with resin.

<input type="checkbox"/>	<input type="checkbox"/>	
--------------------------	--------------------------	--

• Apron is worn to prevent contact with resin.

<input type="checkbox"/>	<input type="checkbox"/>	
--------------------------	--------------------------	--

Safety shower and eyewash are in immediate area.

<input type="checkbox"/>	<input type="checkbox"/>	
--------------------------	--------------------------	--

Solution is mixed in a well-ventilated or open area.

<input type="checkbox"/>	<input type="checkbox"/>	
--------------------------	--------------------------	--

Material Safety Data Sheet (MSDS) for resins is available for review.

<input type="checkbox"/>	<input type="checkbox"/>	
--------------------------	--------------------------	--

Wear additional personal protective equipment as recommended in the MSDS.

<input type="checkbox"/>	<input type="checkbox"/>	
--------------------------	--------------------------	--

Best Management Practice

Industrial hygiene assessment should be conducted to ensure worker exposure to airborne chemicals is below regulatory standards and acceptable levels.

<input type="checkbox"/>	<input type="checkbox"/>	
--------------------------	--------------------------	--

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Curing

Curing is the process of heating garments in an oven for a preset period of time at a defined temperature. Curing allows resins to bind with the fabric, giving the desired performance properties.

Primary Safety Checkpoint

Avoid skin contact with hot objects and ensure adequate ventilation.

Safety Guidelines

	Yes	No	TOE Rating
Ventilation system directs air flow away from workers. Ovens vent fumes outside the workplace.	<input type="checkbox"/>	<input type="checkbox"/>	
Fire extinguishers are in immediate area and oven operators are trained on their proper use. Extinguishers should be rated for Class A, B, & C fires.	<input type="checkbox"/>	<input type="checkbox"/>	
For continuous ovens, overhead conveyors (hangers) are clearly identified to prevent worker injury.	<input type="checkbox"/>	<input type="checkbox"/>	
Overhead conveyor lines do not block worker access to emergency exits.	<input type="checkbox"/>	<input type="checkbox"/>	
Gloves are worn to protect hands from hot garments and hangars.	<input type="checkbox"/>	<input type="checkbox"/>	
Best Management Practice			
Industrial hygiene assessment should be conducted to ensure worker exposure to airborne chemicals is below regulatory standards and acceptable levels.	<input type="checkbox"/>	<input type="checkbox"/>	
Data-logging equipment should be used to verify the calibration of the oven's actual temperature with the set point. This prevents overheating of garments and reduces the chance of a garment catching on fire.	<input type="checkbox"/>	<input type="checkbox"/>	

4. SAND BLASTING

Location _____ Date _____

Contact _____ Assessor Name _____


Description

Sand blasting involves using pressurized air to spray solid particles (aluminum oxide, silica sand, or others) against garments to abrade the fabric and achieve a worn and faded look.

Sand Blasting

Primary Safety Checkpoint

Avoid exposure to excessive noise, inhalation of airborne dust particles, and swallowing of dust.

Yes No TOE Rating 

Safety Guidelines (when crystalline silica (SiO₂) is present in abrasive material)

Abrasive contains less than 1% crystalline silica. Crystalline silica may be found in quartz, cristobalite or tridymite.



Industrial hygiene assessment should be conducted to ensure worker exposure to airborne silica is below regulatory standards and acceptable levels.



Full-body, hooded coverall and boot/shoe covers are worn to prevent dust from getting on clothes.



Good personal hygiene is practiced to avoid unnecessary exposure to silica dust.



An air purifying, full-face respirator with high-efficiency filter operated in positive pressure mode is used.



Safety Guidelines (Walk-In-System)

Sandblast operator walks into a spray booth or spray area to work. Garments and worker are not separated by a physical barrier.

Fans and ventilation systems direct air flow away from workers.



Personal Protective Equipment

- Hearing protection is worn if noise level is over 85 dBA.



- Protective eyewear, including goggles, spectacles, or prescription safety glasses, is worn.



- N95* dust mask is worn to protect against inhalation of dust. (Dust masks NOT required if best management practice below is used.)



- Full-body, hooded coverall and boot/shoe covers are worn to prevent dust from getting on clothes.



Eye wash station is in close proximity in case dust gets in worker's eyes.



*N-series filters and dust masks are used for any solid or liquid airborne particulate that does not contain oil.

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Safety Guidelines (Enclosed System)

Sand blasting is done within a protective housing. The operator stands outside the housing while operating the sand blast machine.

Fans and ventilation system direct air flow away from workers.

Yes No TOE Rating



Personal Protective Equipment

- Hearing protection is worn if noise level is over 85 dBA.



Wash station is in close proximity in case dust gets in worker's eyes.



Safety Guidelines (Maintenance & Cleaning)

Fans and ventilation system direct air flow away from workers.



Proper lock-out/tag-out procedures are used to prevent inadvertent equipment startup.



Personal Protective Equipment

- Hearing protection is worn if noise level is over 85 dBA.
- Protective eyewear, including goggles, spectacles, or prescription glasses, is worn.
- N95* dust mask is worn to protect against inhalation of dust. (Dust masks NOT required if best management practice below is used.)
- Full-body, hooded coverall and boot/shoe covers are worn to prevent dust from getting on clothes.









Best Management Practice

Personal air-purifying respirators are used during operation, maintenance, and cleaning.

OR:

Supplied-air, shoulder-mounted hoods are used.

*N-series filters and dust masks are used for any solid or liquid airborne particulate that does not contain oil.

5. SCREEN PRINT

Location _____ Date _____

Contact _____ Assessor Name _____

Description

Screen print is the application of a design or logo onto garments using a hot press, or similar type of equipment.

Screen Print

Primary Safety Checkpoint

	Yes	No	TOE Rating
Skin does not come in contact with hot objects and ventilation is adequate.	<input type="checkbox"/>	<input type="checkbox"/>	

Safety Guidelines

Fans and ventilation systems direct air flow away from workers.	<input type="checkbox"/>	<input type="checkbox"/>	
---	--------------------------	--------------------------	--

Gloves are worn to protect hands from hot objects.	<input type="checkbox"/>	<input type="checkbox"/>	
--	--------------------------	--------------------------	--

Long-sleeve shirts are worn to protect arms from hot objects.	<input type="checkbox"/>	<input type="checkbox"/>	
---	--------------------------	--------------------------	--

Material Safety Data Sheet (MSDS) are available for screen-printing chemicals.	<input type="checkbox"/>	<input type="checkbox"/>	
--	--------------------------	--------------------------	--

Additional personal protective equipment is worn as recommended in the MSDS.	<input type="checkbox"/>	<input type="checkbox"/>	
--	--------------------------	--------------------------	--

Electrical Cords

• are in good condition without frayed or exposed wires, and	<input type="checkbox"/>	<input type="checkbox"/>	
--	--------------------------	--------------------------	--

• are plugged into a hard-wired outlet or power strip, not an extension cord.	<input type="checkbox"/>	<input type="checkbox"/>	
---	--------------------------	--------------------------	--

Electrical Outlets

• Outlets are covered.	<input type="checkbox"/>	<input type="checkbox"/>	
------------------------	--------------------------	--------------------------	--

• Cover plates are in good condition and not broken.	<input type="checkbox"/>	<input type="checkbox"/>	
--	--------------------------	--------------------------	--

• Wiring is not exposed.	<input type="checkbox"/>	<input type="checkbox"/>	
--------------------------	--------------------------	--------------------------	--

• Wires into junction boxes are not exposed and covered with conduit.	<input type="checkbox"/>	<input type="checkbox"/>	
---	--------------------------	--------------------------	--

Pigment and dye containers are labeled and in good condition.	<input type="checkbox"/>	<input type="checkbox"/>	
---	--------------------------	--------------------------	--

Oil-based paints and dyes are stored away from heat sources.	<input type="checkbox"/>	<input type="checkbox"/>	
--	--------------------------	--------------------------	--

Best Management Practice

Industrial hygiene assessment should be conducted to ensure worker exposure to airborne chemicals is below regulatory standards and acceptable levels.	<input type="checkbox"/>	<input type="checkbox"/>	
--	--------------------------	--------------------------	--

Local exhaust ventilation is installed to direct screen print generated air contaminants away from the work area.	<input type="checkbox"/>	<input type="checkbox"/>	
---	--------------------------	--------------------------	--

6. SPRAYING

Location _____ Date _____

Contact _____ Assessor Name _____

Description

Spraying involves the use of pressurized air to apply bleaching or tinting agents to garments.

Potassium permanganate (KMnO₄, sometimes referred to as PP)

Potassium permanganate is a liquid solution used as a bleaching agent to fade dye colors. This results in a yellow and worn appearance to the finished fabric.

Primary Safety Checkpoint

	Yes	No	TOE Rating
KMnO ₄ does not contact the skin or contact the eyes; is not inhaled or swallowed.	<input type="checkbox"/>	<input type="checkbox"/>	

Safety Guidelines

Fans and ventilation systems direct air flow away from workers to prevent backflow of KMnO ₄ spray towards the worker.	<input type="checkbox"/>	<input type="checkbox"/>	
---	--------------------------	--------------------------	--

Personal Protective Equipment

- | | | | |
|---|--------------------------|--------------------------|--|
| • Gloves that protects against KMnO ₄ permeation of are worn. | <input type="checkbox"/> | <input type="checkbox"/> | |
| • Protective eyewear, including goggles, spectacles, or prescription safety glasses, is worn. | <input type="checkbox"/> | <input type="checkbox"/> | |
| • N95* dust mask is worn to protect against inhalation of KMnO ₄ . | <input type="checkbox"/> | <input type="checkbox"/> | |
| • Shoes that cover the toes are worn to prevent skin contact with KMnO ₄ . | <input type="checkbox"/> | <input type="checkbox"/> | |
| • Long-sleeve shirt is worn to prevent skin contact with KMnO ₄ . | <input type="checkbox"/> | <input type="checkbox"/> | |

Safety shower and eye wash are in immediate area.	<input type="checkbox"/>	<input type="checkbox"/>	
---	--------------------------	--------------------------	--

Solution is mixed in well-ventilated or open area. Personal protective equipment required while mixing.	<input type="checkbox"/>	<input type="checkbox"/>	
---	--------------------------	--------------------------	--

Storage Guidelines

KMnO₄ containers are labeled, in good condition, and stored away from the following incompatible materials:

- | | | | |
|-------------------------|--------------------------|--------------------------|--|
| • Acids | <input type="checkbox"/> | <input type="checkbox"/> | |
| • Glycerine | <input type="checkbox"/> | <input type="checkbox"/> | |
| • Hydrogen Peroxide | <input type="checkbox"/> | <input type="checkbox"/> | |
| • Organic Materials | <input type="checkbox"/> | <input type="checkbox"/> | |
| • Metallic powders | <input type="checkbox"/> | <input type="checkbox"/> | |
| • Combustible materials | <input type="checkbox"/> | <input type="checkbox"/> | |

Best Management Practice

Use a water curtain behind spray area to capture overspray and divert the overspray to wastewater treatment plant.	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------

Use half-face respirator with N-series filter* cartridge.	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------

Industrial hygiene assessment should be conducted to ensure worker exposure to airborne chemicals is below regulatory standards and acceptable levels.	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------

*N-series filters and dust masks are used for any solid or liquid airborne particulate that does not contain oil.

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Tinting/Pigment

Tinting/pigment is any paint or dye applied to the fabric using the spray method.

Primary Safety Checkpoint

Tints and pigments do not contact the skin, or eyes and are not inhaled or swallowed.

Safety Guidelines

Fans and ventilation system direct air flow away from workers.

Yes	No	TOE Rating
<input type="checkbox"/>	<input type="checkbox"/>	(G)

Personal Protective Equipment

- Gloves that protect against permeation of tints and dyes are worn.
- Protective eyewear, including goggles, face shields, spectacles, or prescription safety glasses, is worn.
- N95* dust mask is worn to protect against inhalation of tints and dyes.

<input type="checkbox"/>	<input type="checkbox"/>	(G)
--------------------------	--------------------------	-----

<input type="checkbox"/>	<input type="checkbox"/>	(G)
--------------------------	--------------------------	-----

<input type="checkbox"/>	<input type="checkbox"/>	(G)
--------------------------	--------------------------	-----

Safety shower and eye wash are in immediate area.

<input type="checkbox"/>	<input type="checkbox"/>	(G)
--------------------------	--------------------------	-----

Solutions are mixed in well ventilated or open area. Personal protective equipment is required while mixing.

<input type="checkbox"/>	<input type="checkbox"/>	(G)
--------------------------	--------------------------	-----

Storage Guidelines

Store oil-based paints and dyes away from heat sources.

<input type="checkbox"/>	<input type="checkbox"/>	(G)
--------------------------	--------------------------	-----

Containers are labeled and in good condition.

<input type="checkbox"/>	<input type="checkbox"/>	(G)
--------------------------	--------------------------	-----

Best Management Practice

Use half-face respirator with N-series filter* cartridge.

<input type="checkbox"/>	<input type="checkbox"/>	
--------------------------	--------------------------	--

Industrial hygiene assessment should be conducted to ensure worker exposure to airborne chemicals is below regulatory standards and acceptable levels.

<input type="checkbox"/>	<input type="checkbox"/>	
--------------------------	--------------------------	--

*N-series filters and dust masks are used for any solid or liquid airborne particulate that does not contain oil.

Program Strategy for Finishing Processes

- Establish procedures and identify responsible persons to routinely inspect process areas and make sure the factory meets all TOE requirements in the finishing process checklists.

- Make changes to procedures and engineering systems if necessary, based on inspections or industrial hygiene assessments.
- Re-train and/or discipline workers if safe work practices are not being followed.

- Use finishing process checklists to inspect process areas each month.
- Follow up and correct any conditions or work practices that do not meet requirements.



- Review completed checklists to make sure inspections have been conducted and any necessary corrective actions have been completed in a timely manner.
- Periodically conduct industrial hygiene assessments to make sure worker exposure to airborne chemicals is below acceptable levels

SECTION III:

Health Guidelines



A. FIRST AID



Application

This information applies to all factories covered by the Terms of Engagement (TOE) for Levi Strauss & Co.





Purpose

First aid is the care given to an injured worker before professional medical help arrives. First aid may mean the difference between life and death. The purpose of this section is to preserve life, prevent any injuries from getting worse, and to help injured workers recover.

TOE Requirements

1.  Factories must provide at least one first-aid kit per 100 workers. The kits must be located on the factory floor to give workers immediate access. There must be a sign board that clearly displays their location, and every six months, each worker must be told of this location. The kits must not be under lock and key.
2.  First-aid kits must be fully stocked with the items listed in the table below:

First Aid Supplies		
Supply	Size/Type	Quantity
Absorbent Compress	84 sq. cm (32 sq. in) no side smaller than 10 cm (4 in)	1
Adhesive Bandages	2.5 x 7.5 cm (1 x 3 in)	16
Adhesive Tape	460 cm total (5 yards)	1
Antiseptic	0.5g (0.14 fl. Oz) application	10
Burn Treatment	0.5g (0.14 fl. oz) application	6
Sterile Pads	7.5 x 7.5 cm (3 x 3 in)	4
Triangular Bandages	100 x 100 x 140 cm (40 x 40 x 56 in)	1
Cold Pack		1
Medical Exam Gloves		2 pair

3.  The number of workers who must be trained to give first aid depends upon the overall worker population and the distance from the factory to the nearest medical facility. For all factories with fewer than 500 workers, at least 1% of the workforce must be trained in first aid and 2 workers per shift must be trained in Cardiopulmonary Resuscitation (CPR) techniques listed in the Hazard Control section below. Factories with 500 or more workers and all factories where medical facilities are more than 5 minutes away must have a full-time medical professional on site during all hours workers are in the factory.
4.  Factories must maintain up-to-date written records of injuries, including minor injuries. These records must include a description of circumstances, injuries and treatment. In addition, injury records must be sorted by department and by worker.
5.  Factories must have written procedures to treat workers needing first aid.
6.  Emergency eyewash and shower stations must be located so that workers who handle chemicals can get to them immediately (within 10 seconds). Once activated, these stations must continue to operate without requiring the use of a worker's hands (the worker must be able to use both hands to hold their eyes open while flushing them with water).

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Implementation of TOE Requirements

Training, Rules, and Record Keeping

- Workers who have been selected and agree to be first-aid responders should be trained and certified each year by a qualified contractor. (See example of training program in Appendix.) First-aid responders should be re-trained each year.
- First-aid training should be documented. Certificates should be given to workers who successfully complete the first aid course.
- Factories should keep a written record of first-aid incidents that includes the names of the injured worker and the first aid responder and describes the first aid that was given. (See Appendix for an example of a written first-aid record.)
- Each first-aid kit should have a label listing the supplies it contains. Emergency telephone numbers should also be listed on the first-aid kit and near all telephones.

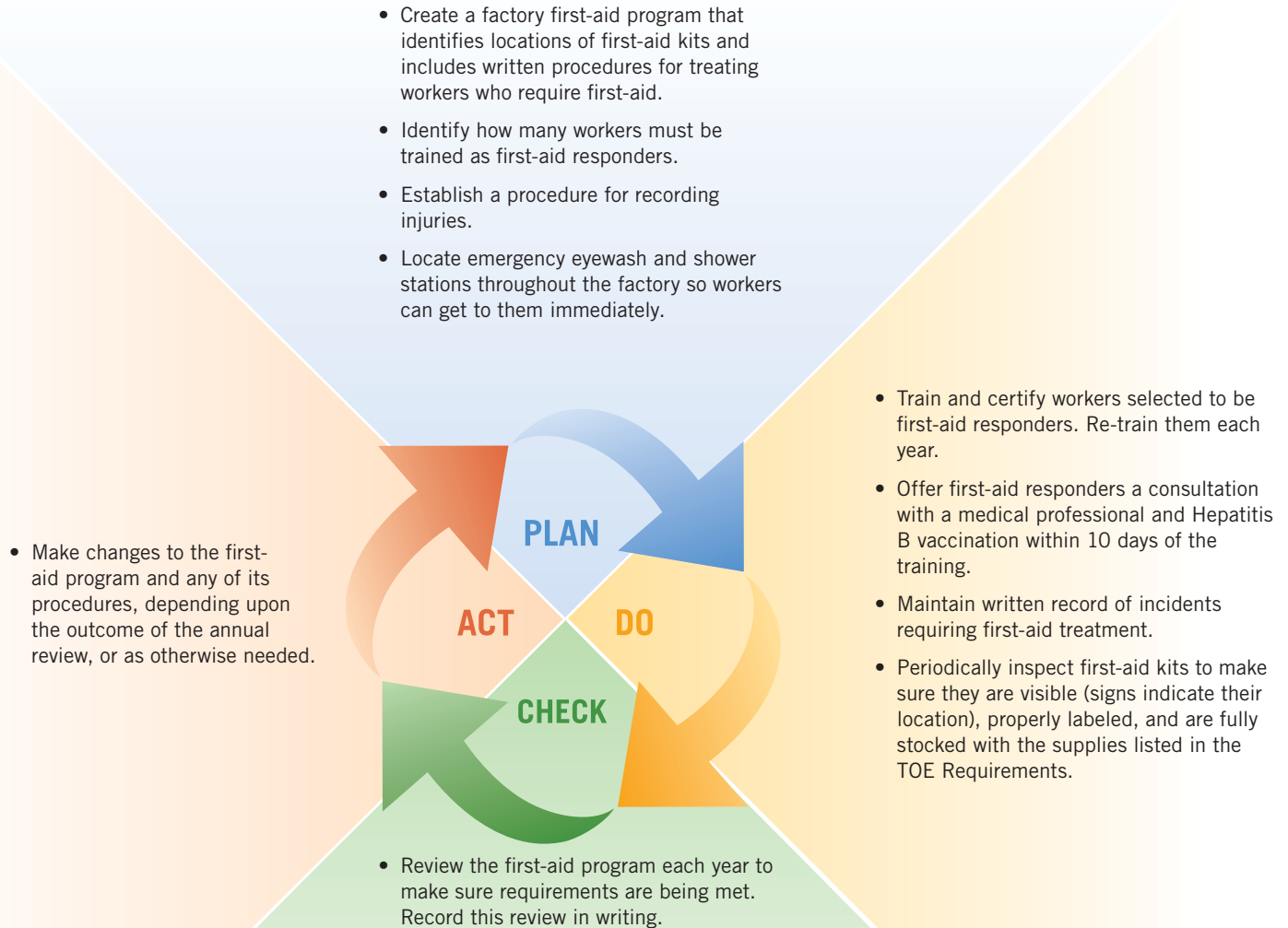
Hazard Assessment

- Factories should create a factory first-aid program that identifies the first-aid responders and the locations of first-aid kits, and includes written first-aid instructions.
- Factories should review the first-aid program each year to make sure the first aid requirements are met. This review should be recorded in writing.

Hazard Control

- First-aid responders should be offered a consultation with a medical professional and the Hepatitis B Virus vaccination within 10 days of completing their first-aid training. Any worker who has provided first aid where it was possible that he/she contacted blood or other body fluids should also be offered the Hepatitis B vaccine. The vaccination services should be provided at no cost to the worker, at a convenient place and time, and should be supervised by a licensed physician or other licensed, healthcare professional.
- Factories should inspect first-aid kits on a regular basis to make sure they have all the supplies listed in the TOE Requirements section.

Program Strategy for First-Aid



Further Information

- See Appendix.
- Information on First Aid training programs can be found at: http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=1568
- Model set of procedures for first aid treatment can be found at: <http://www.mayoclinic.com/health/FirstAidIndex/FirstAidIndex>
- <http://www.parasolemt.com.au/manual/drabc.asp>
- ANSI Z308.1-1998 “Minimum Requirements for Workplace First Aid Kits.”

B. PREVENTING COMMUNICABLE DISEASE

Application

This information applies to all factories covered by Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

A communicable disease is one that may be spread from one person to another by direct contact with blood or other body fluids. It may also be spread by direct contact with diseased animals, or by taking in contaminated food, water, or air. Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV) are examples of communicable diseases. The purpose of this section is to explain the requirements for preventing the spread of communicable diseases among factory workers.

TOE Requirements

1. The factory must provide toilets that are clean and in good working condition for workers' use.
2. The factory must have plenty of safe drinking water; it must be available, at no cost, to all workers at all times.
3. The factory must have an Exposure Control Plan to prevent workers from contacting blood or other body fluids that may contain harmful organisms, such as HIV or HBV.
4. Kitchens must be clean and organized for safe food preparation.
5. The dining halls or other eating areas must be kept clean and separate from the main work area.
6. The factory must keep a written record of any injuries caused by needle sticks or cuts.

Implementation of TOE Requirements

Training, Rules, and Record Keeping

- Workers should be trained on the Exposure Control Plan.
- “Sharps containers,” also known as “safety boxes,” are made of material that is inflexible, leak-proof, and resists being punctured by the sharp objects it contains. Sharps containers should be supplied for workers to dispose of broken needles, scissors, or cutting blades.
- The following list of supplies should be kept on site and easily available to workers to prevent accidental exposure to blood or other body fluids:
 - Protective gloves
 - Handling devices (tongs, tweezers, forceps, magnets)
 - CPR mask with one-way valve mouth piece (to prevent first-aid responders from contacting a victim's body fluids)
 - Disinfectant (such as 10% bleach solution)
 - Sharps containers

Hazard Assessment

- Factories should regularly test drinking water for bacteria and lead and should act to improve the drinking water if the tests show it to be unhealthy. Factories should keep written records of these tests.
- Factories should identify workers whose tasks may expose them to blood or body fluids (e.g., first-aid responders, sewing machine operators, kitchen workers). These workers should be offered the Hepatitis B vaccine and a meeting with a medical professional within 10 days of beginning their work.

When a new task is introduced into the work area, factory managers should decide whether it may expose workers to blood or body fluids. If so, managers should make sure that workers are trained on the Exposure Control Plan and that the Plan is being followed in that work area.

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Hazard Control: Exposure Control Plan

- The Exposure Control Plan should address the following requirements:

Sharp Objects

- Include clear rules and procedures for safely handling broken needles, cutting blades, glass, security tags, or other sharp objects. These rules should apply to sharp objects which may be “contaminated” (that is, they may have contacted blood or other body fluids), as well as to those sharps that are not contaminated.
- An example of such a rule might be: “Do not handle broken sharp objects or broken glass by hand. Use tongs, forceps, tweezers, magnets or other devices to pick up and discard the broken object.”
- Workers should dispose of sharp objects in sharps containers which have been labeled as “Biohazard” and “Sharps Waste” in the local language.
- Factories should keep written records of injuries caused by sharp objects and of incidents requiring first aid

Cleaning and Disinfecting:

- Include specific procedures for cleaning and disinfecting contaminated work areas and equipment.
 - “Disinfect” means to use heat or chemicals to destroy harmful organisms. This is typically done with a 10% bleach/water solution.
 - When cleaning and disinfecting contaminated areas or equipment, workers should wear protective gloves (such as latex or other watertight gloves). Other personal protective equipment may be required, depending upon the task. For example, if cleaning and disinfecting may cause splashing, workers should wear safety glasses or goggles. Workers are required to wash their hands after they remove their gloves. If there is not a sink nearby, cleansing wipes should be provided instead.
 - If work surfaces (including kitchen counters) or equipment have come in contact with blood or other body fluids (for example, a worker’s finger has been punctured by a sewing machine needle and has bled onto the equipment surface), these surfaces should be cleaned and disinfected immediately. Workers should spray contaminated equipment or surfaces with a 10% bleach/water solution

and wait at least 5 minutes before wiping these surfaces. (Note: In addition to the bleach solution, other disinfecting materials may be approved by factory managers.)

Kitchen

- Workers who prepare and serve foods should keep their skin and hair clean and wear clean clothing.
- Raw poultry, fish, and meat should be prepared separately from vegetables, fruits, and cooked foods.
- Uncooked foods (with the exception of dry goods such as grains) should be kept refrigerated.
- Dishes and utensils should be cleaned (by washing in hot water and detergent and then rinsing in hot water) between uses.
- Kitchen work surfaces and equipment should routinely be cleaned and disinfected using the procedure described in the “Cleaning and Disinfecting” section.

Toilets

- Toilet facilities should be provided with running water, and stocked with toilet paper (where culturally appropriate) and anti-bacterial soap or instant hand sanitizer at all times.
- Factories should be equipped with enough toilet facilities to serve the worker population. For example, if a factory employs many more female workers than males, it should provide more female toilet facilities than male toilet facilities.

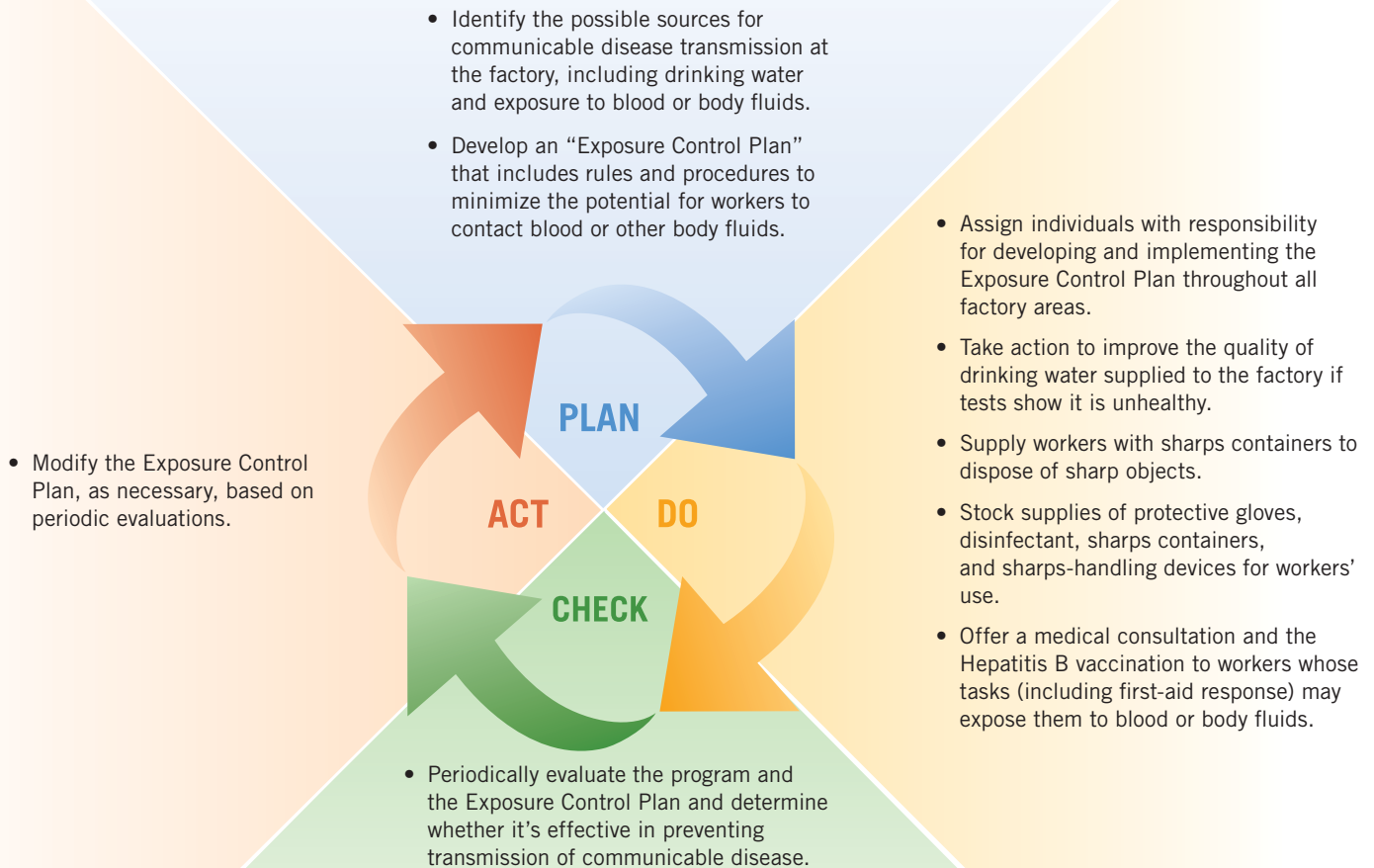
Dining

- Dining areas should be clean, protected from the weather, and have enough seating for all the workers who may be on break at any one time.

Vaccination

- Any worker who has provided first aid to another worker and may have been exposed to blood or other body fluids should also be offered the Hepatitis B vaccination.
- A meeting with a medical professional and the vaccination services (including any laboratory tests) should be provided at no cost to the worker and at a convenient place and time. These services should be provided under the supervision of a licensed physician or other licensed, healthcare professional.

Program Strategy for Preventing Communicable Disease



Further Information

- See Appendix.

APPENDIX III: Health Guidelines

2. COMMUNICABLE DISEASE—AVIAN FLU

General Information

Since 2003, human cases of avian flu (“bird flu”) have been confirmed in several countries in the world. In Southeast Asia, fatal cases have been reported. Epidemiologists believe that most of these cases resulted from exposure to infected poultry.

So far, the spread of H5N1 virus from person to person has been limited. Nonetheless, because all influenza viruses have the ability to change, scientists are concerned that H5N1 virus one day could be able to infect humans and spread easily from one person to another.

The main symptoms of “bird flu” include fever above 38° C, coughing and acute pneumonia-type symptoms such as difficulty breathing and shortness of breath.

Prevention Practices

- Do not handle poultry in markets or farms. Do not touch surfaces that may be contaminated with poultry feces or nasal secretions. Do not let children keep poultry as pets.
- Wash hands frequently, using soap and water or waterless, alcohol-based hand sanitizers. Make sure that the soap lather stays in contact with your hands for at least 20 seconds. Thoroughly rub/scrub all parts of the hands including finger tips, nails, and areas between the fingers. Ensure that hands are washed after coughing, sneezing or touching dirty or possibly contaminated surfaces and before touching/rubbing eyes, nose or mouth.
- If preparing food:
 - Keep raw foods physically separate from cooked foods. Use sanitized chopping boards for each different food type. Immerse chopping board in a bleach solution (1 tablespoon of bleach in 3 liters of water) for at least 7 seconds to sanitize. Wash your hands after handling raw food such as poultry or eggs.
 - Wash the outside of un-cracked eggshells in soapy water before handling and cooking. Avoid the use of raw or soft-boiled eggs in dishes that will not be cooked further.
 - Cook poultry to an internal temperature of 74° C. Use a thermometer to measure the temperature.
- Eat a healthy diet and exercise.
- If you think you have been exposed:
 - Be on the alert for the development of a significant fever, difficulty breathing, or continued coughing.
 - Seek evaluation by a medical provider as soon as possible. Cover your nose and mouth with a tissue or mask when coughing or sneezing and dispose of it properly.
 - Avoid public areas, including your workplace and schools.

Kitchen/Canteen Workers

Personal Hygiene Practices

- Proper Handwashing – Hands should be washed with soap and water before and after handling food, between each food preparation, and before using food-preparation equipment. Allow the soap lather to stay on the hands for a minimum of 20 seconds. Thoroughly rub/scrub all parts of the hands including finger tips, nails, and areas between the fingers. Paper towels, a properly working continuous-cloth towel, or warm-air dryer should be used to dry the hands.
- Employees who are ill should report their illness to the manager and not work with food until fully recovered and cleared by a medical provider. This includes workers suffering from skin disorders such as dermatitis, open wounds, rash, etc.
- Clean hygiene practices should be maintained, including daily bathing, clean hair, and clean clothing, whenever working with food.

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Food Care Practices

- ❑ Fresh poultry should be received from the vendor at or below 5°C, without discoloration (although red wing tips are acceptable) or stickiness under the wings or joints. The poultry should have a firm texture, be odorless and surrounded by crushed ice.
- ❑ Poultry should be refrigerated at or below 5°C until it is used. The raw poultry should be stored on the bottom shelf of the refrigerator, below meat and fish products, and below ready-to-eat or cooked food.
- ❑ Refrigeration and freezing do not kill the H5N1 virus. The virus can be found in all parts of an infected bird, including the meat. Poultry foods should be cooked to a temperature of at least 74°C for at least 15 seconds.
 - ❑ Reheating of unused poultry food is acceptable if the food dish is used within 24 hours of its original cooking and heated to at least 74°C for at least 15 seconds.
 - ❑ Slow cooking (more than 2 hours) of a reheated poultry food is not recommended.
 - ❑ A steam table or heated cabinet is not recommended to reheat poultry foods.
- ❑ Egg dishes should be cooked to a temperature of at least 68°C for at least 15 seconds.
- ❑ Steam tables or heated cabinets need to hold a constant food temperature of at least 60°C.

Prevent Cross Contamination of Foods

- ❑ Prepare raw poultry, fish, and meat in separate areas from vegetables, fruits, and cooked foods. If the kitchen space is limited, prepared these foods at different times during the day.
- ❑ Clean and sanitize all food preparation and eating surfaces, equipment and utensils after each use.
 - ❑ If using a bleach solution for sanitizing, immerse the equipment for no less than 7 seconds. One full minute is preferable.
- ❑ Cloths used for cleaning food spills should not be used for any other purpose.

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SECTION IV:

Environment Guidelines



A. DOMESTIC SEWAGE AND BIOSOLIDS MANAGEMENT



Application

This information applies to all factories covered by the Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

Domestic sewage (wastewater containing human urine and feces from the factory population) can cause water pollution, create a risk to community health, and become a nuisance for neighboring communities if it is not treated. Biosolids are sewage sludge that has been treated to remove pollutants and disease-causing organisms; this material can be recycled, typically as a soil amendment, because of the plant nutrients it contains. The purpose of this section is to explain the requirements for treating domestic sewage, and for managing the resulting biosolids, in order to control environmental and health hazards.

TOE Requirements

1.  All factories must meet the LS&CO. Global Effluent Guidelines, which require (a) on-site biological treatment of domestic sewage, or (b) off-site municipal wastewater treatment, or (c) a septic tank system.
2.  Biosolids must be reused or disposed of at a facility with valid permits, which must be checked by factory personnel.

If the factory has existing biological treatment for their industrial waste water, this system can also be used to treat domestic sewage.

Implementation of TOE Requirements

Training, Rules & Record Keeping

- Factories should train workers whose job duties include working with the domestic sewage treatment system or shipping domestic sewage to an off-site facility. A written record should be kept of this training.
- Factories should keep written records about the disposal methods they use for biosolids, including verification that receiving facilities have permits to use or dispose of biosolids.

Hazard Controls

- Factories can meet the requirements for biological treatment in several ways:

Off-Site Solution

- Use a public wastewater treatment facility (typically managed by a government agency), which is equipped for effective biological treatment of sewage. The survey form in the LS&CO. Global Effluent Guidelines Appendix should be used to decide whether the facility is well equipped to treat domestic sewage that is discharged to it by a sewer system or transported to it by truck. (If sewage is trucked to the treatment facility, the factory should build, modify, or maintain on-site holding tanks or equipment in order to prevent pollution, public health hazard or nuisance while sewage awaits transportation.)

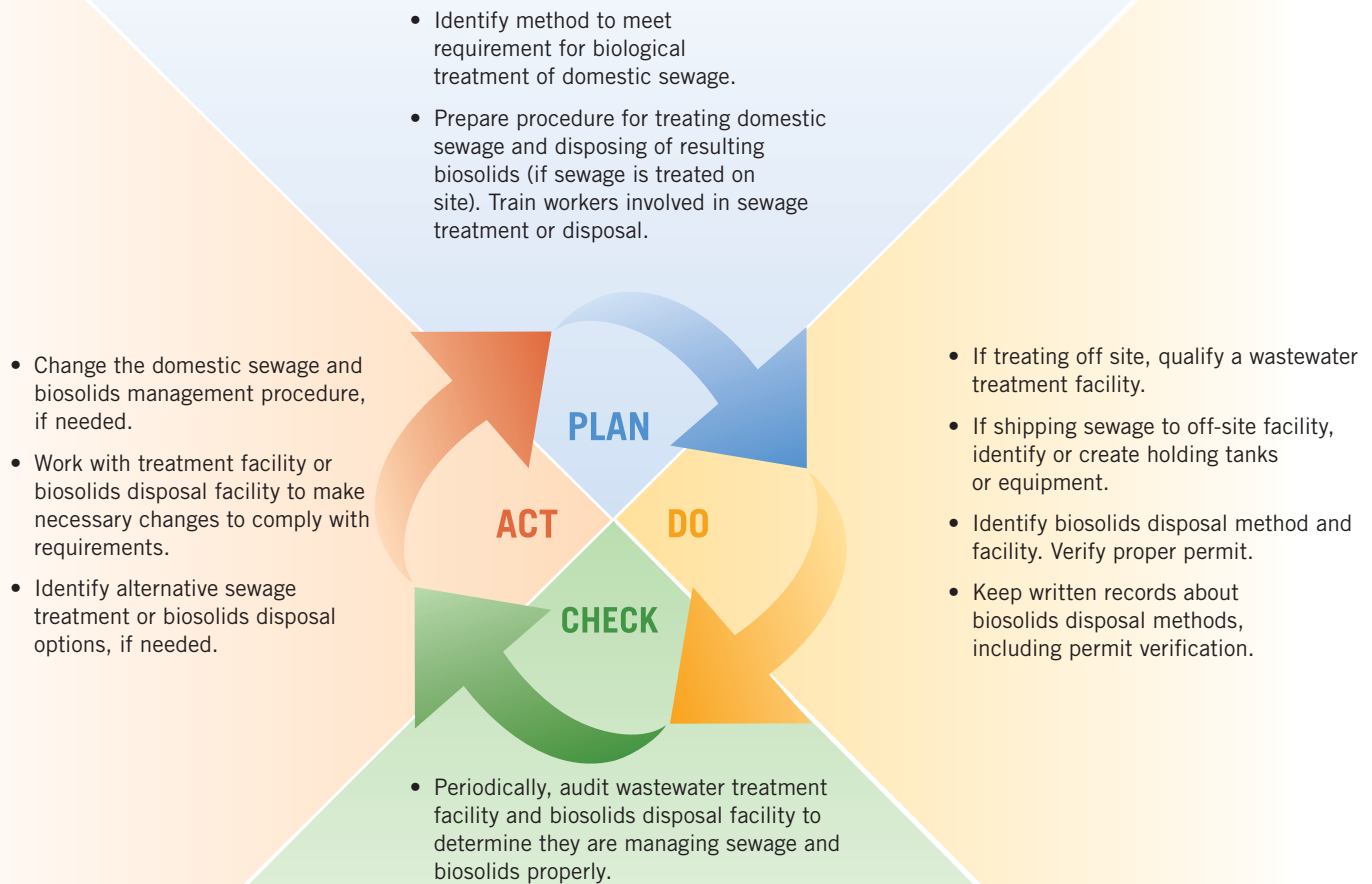
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On-Site Solution

- Use a biological treatment plant built specifically to treat domestic sewage.
 - Use an existing, on-site biological treatment plant which is currently used to treat other wastewater streams from the factory.
 - Use a septic tank and drain field.
- If factories treat domestic sewage on site, the resulting sewage sludge should be thickened, stabilized, conditioned, disinfected, and dewatered, making it into biosolids prior to transportation.
 - Biosolids should only be transported in a water-tight truck that has the proper permits.
 - Biosolids should be reused, recycled, or disposed. Solutions for disposal of biosolids include:
 - Monofill (a landfill that accepts only wastewater treatment plant biosolids)
 - Designated disposal landfill
 - Landfilling with biogas recovery
 - Incineration
 - Agricultural purposes (e.g., fertilizer)
 - Silviculture
 - Composting
 - Cotton crust
 - Bricks
 - Ceramics
 - Other acceptable recycling programs

If a factory is unable to achieve any of the above solutions, it should discuss its situation with the LS&CO. Contact.

Program Strategy for Managing Domestic Sewage and Biosolids



Further Information

- LS&CO. Global Effluent Guidelines section and Global Effluent Guidelines Appendix (with survey form for wastewater treatment facilities)

B. TRANSPORTING HAZARDOUS MATERIALS




Application

This information applies to all factories covered by the Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

If they are not packaged and transported safely, hazardous materials may leak or spill and may cause harm to factory and transportation workers and to communities and the environment. The purpose of this section is to describe the requirements for making sure that hazardous materials are transported safely to and from the factory.

TOE Requirements

1.  Factories must have procedures to safely receive hazardous materials transported to them.
2.  Factories must provide information to transporters about the physical, chemical, and environmental hazards of materials to enable transporters to safely and legally transport the materials away from the factories.
3.  Factories must give special instructions to transporters about routing, parking, and delivery of hazardous materials, and must make sure that these are followed.

Implementation of TOE Requirements

Training, Rules & Record Keeping

- Workers who ship hazardous materials away from the factory and/or receive hazardous materials into the factory (e.g., from a chemical supplier) should be knowledgeable about these materials.
- Training on safely transporting hazardous materials should be provided to these workers each year. Written records should be kept to show this training has been completed.

Hazard Controls

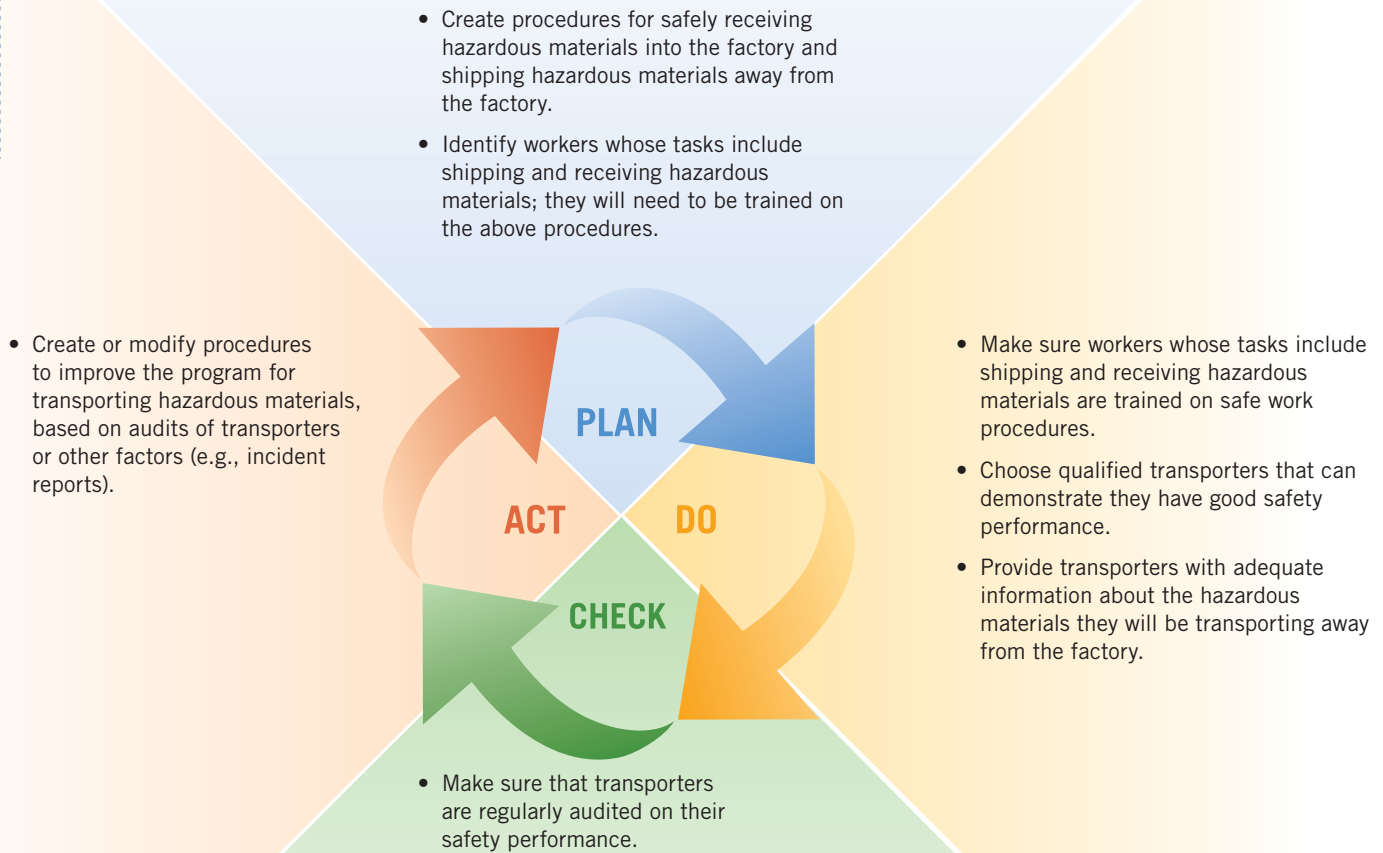
- Factories should choose qualified transporters that are committed to operating safely and obeying transportation laws. They should make sure that the transporters are regularly audited on their safety performance.
- Factories should have written procedures for loading and unloading hazardous materials. These procedures should include having workers check that vehicles and equipment are suitable before loading hazardous materials. Factory managers should make sure these procedures are followed and should obtain satisfactory written information regarding how these materials are to be transported.

- Factories should provide hazard information to transporters carrying hazardous materials away from the factory to enable transporters to select the correct tank and equipment, to placard the vehicle correctly (post the proper warning signs), and to instruct the driver.
- Factories should give transporters written information about the hazards of the materials they are shipping and what action to take in case of emergency. Factories should give transporters the telephone number of a specialist who will provide advice about the shipment in an emergency.

Further Information

- See Hazardous Waste section.

Program Strategy for Transporting Hazardous Materials



C. HAZARDOUS WASTE

Application

This information applies to all factories covered by the Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose




Hazardous wastes that are disposed of improperly can pollute the air, land, groundwater, and waterways; harming the environment and threatening community health. While garment factories do not create large quantities of hazardous waste, it is important that any amount of hazardous waste be managed properly to avoid contaminating the environment. The purpose of this section is to describe how factories may properly manage hazardous wastes.






Common Types of Hazardous Wastes

Examples of hazardous waste include:

- Spent chemicals, such as bleach, solvent-based paint, flammable solvents, and caustic cleaners
- Used oil and un-drained oil filters
- Used batteries
- Used fluorescent/high-intensity-discharge lamps
- Electrical equipment containing polychlorinated biphenyls (PCBs)
- Ballasts (PCB and Non-PCB)
- Pesticides

TOE Requirements

1.  Factories must determine the types and amounts of hazardous wastes resulting from production and business activities.
2.  Factories must treat, recycle, or dispose of all hazardous wastes they make by using a qualified hazardous waste contractor, whenever feasible.
3.  Hazardous waste “manifests” or other, equivalent, shipping documents must be used with every hazardous waste shipment to an off-site location. Shipping documents used for hazardous wastes must contain, at a minimum, the following information:
 - Factory name and address
 - Name, address, and phone number of transporter and/or destination facility
 - Description of each waste stream transported off-site for disposal

Shipping documents must be signed by factory personnel who have been trained on the hazardous waste shipping and documentation requirements.
4.  Factory personnel must track waste shipments to make certain the shipments were received by the proper facility.
5.  Waste disposal records must be kept by the factory for at least 3 years (or longer, if required by local authorities).
6.  Factories must take steps to reduce hazardous waste (e.g., by using non-hazardous materials such as citrus-based solvents and non-toxic cleaners). Factories must work to improve current procedures and technologies for hazardous waste reduction, treatment, recycling, and disposal.
7.  All hazardous wastes (including medical waste and used oil) must be handled in a way that minimizes the possibility of exposing workers and contaminating the environment (air, land or water). Factories should use the checklists and guidelines in the Appendix, which are based on best management practices.
8.  Electrical equipment that may contain polychlorinated biphenyls (PCBs), such as transformers, regulators, capacitors, etc., must be labeled and managed as PCB-contaminated equipment.

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Implementation of TOE Requirements

Training, Rules & Record Keeping

- Workers who handle hazardous wastes should be trained to avoid personal injury, prevent spills and releases, and to make sure these wastes are disposed of safely. Note: Workers who must contain or clean up spills should also be trained on spill clean-up procedures including how to protect themselves from contacting the spilled wastes. Factories should keep written records of this training for at least 3 years (or more, if required by local authorities).
- Factories must train personnel who sign hazardous waste shipping documents about container and labeling requirements for hazardous wastes to be shipped off-site, and how to properly complete the hazardous waste shipping documents.
- Factories may make arrangements with qualified contractors to clean up hazardous waste spills. If this is the case, authorized workers should be trained to know what size spill they are allowed to clean up (e.g., 1 gallon or less if the waste is not extremely hazardous), and how to control larger spills so that they don't spread before the qualified contractor arrives.

Hazard Assessment

- Factories should audit hazardous waste recycling, treatment, or disposal facilities before sending hazardous wastes to them. This audit should determine if the facility:
 - has all the required permits;
 - manages wastes responsibly;
 - complies with its permit conditions, including keeping records on file; and
 - has the financial ability to pay for a spill clean-up or the closing down of its site.

Hazard Controls

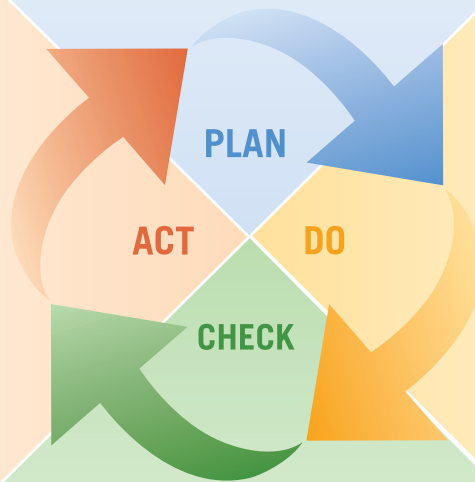
- All hazardous wastes should be placed in containers that are in good condition and are compatible with their contents (e.g., acid or caustic wastes should not be stored in metal drums, as they will corrode the metal). Containers should be covered except when workers are transferring hazardous waste into them.
- Hazardous waste containers should be labeled with the words, "HAZARDOUS WASTE," the name of the waste (e.g., the chemical name), and the hazardous properties (such as flammable or caustic).

- Hazardous wastes should be stored in assigned areas with secondary containment (a container or physical structure that surrounds the primary container and serves to hold any liquids that may leak from the primary container). Assigned hazardous waste storage areas should be:
 - located indoors, if possible (outdoor areas should be completely enclosed, such as a shed);
 - locked to prevent unauthorized individuals from entering;
 - labeled with warning signs, such as: "WARNING – HAZARDOUS WASTE"; and
 - properly ventilated.
- Trained and authorized factory workers should inspect assigned hazardous waste storage areas each week to make sure containers are in good condition and the requirements of this section are being met.
- Spill control equipment should be kept in the assigned hazardous waste storage areas.
- Emergency procedures should instruct workers about what to do if there is a spill or other event that releases hazardous waste from its container.
- Emergency phone numbers (such as the clean-up contractor, local authorities who respond to fires or chemical spill emergencies) should be posted next to the telephone.
- All hazardous wastes should be disposed of, at a qualified facility, by one of the following methods, whenever feasible:
 - Recycling
 - Treatment
 - Incineration
 - Burial at a hazardous waste landfill

Program Strategy for Hazardous Waste

- Identify types and amounts of hazardous waste at factory.
- Prepare a procedure for managing hazardous wastes at factory (include instructions on handling spills).
- Train anyone who handles, labels, inspects, and ships hazardous wastes.

- Make changes to the hazardous waste management as necessary.
- Disqualify a hazardous waste contractor or disposal facility if they don't comply with requirements.
- Retrain or discipline workers, if they don't follow the procedure.



- Audit and identify qualified hazardous waste disposal facilities.
- Store hazardous wastes in compatible containers with proper labels, in assigned areas.
- Prepare and keep copies of hazardous waste shipping documents, as wastes are shipped to disposal facilities.

- Inspect hazardous waste storage areas to make sure the procedure is being followed.
- Check that wastes sent to disposal facilities are received by them and managed as requested (i.e., recycled, treated, incinerated or disposed of).

Further Information

- See Appendix.
PCBs: <http://agency.osha.eu.int/OSHA/search?SearchableText=PCBs>
PCBs: <http://agency.osha.eu.int/data/legislation/57/>

D. SOLID WASTE MANAGEMENT

Application

This information applies to all factories covered by the Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

The benefits of reducing the volume of solid waste generated at a factory include a positive effect on the environment, an economic advantage to the factory, better community relations, and improved worker morale. The purpose of this section is to describe the requirements for managing and reducing the volume of solid waste generated by factories.

TOE Requirements

1. The factory must create an ongoing program for solid waste reduction, which includes setting waste reduction goals.
2. The program must reduce the amount of waste created at the factory, increase recycling, and encourage the proper management, storage, and disposal of all waste.
3. The factory's procedures and technologies for managing solid waste must be evaluated each year and updated, when necessary, to improve the program and/or achieve goals.
4. All hazardous wastes (including medical waste and used oil) must meet the requirements of the Hazardous Waste section and must never be mixed with general waste.

Implementation of TOE Requirements

Training, Rules & Record Keeping

- Factories should set goals to better manage solid waste, using the guidelines provided throughout this section.
- The factory's solid waste program should be guided by the principle of REDUCE, REUSE, and RECYCLE. Workers should be encouraged to participate in the program to help the factory save resources and money.
- Common types of solid wastes are listed below, along with suggested disposal methods. More detailed information about how to reduce waste is included in the Appendix.

Capital Assets

A capital asset is any electrical device or machine used in the process of producing apparel, such as a sewing machine and/or a cutting machine. When equipment is no longer in useful condition, the factory should try to reuse or recycle the internal components, rather than simply disposing of the entire machine in a landfill.

Caution

Some equipment may contain hazardous materials, such as mercury or polychlorinated biphenyls; these should be removed and then properly managed as hazardous wastes.

Food

There are many methods of reducing the solid waste created by the factory's food service. Examples include buying food supplies frequently ("just-in-time buying") to make sure the food does not spoil; and using washable and reusable dishes, cutlery and linen. Food waste should be collected and provided to a composting facility.

Office Supplies

Every effort should be made to recycle all office paper. Most types of paper are recyclable, including computer printout (colored or blank), white ledger, colored ledger, manila folders, pamphlets, brochures, phone books and newspapers. Examples of paper that cannot be recycled are paper with food contamination and blueprints.

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Plastic Covering

Plastic coverings should be collected and recycled. The plastic is low density polyethylene (LDPE) and can be reprocessed to agricultural film, shopping bags and/or packaging film.

Material Waste

Factories should focus on minimizing the amount of lost material. Material that is unused or damaged can be reused and/or recycled for other purposes. Scraps can be used for cleaning tasks—wiping down machines, for example. Scraps can also be collected and sold or given to a company to be used as stuffing for cushions and pillows. Unused material can be used as padding for carpet underlay, mattress padding and the molded padding used in the automotive industry.

Thread and Cones

Factories should try to use all thread in production and avoid having it go to waste. Thread cones should be returned to the supplier or manufacturer for reuse.

Cardboard Boxes

Cardboard should be properly recycled. Recycled cardboard is used to manufacture new boxes, paper tubes, cans and drums, gypsum wall and many other products.

Wooden Crates and Pallets

Broken wooden crates and pallets can be recycled and reused. If possible, used pallets should be returned to the vendor, reused, or, if uncontaminated, recycled by a composting company as mulch.

Machine Oil

The safest way to dispose of used oil is to recycle it. Factories should try to recycle oil in order to keep it out of waterways and the groundwater system. The oil can be reprocessed and used, for example, in furnaces for heat or in power plants to generate electricity, or it can be made into lubricating oil. Used oil filters can also be recycled, since they are made of steel.

Medical Waste

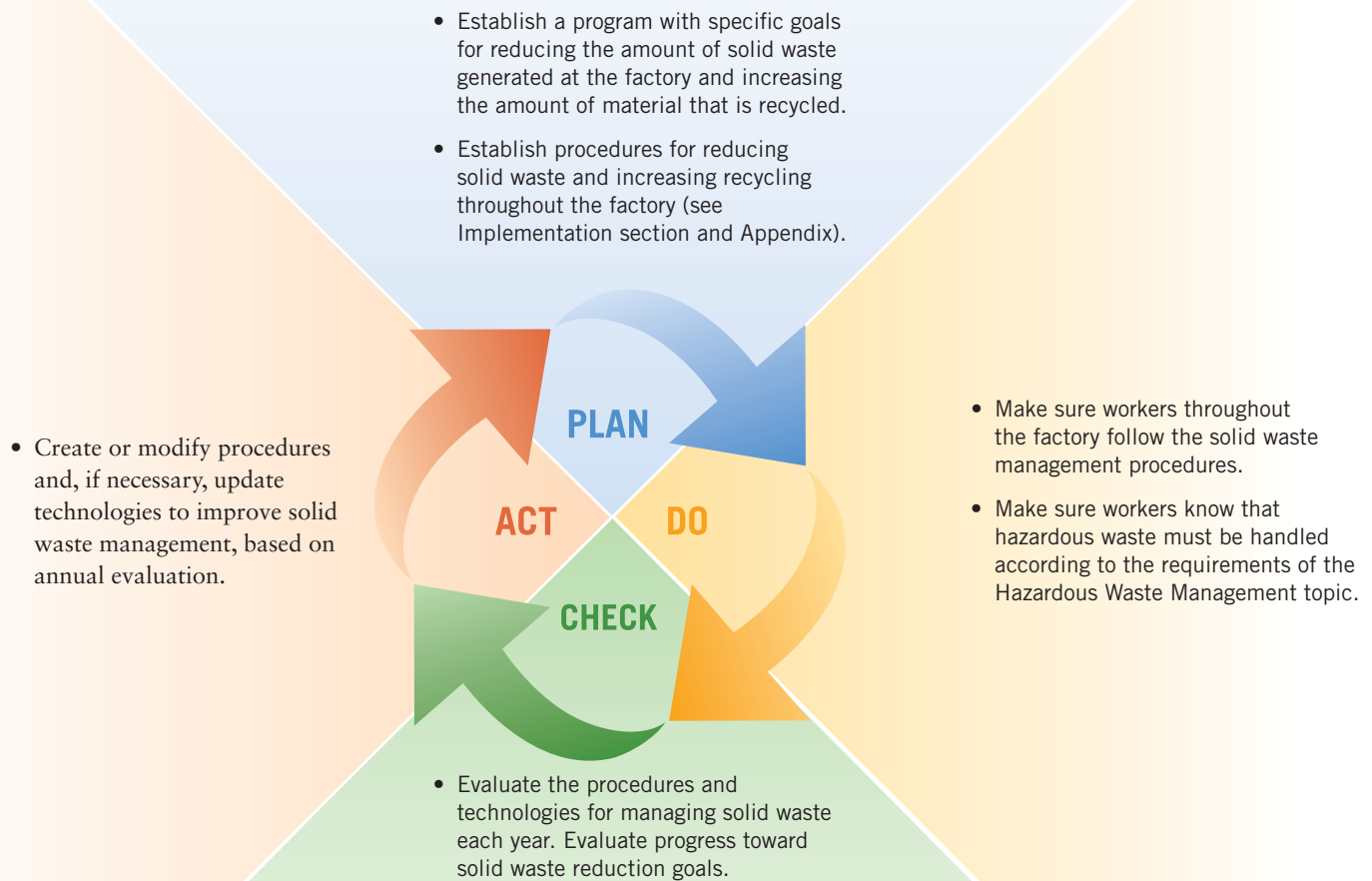
Medical waste should be handled as hazardous waste (see the Hazardous Waste section). Improper disposal of medical waste can cause groundwater contamination from the bacteria contained in the waste.

Medical waste includes any waste contaminated with blood and human tissue or used and unused sharps (such as broken sewing needles). Sewing needles should be collected in containers marked as Medical Waste Sharps. Basic first-aid waste and feminine hygiene products should be collected in containers/bags marked “Medical Waste”.

Hazardous Waste

As note above, hazardous waste should be handled in a way that meets the requirements of the Hazardous Waste section and should not be disposed of with general waste. Examples of hazardous wastes include: spent chemicals such as bleaching materials, solvent-based paint, flammable solvents, and caustic cleaners; spent batteries, ballasts, and fluorescent / high-intensity discharge lamps; ballasts; and pesticides.

Program Strategy for Solid Waste Management



Further Information

- See Appendix.

E. PREVENTING STORM WATER POLLUTION



Application

This information applies to all factories covered by the Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

Factory activities such as chemical storage, equipment handling, etc., can mix pollutants into rainstorm water that flows off the property and into bodies of water such as streams, rivers, ponds, oceans. This can harm the environment and create community health hazards. The purpose of this section is to describe the requirements for practices that can be used to minimize the amount of pollutants in storm water that flows off factory property.

TOE Requirements

1.  Factories must regularly inspect the exterior of buildings and surrounding parking areas, grounds, equipment, etc. to ensure that best management practices are used at the factory and are effective in controlling storm water pollution. Written records of these inspections must be kept by the factories.
2.  Workers whose activities may cause pollutants to be mixed into storm water must be trained on the subject of storm water pollution; this training should emphasize the importance of using the best management practices.

Implementation of TOE Requirements

Training, Rules & Record Keeping

- Factories should keep written records of the specific training provided to workers whose activities may cause pollutants to be mixed into storm water.
- Factories should have written records that include the inventory of potentially polluting materials (see “Hazard Assessment” section, below) and the periodic inspections.

Hazard Assessment

- Factories should create a list of the materials (other than clean water) that have the potential to come into contact with storm water and pollute it. These may include raw materials, fuels, solvents, detergents, finished products, fertilizers, pesticides, herbicides, and waste materials. Materials should be included in this list if they are used, stored, or transported in areas where they could contact rain as it falls or storm water on the ground.

- Factories should regularly inspect equipment, grounds and areas outside the factory to identify any conditions or practices that might pollute storm water and to assess if best management practices are effective in preventing pollution. Written records should be kept of these inspections.

Hazard Controls

- Storm water pollution is best prevented by using a standard set of practices, called “best management practices.” These practices are listed below and have been included in the Appendix.

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Best Management Practices

- Chemical / Raw Material Storage (in sheltered area, away from storm water drains – see the Chemical Storage section)
- Housekeeping (regular removal of trash, orderly material storage to avoid spills, etc.)
- Preventive Maintenance (check equipment for spills, leaks; regularly clean out containment areas, etc.)
- Spill Prevention and Response (check material storage, wastewater piping, etc. for damage or leaks; keep an inventory of spill clean-up materials ready, etc.)
- Periodic Inspections (ongoing daily inspections of potential storm water contact areas, monthly inspections of areas, equipment, best management practices)
- Employee Education and Training
- Sediment and Erosion Control (paving, maintaining vegetation in unpaved areas, etc.)
- Structural Improvements (installing roofs over exterior storage areas, installing containment areas, etc.)
- Documentation and Record Keeping (training, inspection, inventories)

Program Strategy for Preventing Storm Water Pollution

- Identify materials that may come into contact with storm water and may pollute it.
- Identify workers whose activities may cause storm water pollution.
- Create procedures for implementing “best management practices” throughout the factory to prevent storm water pollution.

- Create or modify procedures to improve how best management practices are implemented, based on regular inspections.
- Re-train and/or discipline workers who fail to comply with procedures for best management practices and/or deliberately contaminate storm water.



- Make sure workers whose activities may cause pollutants to be mixed into storm water are trained to use best management practices.
- Inform all workers, contractors, vendors, visitors of the rule prohibiting disposal of pollutants down the storm drain.
- Use best management practices to prevent storm water pollution (e.g., housekeeping, preventive maintenance, etc.).

- Regularly inspect equipment, grounds, and areas outside factory to assess whether best management practices are being implemented effectively.

Further Information

- See Appendix.

F. ABOVEGROUND/ UNDERGROUND STORAGE





Application

This information applies to all factories covered by the Terms of Engagement (TOE) for Levi Strauss & Co.

Purpose

Storage of petroleum products and hazardous materials in underground or aboveground tanks presents a risk of spilling or leaking the hazardous materials into the environment. The purpose of this section is to describe the best management practices for storage tanks in order to minimize this risk.

TOE Requirements

1.  Factories that operate aboveground or underground storage tank systems that contain petroleum products or hazardous materials must have a written plan for preventing spills or leaks to the environment. This plan must be kept on site and should be updated or improved whenever there is a change in factory operations, or if there has been a spill or leak of material to the environment. The plan must include at least the following:
 - a current list of all aboveground and underground tanks that contain petroleum products and hazardous materials;
 - procedures to prevent spills or leaks, including while doing routine tasks, such as transferring small amounts of material to smaller containers;
 - procedures for monitoring aboveground or underground storage tank systems for leaks;
 - testing of secondary containment systems for aboveground or underground storage tank systems, if present;
 - an emergency response plan for an incident involving a spill or leak from a storage tank;
 - inspection forms; and
 - requirements for training workers.
2.  Factory workers who have responsibility for the operation and/or maintenance of tank systems must be trained on best management practices for storage tanks. This training must be provided within 30 days of hire, and again each year after. A written record must be kept to show this training was completed.
3.  Routine inspections must be conducted on storage tank systems, including site-owned, oil-filled power transformers.
4.  A report form must be completed if a spill or leak occurs. This allows the factory to keep a written record of spills/leaks and of the corrective actions taken to prevent future spills or leaks.

Implementation of TOE Requirements

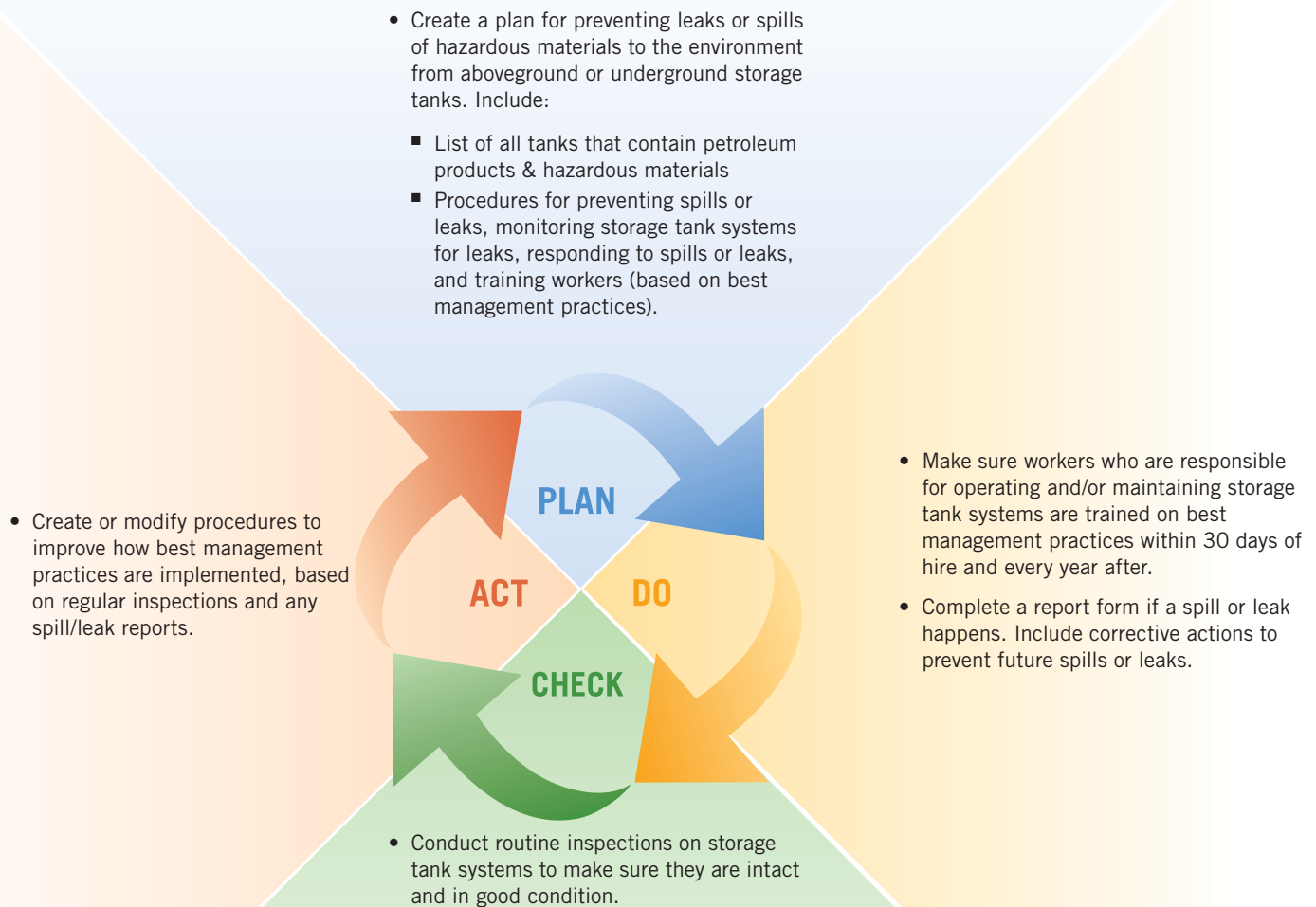
Hazard Assessment

- Factories should routinely inspect storage tank systems (tanks, containment, pipes, connections, etc.) to make sure they are intact and in good condition. A written record should be kept of these inspections. Completed inspection forms should be kept on file as part of the factory's operating records.

Hazard Controls

- Secondary containment should be provided for large storage containers and aboveground storage tank systems. The containment system should hold 110% of the contents of the largest tank.
- Underground storage tanks should be equipped with a leak-detection monitoring system. If feasible, underground storage tanks should also be equipped with a secondary containment system.

Program Strategy for Managing Underground/Aboveground Storage Tanks



Further Information

- See Appendix.

APPENDIX IV: Environment Guidelines

1. SOLID WASTE

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.

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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 than 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.

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2. STORM WATER: BEST MANAGEMENT PRACTICES

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

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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 stormwater, 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 & Quarter	Did spills or leaks occur? (Yes/No)	Incident date (D/M/Y)	Location	Spill Description			Response Description
				Type of material	Quantity spilled	Did spilled material discharge off-site? (Yes/No)	Response and prevention measures taken & completion dates
Year							
Q1							
Q2							
Q3							
Q4							
Year							
Q1							
Q2							
Q3							
Q4							
Year							
Q1							
Q2							
Q3							
Q4							

Storm Water: Monthly Inspection List

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

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 page 2.

3. 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:

- ❑ 1. All tank truck unloading operations will be monitored full-time by a properly trained factory worker, in addition to the tank truck operator.
- ❑ 2. Tank truck unloading will not be conducted during rain events that produce storm water runoff at the unloading area.
- ❑ 3. 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.
- ❑ 4. 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.
- ❑ 5. 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.
- ❑ 6. Visual displays of fuel level gauges at the tank(s) will be monitored continually during the unloading operation.
- ❑ 7. 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.

continued on next page

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.

continued on next page

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:

IN CASE OF FIRE OR SPILL**1. Use emergency pump shutoff!****2. Report the accident!**

Fire Department No. _____

Factory address: _____

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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

- ❑ 1. 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.
- ❑ 2. **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

- ❑ 1. All secondary containment testing should be performed by either a qualified tank tester, or if required by local laws, a licensed tank tester.
- ❑ 2. 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.
- ❑ 3. 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.)
- ❑ 4. 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.
- ❑ 5. 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.
- ❑ 6. 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.
- ❑ 7. Water removed from secondary containment systems should not be disposed of to the storm water systems or waterways.

C. Test Notification and Reporting

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

continued on next page

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)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> 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)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> 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:

APPENDIX V:

Global Effluent Guidelines



A. GLOBAL EFFLUENT GUIDELINES

Application

The Global Effluent Guidelines apply to all factories that finish/laundry garments for Levi Strauss & Co. (LS&CO.). This includes LS&CO.-owned/leased and operated (“O&O”) factories, licensees, and agents that discharge wastewater directly to a body of water (“direct dischargers”). Factories that discharge wastewater to a industrial-zone, private treatment facility, municipal, government, or public facility (“POTW dischargers”) are subject to a portion of the *Global Effluent Guidelines* requirements.

Exception



Factories that only wash LS&CO. garments are excluded from LS&CO.’s Global Effluent Guidelines if the washing or rinsing involves only the use of detergents or softeners on non-denim garments at sewing facilities. Wastewater shall be managed according to local legal requirements. See Appendix V, Topic 3, for further discussion of this exception. Note: This exception will be re-evaluated on a periodic basis, coinciding with the bi-annual review of the program.

Purpose


Untreated wastewater discharged from garment operations directly to the environment—such as to rivers, lakes, and creeks—may harm ecosystems, as well as cause health and safety problems for the surrounding communities. The purpose of this section is to describe Levi Strauss & Co.’s Global Effluent Guidelines program, which aims to reduce environmental, health and safety impacts of untreated wastewater from garment operations.

Summary of TOE Global Effluent Guidelines Requirements:

(See Appendix V for detailed information on LS&CO.’s Global Effluent Guidelines requirements.)

1.  Wastewater must:
 - Meet all local requirements, including discharge and permitting criteria defined by the local governing agencies.
 - Meet LS&CO.’s Global Effluent Guidelines requirements, whenever those requirements are stricter than local requirements.
2.  If the factory discharges its wastewater directly to the environment (“direct discharger”), it must:
 - Have valid permits to do so from all applicable governing agencies.
 - Conduct laboratory analysis of wastewater to demonstrate compliance with local requirements and LS&CO.’s Global Effluent Guidelines limits, whichever are stricter. Analysis shall be scheduled according to local requirements and LS&CO.’s Global Effluent Guidelines analysis schedule (twice per year: mid-year and year end). Data to be submitted at mid-year include LS&CO.’s Global Effluent Guidelines “traditional” parameters (pH, temperature, biological oxygen demand, chemical oxygen demand, total suspended solids, and color). Data to be submitted to LS&CO. for the first time and at year end include all Global Effluent Guidelines parameters (traditional and metals).
 - Use qualified laboratories and standard test methods.
 - Follow proper sampling, handling, and storage procedures when collecting and submitting wastewater samples to a qualified laboratory



 Untreated wastewater has been discharged directly to the environment.

3. 🏭 If the factory discharges its wastewater to a publicly-owned treatment works (“POTW discharger”), the factory must:
- Have valid permits to do so from all applicable governing agencies.
 - Follow all local requirements, including the payment of surcharges, should they be required.
- Make every reasonable effort to determine how efficiently the publicly-owned treatment facility treats the wastewater (i.e., that it includes and effectively conducts primary and secondary treatment on wastewater before discharging to the environment).
4. 🏭 LS&CO.’s Global Effluent Guidelines Parameter Limits are as listed in the following table:

Traditional Parameters	Guideline Limit
pH	6.00 – 9.00
Temperature	≤ 37 °C
Total Suspended Solids (TSS)	≤ 30 mg/l
5-day Biological Oxygen Demand (BOD5)	≤ 30 mg/l
Chemical Oxygen Demand (COD)	Test required; limit currently not established.
Color	Offensive color not acceptable (visual observation); test required; limit currently not established. Test required using one of the following methods: (1) method producing results in ADMI units or (2) using spectrophotometry, measuring transmission at wavelengths 436 nm, 525 nm and 620 nm.

Metal Parameters	Guideline Limit
Mercury (Hg)	≤ 0.01 mg/l
Cadmium (Cd)	≤ 0.01 mg/l
Lead (Pb)	≤ 0.10 mg/l
Arsenic (As)	≤ 0.01 mg/l
Cyanide (Cn)	≤ 0.20 mg/l
Copper (Cu)	≤ 0.25 mg/l
Nickel (Ni)	≤ 0.20 mg/l
Chromium (Cr)	≤ 0.10 mg/l
Zinc (Zn)	≤ 1.00 mg/l
Antimony (Sb)	Denim-only factories: No test required Other factories: Test and monitor; limit currently not established.
Cobalt (Co)	Denim-only factories: No test required Other factories: ≤ 0.02 mg/l
Foam	No visible discharge of floating solids or persistent foam.
Sewage	Biological treatment at a POTW or an on-site wastewater treatment plant, or a septic tank system.

Implementation of Global Effluent Guidelines Requirements

Training, Rules, and Record Keeping

- Managers who are responsible for making sure that the factory complies with wastewater requirements should be competent and trained on the specifics of LS&CO.’s Global Effluent Guidelines program, as well as on the wastewater treatment facility’s operation requirements (if a POTW discharger).
- Supervisors and managers should communicate the specific procedures for complying with the factory’s wastewater requirements (local and Global Effluent Guidelines) to workers, contractors and vendors before they begin any work involving the wastewater.
- Factories should keep written records to show that training has been completed.

continued on next page

Wastewater Sample Collection and Analysis

- A neutral party (e.g., a qualified independent contractor, not a factory manager or worker) should collect wastewater samples, preferably during an unannounced visit. Factory personnel may collect samples for in-house analysis of pH and temperature only.
- A two-hour composite sample, or equivalent, shall be used to collect the wastewater samples (except for pH and temperature, which can be taken following in-situ procedures detailed in the Appendix).
- Proper sample collection and handling procedures shall be followed.
- Certified laboratories shall be used to analyze wastewater samples for Global Effluent Guidelines parameters. In-house analysis methods may be used for pH and temperature.
- Laboratory test methods, such as those listed in the Appendix or their equivalents, shall be used
- Wastewater test results shall be provided by the certified laboratory. Such reports shall include information that is standard on laboratory reports (test methods, detection limits, etc.), and shall include the laboratory's contact information and certifications.

Wastewater Reporting to LS&CO.


- All wastewater reports shall include the original laboratory report. In-situ test results shall include the information listed in the Appendix (Topic 9).
- Wastewater reports shall be submitted to LS&CO. twice per year, following the schedule in the Appendix (Topic 10).
- Re-testing of wastewater may be conducted as discussed in the Appendix (Topic 10).

Wastewater Sludge Management

- Bio-solids, or sludge, resulting from on-site wastewater treatment, shall be disposed of at a site that holds appropriate permits. Factory personnel shall check the validity of the permits. See the Domestic Sewage and Biosolids Management section.

- The transporter of the sludge shall have appropriate permits; factory personnel shall confirm the validity of the permits.
- Proper health and safety procedures shall be followed when handling the wastewater treatment sludge.



 Biosolids from wastewater treatment

Domestic Sewage Management

- Domestic sewage shall be treated using biological treatment. On-site treatment can include use of a septic tank system. See the Domestic Sewage and Biosolids Management section.
- Alternatively, on-site domestic sewage may be treated with the industrial wastewater if the wastewater treatment system is designed to treat the mixed wastewater. The resulting sludge shall be properly handled and managed. Wastewater from the sludge-drying system shall be returned back to the wastewater treatment system. Proper health and safety procedures shall be followed when handling the sludge.

Reuse of Wastewater

- Treated wastewater that is to be recycled shall meet all national health and safety requirements and any "use" restriction requirements.
- Treated wastewater to be used for irrigation shall be managed within an approved national irrigation program, following all legal requirements. Factories shall not, on their own, use treated wastewater for irrigation or other purposes which involve discharging wastewater into the environment.

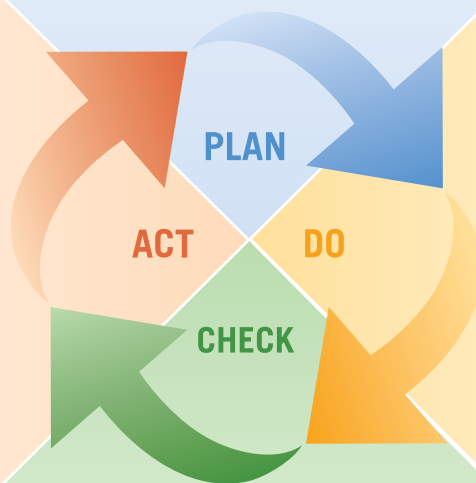
Further Information

- See Appendix (Topics 1 through 18).

Program Strategy for Managing Wastewater Effluent

- Identify local requirements and those Global Effluent Guidelines requirements that apply to the factory's wastewater. (All)
- Prepare a plan to meet those requirements, including (a) maintaining proper permits, (b) treating wastewater and domestic sewage, as required, (c) contracting with suitable vendors and certified laboratories to conduct wastewater sampling and analysis, and (d) contracting with a permitted site and a permitted transporter to dispose of bio-solids or sludge. (Direct dischargers only)
- Prepare a plan to meet local and Global Effluent Guidelines requirements, including (a) maintaining proper permits, and (b) evaluating how efficiently the facility treats the wastewater. (POTW dischargers only)

- Improve wastewater treatment system and/or procedures if sampling and analysis activities or TOE Assessment indicates the factory does not meet requirements. (Direct dischargers only)
- Work with LS&CO. Contact to evaluate alternatives if wastewater treatment facility fails to efficiently treat wastewater. (POTW dischargers only)
- Re-train and/or discipline employees who fail to follow procedures. (All)



- Obtain and keep up-to-date permits for wastewater discharge from all applicable governing agencies. (All)
- Train managers, employees regarding wastewater and bio-solids requirements and safe work procedures. (All)
- Establish and maintain equipment and systems to treat wastewater. (Direct dischargers only)
- Verify that bio-solids or sludge disposal sites and transporters have valid permits. (Direct dischargers only)

- Conduct wastewater sampling and analysis twice each year to verify that wastewater meets requirements. Report results to LS&CO. (Direct dischargers only)
- Make every reasonable effort to determine how efficiently the facility treats wastewater before it discharges to the environment. (POTW dischargers only)

APPENDIX V: Global Effluent Guidelines

1. LS&CO. GEG PARAMETER LIMITS

The factories covered in the scope of this program shall ensure that treated wastewater effluent being **discharged directly to the environment** does not exceed local legal limits, wastewater discharge permits or the LS&CO. guideline limits below, whichever is strictest.

To comply with these requirements, wastewater treatment plants shall function as designed, and the necessary back-up systems perform reliably. In addition, all wastewater treatment plants shall be operated by competent technical staff.

Traditional Parameters	Guideline Limit
pH	6.00 – 9.00
Temperature	≤ 37 °C Exception: See Topic 2.
Total Suspended Solids (TSS)	≤ 30 mg/l
5-day Biological Oxygen Demand (BOD ₅)	≤ 30 mg/l
Chemical Oxygen Demand (COD)	Test required.
Color	Offensive color not acceptable (visual observation). Test required. Exception: See Topic 2.
Foam	No visible discharge of floating solids or persistent foam.

Metal Parameters	Guideline Limit
Mercury (Hg)	≤ 0.01 mg/l
Cadmium (Cd)	≤ 0.01 mg/l
Lead (Pb)	≤ 0.10 mg/l
Arsenic (As)	≤ 0.01 mg/l
Cyanide (Cn)	≤ 0.20 mg/l
Copper (Cu)	≤ 0.25 mg/l
Nickel (Ni)	≤ 0.20 mg/l
Chromium (Cr)	≤ 0.10 mg/l
Zinc (Zn)	≤ 1.00 mg/l
Antimony (Sb)	Denim-only factories: No test required Other factories: Test and monitor.
Cobalt (Co)	Denim-only factories: No test required Other factories: ≤ 0.02 mg/l
Sewage	Biological treatment at a POTW or an on-site wastewater treatment plant, or a septic tank system

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2. TOLERANCE LIMITS

Note: Once a lab result determines whether effluent meets the LS&CO. GEG parameter limit:

- the factory's rating for that parameter is CI if the result is less than or equal to the tolerance limits defined below;
- the factory's rating for that parameter is IA if the lab result is above the tolerance limit.

Parameter	Parameter Limit	Tolerance Limit
pH	6.00 – 9.00	N/A
Temperature	37 °C Exception: For factories located in areas of the world that can experience extremely high ambient air temperatures (e.g., >40°C), the wastewater temperature must not be greater than the temperature of the receiving water body.	See Exception for Temperature.
Total Suspended Solids (TSS)	30 mg/l	45 mg/l
5-day Biological Oxygen Demand (BOD ₅)	30 mg/l	45 mg/l
Chemical Oxygen Demand (COD)	Test required	N/A
Color	Offensive color not acceptable (visual observation). Test required. Exception: Currently, GEG color results are based on observation. Color is generally considered an aesthetic pollutant by technicians and scientists. As long as local regulatory requirements are met, incidents of offensive color should be rated as CI and further review should be carried out. If the color incidents are periodic (not regular occurrences), the causes should be addressed to bring the factory into full alignment with GEG as a CI action. If the color incidents are persistent, a well-studied corrective action plan (CAP) must be agreed upon with the supplier as an IA action.	See Exception for Color.
Foam	No visible discharge of floating solids or persistent foam.	N/A
Sewage	Biological treatment at a POTW or an on-site wastewater treatment plant, or a septic tank system.	N/A
Mercury (Hg)	0.01 mg/l	0.015 mg/l
Cadmium (Cd)	0.01 mg/l	0.015 mg/l
Lead (Pb)	0.10 mg/l	0.15 mg/l
Arsenic (As)	0.01 mg/l	0.015 mg/l
Cyanide (Cn)	0.20 mg/l	0.30 mg/l
Copper (Cu)	0.25 mg/l	0.375 mg/l
Nickel (Ni)	0.20 mg/l	0.30 mg/l
Chromium (Cr)	0.10 mg/l	0.15 mg/l
Zinc (Zn)	1.00 mg/l	1.5 mg/l
Antimony (Sb)	Denim-only factories: No testing required. Other factories: Test and monitor.	N/A
Cobalt (Co)	Denim-only factories: No testing required. Other factories: 0.02 mg/l	Other factories: 0.03 mg/l

3. SCOPE

Products

- Branded LS&CO. garments

Production Mode

- LS&CO. owned/leased-and-operated factories
- Direct finishing factories (includes vertically integrated with finishing)
- Agents sourcing finishing factories (includes vertically integrated with finishing)
- Licensee finishing factories (includes vertically integrated with finishing)
- Fabric mills within LS&CO.'s European Region (LSE) that have signed a Master Supply Agreement

Wet-laundry processes including the following techniques:

- Finishing of garments (bleaching, stonewashing, detergent, enzymes, softeners, etc.)
- Dyeing and/or over-dyeing of garments

Dischargers to a municipal wastewater treatment facility (POTW)/ municipal wastewater treatment facility

- Only wet-finishing process factories, such as those listed above that discharge directly to the environment are within the scope of the LS&CO. GEG.
- Where wet-processing factories discharge to a POTW, they must demonstrate that they comply with their local discharge permit. They must also attempt, via a continuous improvement effort, to determine that the POTW is adequately equipped to treat their wastewater. Factories that can satisfy these conditions are not within the scope of the GEG. Factories that cannot satisfy these conditions **are** within the GEG scope and therefore must meet the GEG requirements.

Not included in Scope

- Light washing of non-denim garments in sewing factories*
- Printing shops
- Leather finishing
- Fabric Mills in LS&CO.'s Americas and Asia/Pacific Region (a.k.a., LSA and ASO/APD, respectively)
- Sundry Factories

* "Light washing" for the purposes of this program, is defined as:

- the incidental rinsing and/or washing with detergent or softeners of, and
- the sampling and testing including test dyeing/finishing of insignificant volumes** of non-denim, non-bottom clothing in machines located in cut-sew facilities only. No obligatory, bulk or industrial wet processes shall take place in such machines. The effluent from these machines shall be managed according to local legal guidelines and permits. If there are no legal requirements, light-washing effluent shall be treated together with domestic sewage generated by the factory personnel in a biological treatment process on- or off-site (POTW) including septic tank systems. Situations outside of this definition shall be escalated on a case-by-case basis to the Environmental Affairs Manager (for LSA, APD) and the Regional Officers in LSE for a risk assessment and action planning.

Guidelines

** Insignificant volumes mean the regulatory limit under which this wastewater would be considered industrial waste water. Where there is no clear regulatory limit, an indicative limitation of 5m³/day or 500m³/year is given. This determination is based on an on-site calculation with the appropriate personnel. If volumes are over this limit, contact your Environmental Affairs Manager for further advice.

4. SAMPLING POINTS AND SAMPLING

Sampling Point

The sampling point chosen should be easily accessible and safe.

- If the sampling point is designated by the local authority, then this point shall be acceptable to sample final, treated effluent for LS&CO.
- Typically the sampling point should be as close as possible to the wastewater effluent discharge point in a pit or channel, at a level about two-thirds the depth of the pit or channel.
- The frequency and type of sample to be collected must be determined by a competent, suitably qualified individual, based on an examination of flow conditions which encourage homogeneous mixing of the effluent, so that representative fractions of all pollutants of concern are obtained in the sample, including the solids fraction.

2-Hour Composite Sampling

A 2-hour composite sample, or equivalent, shall be used to determine alignment with LS&CO GEG. The 2-hour composite sample shall be composed of grab samples taken at regular intervals of 15 minutes or of samples taken using an automatic composite sampler.

Alternatively, the 2-hour composite sample can be taken as follows:

- a minimum of 5 samples shall be taken within a maximum of 2 hours and
- the time elapsed between each sample must be at least 2 minutes.

Over the period of sample collection, samples must be maintained at 4°C in the dark, pending mixing and preparation of the final sample.

Automatic composite samplers may also be used for the 2-hour composite sample.

continued on next page

Sampling Equipment

Adequately prepared sampling equipment is indispensable for the sampling exercise. The laboratory undertaking the analyses should make sample bottles available for sampling staff. Sample bottles shall be prepared appropriately for the different analyses to be carried out. At a minimum, the following guidelines shall be followed:

There are three considerations for sample equipment: (1) material of which it is made, (2) size, and (3) cleanliness/preparation to avoid interference with the parameter to be measured. Sample bottles should be washed thoroughly with a recommended detergent for use in laboratories and rinsed with distilled water. Consult the table below for further details depending on the parameter to be analyzed.

Although maximum holding times are listed, best practice is to analyze the sample as soon as possible after taking it.

Parameter	Volume Required (ml)	Type of Container	Preserving method	Maximum Holding Time
Temperature	1000	Plastic or Glass	Determine immediately on site	None
pH	25	Plastic or Glass	Determine on site	2 hours
Color	500	Plastic or Glass	Cool to 4°C	24 hours
TSS	50	Plastic or Glass	Cool to 4°C	7 days
BOD	1000	Glass	Chill to near freezing	48 hours
COD	50	Glass	Sulfuric acid to pH<2 maintain at 4°C	28 days
Metals	100 per metal	Plastic	Nitric acid to pH<2	6 months
Mercury	500	Plastic or Glass	Nitric acid to pH<2	28 days (glass) 13 days (plastic)

Sampling Personnel

LS&CO. prefers that an independent, third party take the sample; this helps avoid data bias. The identity of the independent sample taker shall be included in the chain of custody of the sample to the laboratory and also written in the final laboratory report.

Where factory personnel actually take the sample, this information must also be included on the final laboratory report.

Important Note on Sampling:

It is important that unbiased data be collected for LS&CO.'s GEG, following the rigorous sampling procedures we have established.

5. IN-SITU MEASUREMENTS

Temperature

The temperature measurement shall be taken in situ, using the standard methods listed under Analytical Methods. (See Topic 6.)

No composite sample is required for this determination; a grab sample shall be taken and measured immediately. A thermometer capable of reading to an accuracy of 0.1°C is required.

pH

The pH shall be taken in situ, using the standard methods listed under Analytical Methods. (See Topic 6.)

pH meters used for this purpose shall be maintained and calibrated according to manufacturer's recommendations.

Visual Color

To establish visual color to meet the LS&CO GEG, the following method (summarizing EN ISO 7887) shall be used (EN – European Norm; ISO – International Standards Organization):

Fill a 1-liter beaker with wastewater collected at the established sampling point. Allow to stand until suspended matter has settled. Hold the beaker up with a white sheet of paper behind. Make observations as to hue (color), and intensity of color (light, dark, colorless, etc.).

The visual color observation must conclude whether the color is “offensive” or “not offensive” by the person sampling.

Additionally, a color analysis in ADMI or one using transmission at the three defined wavelengths is required.

Foam

A visual inspection of the final effluent should be carried out to determine whether any foam generated quickly dissipates and thus does not build up in channels or the receiving waters. There should be no floating solids on treated wastewater effluent.

6. ANALYTICAL METHODS

The analytical methods recommended for use in determining the parameters listed in the LS&CO. Global Effluent Guidelines are referenced in the table below. Equivalents of these methods are also acceptable—for example, equivalent methods originating from country Bureau of Standards.

Analytical Methods for Sampling and Parameters

Parameter	Parameter Value	Testing Standards		
		US EPA and Standard Methods	ISO	European and National Standards
Sampling:			ISO 5667-1 ff	DIN 38402-A 11 ff
Temperature	≤37°C Exception: See Topic 2	USEPA 170.1 or SM 2550		DIN 38404-C 4
pH, Standard Units	6.0-9.0	USEPA 150.1 or SM 4500H	ISO 10523	
Total Suspended Solids (TSS)	≤30.0mg/l	USEPA 160.2 or SM 2540D	ISO 11923	DIN EN 872
Biological Oxygen Demand (BOD)	≤30.0mg/l	USEPA 405.1 or SM 5210	ISO 5815-1, -2	DIN EN 1899-1
Chemical Oxygen Demand (COD) (Indicative values for compulsory monitoring only)	Test and Monitor	USEPA 410.4 or SM 5220B or HACH Method	ISO 6060:1989	DIN 38409-H 41
Antimony	≤0.01 mg/l	USEPA 204.2 or SM 3500		
Arsenic	≤0.01 mg/l	USEPA 206.2 or SM 3500	ISO 11885*	DIN EN ISO 11885*
Cadmium	≤0.01 mg/l	USEPA 213.2 or SM 3500	ISO 5961**, ISO 11885*	DIN EN ISO 11885*

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Parameter	Value	US EPA and Standard Methods	ISO	European and National Standards
Chromium	≤0.10 mg/l	USEPA 218.2 or SM 3500	ISO 9174**, ISO 11885*	DIN EN 1233**, DIN EN ISO 11885*
Cobalt	≤0.02 mg/l	USEPA 219.2 or SM 3500	ISO 8288**, ISO 11885*	DIN EN ISO 11885*
Copper	≤0.25 mg/l	USEPA 220.1 or SM 3500	ISO 8288**, ISO 11885*	DIN 38406**, DIN EN ISO 11885*
Cyanide	≤0.20 mg/l	USEPA 335.2 or SM 4500CNE	ISO 6703-1, -2, -3	DIN 38405-D 13-1
Lead	≤0.10 mg/l	USEPA 239.2 or SM 3500	ISO 8288**, ISO 11885*	DIN 38406**, DIN EN ISO 11885*
Mercury	≤0.01 mg/l	USEPA 245.1 or SM 3112	ISO 5666	DIN EN 1483
Nickel	≤0.20 mg/l	USEPA 249.1 or SM 3500	ISO 8288**, ISO 11885*	DIN 38406**, DIN EN ISO 11885*
Zinc	≤1.00 mg/l	USEPA 289.1 or SM 3500	ISO 8288**, ISO 11885*	DIN EN ISO 11885*
Color	Offensive color not acceptable	ISO 7887 (for visible appreciation)		
Color (guidance values for monitoring only)	≤150 ADMI units or 436 nm: ≤7m ⁻¹ 525 nm: ≤5m ⁻¹ 620 nm: ≤3m ⁻¹	USEPA 110.1 or SM 2120E For ADMI	ISO 7887 Target: 436 nm: ≤7m ⁻¹ 525 nm: ≤5m ⁻¹ 620 nm: ≤3m ⁻¹	DIN EN ISO 7887
Other Wastewater Requirements				
Foam: No visible discharge of floating solids or persistent foam on wastewater effluent.				
Domestic Sewage: Sewage must not be discharged directly into open bodies of water. If there is no biological treatment facility available, a septic tank system should be installed.				

Key	
*	Inductively coupled plasma atomic emission spectroscopy (ICP-OES)
**	Atomic adsorption spectrometry (AAS)
ADMI	American Dye Manufacturers Institute
DIN	Deutsches Institute für Normung (German Institute of Standards)
EN	European Norm
ISO	International Standard Organization, complete list of water test methods, technical committee
TC147	http://www.iso.org/iso/en/stdsdevelopment/tc/tclist/TechnicalCommitteeStandardsListPage.TechnicalCommitteeStandardsList?COMMID=3666&INCLUDEESC=YES
SM	Standard Methods
USEPA	United States Environmental Protection Agency

Additional Information on Analytical Methods

SM: Standard Methods for the Examination of Water and Wastewater, American Public Health Association, American Water Works Association and the Water Environment Federation. 19th Edition, 1995. (To order: +202 789 5600).

USEPA: Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020), US Environmental Protection Agency, EPA-600/4-79-020, 1983. (To order: +703 487 4600 or check <http://www.synectics.net/resources/>)

ISO: Analytical Methods issued by the International Organization for Standardization (ISO) are recommended. (Tel: +41 22 749 0111; Fax: +41 22 733 3430)

7. ANALYTICAL LABORATORIES: LIST

The following international companies and their collaborative networks of certified laboratories have been identified by Levi Strauss & Co. as resources for suitable laboratories that use standard test methods as listed in this Topic 6, or their equivalents, for the examination of wastewater as required by the Guidelines. Factories can find their locations globally by consulting the list below.

Organization	URL
Bureau Veritas	http://www.bureauveritas.com
Intertek— Caleb Brett	http://www.intertek-cb.com/newsitetest/whoweare/labservicesolutions.shtml
SGS	http://www.sgs.com/environmental_laboratories?serviceId=8608&lobId=5548

The pages that follow contain a list of laboratories that have been validated (as of 2006) to conduct GEG sampling and analysis. LS&CO. expects to expand this list in the future.

GEG VI (2006) LABORATORIES

Country	Laboratory/Address	Telephone	Fax	Website	Contact Name	Position	E-mail Contact
Argentina	SGS Chile Ltda. Ignacio Valdivieso 2409 San Joaquín, Santiago, Chile	+56 02 5558478 1606	+56 02 556 2412	www.sgs.com	Orquidea Rueda	Laboratory Chief	orquidea.rueda@sgs.com
Bangladesh	BUET Environmental Engineering Laboratory, Department of Civil Engineering Bangladesh University of Engineering & Technology	+880 9665650 Ext 7226, 7753	+880 2 966 3695		Dr. M. Ashraf Ali		ashraf@ce.buet.ac.bd
Brazil	SGS do Brazil Rua São Januário, 187 São Cristóvão-RJ CEP 20921 000	021 2580 8686		www.sgs.com	Vânia Cristina A. Cardoso	Environmental Coordinator	vania.cardoso@sgs.com
Bulgaria	Vodocanalproject- Metalproject Engineering AD. 24, Kamen Andreev Str. 1606 Sofia, Bulgaria	+3592 9520092	+3592 9516879		Mr. Alexander Vassilev		marketing@
Cambodia	SGS Vietnam Laboratory 141 LY Chinh Thang, District 3, Ho Chi Minh City, Vietnam	+848 935 1920 Ext 125	+848 935 1923	www.sgs.com	Linh Hoang	Laboratory Technician	linh.hoang@sgs.com
Chile	SGS Chile Ltda. Ignacio Valdivieso 2409 San Joaquín, Santiago, Chile	+56 02 5558478 1606	+56 02 556 2412	www.sgs.com	Orquidea Rueda	Laboratory Chief	orquidea.rueda@sgs.com
China	SGS-CSTC Standards Technical Services Co. Ltd. Shanghai Branch 10/F, 3rd Building No. 889, Yishan Road, Xuhui District, Shanghai, China 200233	+(8621) 61402666	+(8621)61152164	www.cn.sgs.com	Portia Xiao	Sales Supervisor	portia.xiao@sgs.com
Colombia	SGS Chile Ltda. Ignacio Valdivieso 2409 San Joaquín, Santiago, Chile	+56 02 5558478 1606	+56 02 556 2412	www.sgs.com	Orquidea Rueda	Laboratory Chief	orquidea.rueda@sgs.com
Costa Rica	SGS Chile Ltda. Ignacio Valdivieso 2409 San Joaquín, Santiago, Chile	+56 02 5558478 1606	+56 02 556 2412	www.sgs.com	Orquidea Rueda	Laboratory Chief	orquidea.rueda@sgs.com

GEG VI (2006) LABORATORIES

Country	Laboratory/Address	Telephone	Fax	Website	Contact Name	Position	E-mail Contact
Dominican Republic	SGS Chile Ltda. Ignacio Valdivieso 2409 San Joaquín, Santiago, Chile	+56 02 5558478 1606	+56 02 556 2412	www.sgs.com	Orquidea Rueda	Laboratory Chief	orquidea.rueda@sgs.com
Egypt	SGS Egypt Laboratory Service Unit 1 Osman Road, El Mariouteya, El Harraneya, Haram, Giza, Egypt	+202 384 2811	+202 382 3537	www.eg.sgs.com	Mahmoud Hanafy	Laboratory/ Technical Manager	mahmoud.hanafy@sgs.com
Greece	SGS Greece SA 10, P. Tsaldari & Thisvis St., PO Box 42020 Athens 12132 Greece	+30 210572077	+30 2105750065	www.sgs.com	Mr. Apostolis Korkolis	Environmental Assessor	Apostolis.Korkolis@sgs.com
India	SGS India Pvt. Ltd., 1/509 A, Old Mahabalipuram Road, Opp. To Government School, Thoraipakkam, Chennai 600 096, India	+91 (44) 24962933, 24963095	+99 (44) 24963075	www.sgs.com	A. Dhananjaya Rao	Executive	dhananjaya rao@sgs.com mariappan meena@sgs.com
Indonesia	PT. ALS Indonesia Jl. Raya Puncak Km. 72.6 Cibogo, Bogor 16750	+62 251 253 813	+62 251 253 814	www.alsenviro.com	Suzanna O. R. Lumme Reg de Wit	Business Manager Technical Manager	suzanna.lumme@alsindonesia.com; reg.dewit@alsindonesia.com
Japan	Sumika Chemical Analysis Service Ryumeikan Honten Building 8F 4-3 Surugadai Chiyoda-ku, Tokyo, Japan	+81 3 3257 7201	+81 3 3257 7220	www.scas.co.jp	Ms Yakushiji	Laboratory Technician	yakushiji@scas.co.jp
Jordan	SGS Jordan PSC PO Box 930388 Amman 1193 Jordan	+962 6 568 5881	+962 6 568 5898	www.sgs.com	Mr. Ayman Majdoubeh	Inspection Manager	Ayman. Majdoubeh@sgs.com
Lesotho	SGS South Africa (Pty) Ltd., Halfway House 1685 PO Box 572 South Africa	+27 11 652 1400	+27 11 652 1525	www.sgs.com	Mr. Johan Vermeulen	Industrial and Environmental Manager	johan.vermeulen@sgs.com
Madagascar	SGS South Africa (Pty) Ltd., Halfway House 1685 PO Box 572 South Africa	+27 11 652 1400	+27 11 652 1525	www.sgs.com	Mr. Johan Vermeulen	Industrial and Environmental Manager	johan.vermeulen@sgs.com

GEG VI (2006) LABORATORIES

Country	Laboratory/Address	Telephone	Fax	Website	Contact Name	Position	E-mail Contact
Malaysia	ALS Technichem (M) SDN. BHD No. 9, Jalan Astaka U8/84 Seksyen U8, Bukit Jelutong 40150 Shah Alam Selangor	+603 7845 8257	+603 7845 8258	www.alsenviro.com	Dr Koh Yew Ming Mr Gan Kok Tong	Laboratory Manager/Chemist Client Services Division	ymkoh@ alsmalaysia.com; gankt@alsmalaysia. com
Mexico	SGS de México, SA de C.C Ingenieros Militares #85 5° Piso Col. Argentina Pte, CP 11230 México, D.F	+52 (55) 53 87 21 00 Ext. 153, 318, 319, 323, 346	+52 (55) 53 87 21 00 Ext. 153, 318, 319, 323, 346	www.mx.sgs.com	Jose Manuel Sura	Director OGC	jose.manuel.sura@ sgs.com
Pakistan	SGS Pakistan (Pvt.) Ltd. H.O: 22/D Block - 6, PECHS, Karachi	+92 21 4540260- 5	+92 21 4523491	www.sgs.com	Ms Tasneem Ilyas	Divisional Manager	tasneem_ilyas@sgs. com;syed_faseeh@ sgs.com;mahboob_ ali@sgs.com
Philippines	SGS Philippines, Inc. 2nd Floor Alegria Bldg. Chino Roces Avenue, Makati City, Philippines	+632 817 5656	+633 750 2946 or 47	www.sgs.com	Mr. Leo Rubico	Central Division- Environmental Services	leo.rubico@sgs.com
South Korea	SGS Testing Korea Co., Ltd The O Valley Bldg. #322 555-9 Hogyedong, Dongan-gu Anyang, Gyeonggi, Korea 431-082	+82 31 460 8000	+82 31 460 8029	www.sgs.com	Mr. Allen Lee	Project Manager	Allen.Lee@sgs.com
Sri Lanka	SGS Sri Lanka (Pvt) Ltd., 141/7 Vauxhall Street, Colombo 2, Sri Lanka	+94 11 537 6289	+94 11 230 0890	www.sgs.com	H. A. P. Indrajith		priyantha_ indrajith@sgs.com
Thailand	SGS (Thailand) Co. Ltd 100 Nanglinchee Road Chongnonsee Yannawa Bangkok 10120 Thailand	+66 (0) 2678 1813 ext 1433	+66 (0) 2678 1545	www.sgs.com	Khun Nattiya Santhananon	Sales Executive, Minerals, Environmental and Industrial Services	Nattiya. Santhananon@ sgs.com
Turkey	DOKAY Muhendislik ve Danismanlik Ltd Sti. Ovecler 4. cad. 140/ ADikmen Ankara	+90 312 475 71 31	+90 312 475 71 30	www.dokay.info.tr	Coskun Yurteri	Director General	cyurteri@dokay. info.tr
Vietnam	SGS Vietnam Laboratory 141 LY Chinh Thang, District 3, Ho Chi Minh City, Vietnam	+848 935 1920 Ext 125	+848 935 1923	www.sgs.com	Linh Hoang	Laboratory Technician	linh.hoang@sgs. com

Note: Please help us keep this contact list updated by communicating any changes in contacts from the field the following email address: ehshandbook@levi.com

8. ANALYTICAL LABORATORIES: CHOOSING A LABORATORY

Purpose

Compliance with LS&CO.'s Global Effluent Guidelines relies, among other things, on wastewater testing results produced by laboratories. Therefore, it is critical that labs produce reliable data, of high quality. Laboratory management systems, documentation control, training, and personnel all need to meet standards in order to allow confidence in the results.

Laboratory Certification/Accreditation

International and national bodies publish norms and guidelines for the quality control of test laboratories. The International Standards Organization (ISO) published a quality assurance norm for test laboratories that parallels the industry quality norms ISO 9001 and ISO 9002. The norm, General Requirements for the Competence of Testing and Calibration Laboratories (EN ISO/IEC 17025), establishes the management procedures to ensure quality laboratory results. Certification according to EN ISO/IEC 17025 includes implementation of management procedures, defined responsibilities and document management practices. The ISO/IEC norm 17025 originates in the German norm DIN EN 45001. Laboratories that are EN ISO/IEC 17025-certified and conduct standard test methods, including those listed in this Appendix (Topic 6), can be considered strong candidates for GEG wastewater testing. Additionally, accreditations from government agencies, universities, or international consultancies may also be appropriate.

Locating a Certified Laboratory

National accreditation bodies are the points of contact to find certified laboratories. A list of national accreditation bodies and their contact information can be found under "Directory" at the website of the International Laboratory Accreditation Cooperative (ILAC) (<http://www.ilac.org/>). Some of the listed national accreditation bodies have Internet-based lists of certified laboratories; otherwise the accreditation bodies must be contacted directly.

Additional national certification schemes may also exist. For example, India officially entrusts certain laboratories to conduct analysis under the Indian Environmental Protection Act of 1986. Laboratories that want to conduct tests for compliance with the Act need to be certified and listed in the Gazette of India. A current list can be accessed at <http://enfor.nic.ne/legis/env/so728e.htm>

Criteria for An Approved Laboratory

In addition to being accredited/certified, laboratories should have the following: suitably qualified staff; the ability to perform all the tests required; and documented standard operating procedures (SOPs) that are implemented for all laboratory processes. Other criteria that may assist in lab selection include affiliations to international labs and references.

If the laboratory is not accredited but has the following systems in place, it can be considered an approved laboratory:

General

- Governing agency permits or other formal permissions to operate.
- Health and safety guidelines for staff working in the laboratory, including available protective equipment in good working order (e.g., personal protective equipment of good quality, fume hoods, safety showers, and eye fountains).
- Written procedures and records for calibrating and maintaining instruments, accepting and logging samples, preparing and testing samples, reviewing and reporting data, and storing reports/documentation.
- Good housekeeping in the laboratory.
- Well-ventilated laboratory.
- Routine inspection of all emergency equipment.
- A waste disposal plan which takes into account existing regulations and best practice.

continued on next page

Personnel

- Trained and experienced personnel, with records of staff qualifications.
- Records documenting staff are trained when a new machine is obtained.
- Records documenting staff have taken refresher training.

Specific

- Calibration records and regular calibration of all instruments.
- All machines in a well-maintained state, preventative maintenance programs.
- Able to perform the range of tests required, using the test methods specified.
- Laboratory reports should be well constructed and signed off by authorized personnel.
- Laboratory should be willing to tailor the reporting form to customer needs.

9. SUBMITTING THE LABORATORY REPORT: LABORATORY GUIDELINES

This guidance must be forwarded to all laboratories used in sampling and analysis for the purposes of monitoring the LS&CO. GEG. These LS&CO.-specific laboratory guidelines help assure us of the quality of the reporting being received, and help us consolidate reports from almost 150 laboratories globally.

Acceptable laboratory reports shall:

- 1) Be printed on letterhead paper from the laboratory, complete with all contact information and laboratory accreditations or affiliations.
- 2) Be signed by an authorized person affiliated with the laboratory and stamped with the laboratory stamp.
- 3) Include the following information:
 - a. Date and time of analysis
 - b. Name and title of analyst
 - c. Sample origin; how and by whom sample was taken; name of organization with which the sample taker is associated (factory or laboratory); holding time and preservation method
 - d. Analytical method and equivalence to the methods in the LS&CO. Analytical Methods list (Topic 6)
 - e. Detection limits, where applicable (laboratories should know in the LS&CO. GEG levels in advance in order to be able to use the appropriate methods)
 - f. Units of measurement (our preference is mg/l where applicable)
- 4) Include a section that covers the in-situ measurements and any observations made during the sampling. This section shall provide the following information:
 - a. Date and time of analyses
 - b. Name and title of sampler/analyst
 - c. Sample origin; how and by whom sample/analysis was taken; name of organization with which the sample taker is associated (factory or laboratory)
 - d. Analytical method and equivalence to the methods in the LS&CO. Analytical Methods list (Topic 6)
 - e. Units of measurement
 - f. Any observations relating to the conditions under which the sampling and in-situ analyses were carried out

If in-situ measurements are taken by factory's technical staff, the LS&CO. form shall be used for this report, and signed off by the wastewater engineer or supervisor in charge of the operation of the wastewater treatment plant installation.

The laboratory should prepare at least two original reports as outlined above; one destined for the factory and one destined for LS&CO.'s TOE Assessor.

LS&CO. prefers that the sampling and analysis be carried out by a third-party laboratory.

10. SUBMITTING THE LABORATORY REPORT: FACTORY GUIDELINES

Reporting Deadlines

LS&CO. analysis results shall be submitted to the TOE Assessor according to the following schedule:

If the prior year's GEG performance is compliant:

- By April 30th and October 1st of each year: original laboratory reports of the traditional wastewater parameters (temperature, pH, BOD, COD, color, foam, and TSS) are to be submitted.
- With consistent GEG compliance and upon discretion of LS&CO., submission of laboratory reports to TOE may be reduced to once per year (October 1st of each year); however reports will always be required at least once per year.

If the prior year's GEG performance requires improvement:

- By April 30th of each year: original laboratory reports of the traditional wastewater parameters (temperature, pH, BOD, COD, color, foam, and TSS) are to be submitted.
- By October 1st of each year: original laboratory reports of tests carried out on all parameters included in the LS&CO. GEG are to be submitted. With consistent GEG compliance for metal parameters and upon discretion of LS&CO., submission of metal parameters may be dropped, however traditional parameters must continue to be submitted by October 1st (and April 30th) for factories whose GEG performance requires improvement.

All factories required to sample and analyze wastewater under the LS&CO. GEG program shall meet these reporting deadlines.

Other Reporting Issues

- Only the original laboratory report is acceptable to LS&CO. Factories are not to submit their own created document for reporting.
- Factories shall keep an original laboratory report on file for review during the annual TOE Assessment or follow-up visit.
- It is important to note that metal analyses require some lead time before results can be available, so factories should take this into account when scheduling sample and analysis in order to submit their reports on time.
- Factories shall arrange for the original report to be provided to the TOE Assessor. They may instruct the laboratory to mail the original report directly to the TOE Assessor.

AT ALL TIMES, WASTEWATER EFFLUENTS SHALL COMPLY WITH THE LOCAL REQUIREMENTS, REGULATIONS AND/OR PERMIT.

11. TOE ASSESSMENT AND THE POTW FACILITIES

Using the standard form in Topic 17 (Publicly Owned Treatment Works / Municipal Wastewater Treatment Facilities), the factory shall gather information on the POTW, complete the survey form, and send a copy to LS&CO.

The TOE Assessor will attempt to verify that on-site, wastewater pre-treatment facilities are maintained in the best possible condition. He/she will also evaluate the administrative aspects (e.g., procedures, required records, etc.) of the factory's compliance with local (POTW) requirements.

12. FACTORIES THAT RECYCLE PROCESS WATER

It is becoming a frequent practice for factories to recycle process water, especially in countries with severe water restrictions. There are many different ways to recycle water in textiles. Examples include counter-current systems within the finishing process, and treating specific wastewater streams to meet certain technical requirements for reuse.

Health and Safety

1) Recycled water shall meet all national health and safety requirements, and “use” restrictions (i.e. restrictions on how the recycled water can be used).

2) Factory information about the water recycling system shall be communicated to employees to avoid accidental, inappropriate use. All piping shall be adequately marked.

Environment

1) Resulting concentrated wastewater effluents shall be appropriately treated and disposed of to prevent environmental pollution.

2) All wastewater effluents shall meet the local POTW's effluent discharge requirements or the LS&CO. GEG requirements if it is discharged directly to the environment (river, lake or stream etc.).

3) All process sludge shall be appropriately treated and disposed of to prevent environmental pollution.

4) All process sludge shall meet local requirements, and disposed off according to the law.

13. FACTORIES THAT USE TREATED EFFLUENTS FOR IRRIGATION

It is becoming common practice for treated effluent to be used for irrigation, especially in countries with severe water restrictions.

- 1) Factories may use the water for irrigation within a national irrigation program (for example, through a publicly owned treatment works or State program), provided that all legal requirements are met.
- 2) Factories shall not use treated wastewater effluent for irrigation or other purposes on-site, without government or municipal approval/partnership.

14. DOMESTIC SEWAGE

Domestic sewage from laundries shall be treated using biological treatment before discharging it to the environment.

Biological treatment may be provided in different ways, depending on factory wastewater treatment strategy. The following are all acceptable for LS&CO. GEG:

- Off-site biological treatment in a municipal wastewater treatment facility or POTW (factory must use the POTW Survey Form found in Topic 17 to gather the required information to determine whether the POTW is “adequately equipped”).
- On-site biological treatment in the form of a complete wastewater treatment plant (including primary and secondary treatment) used to treat all factory wastewater streams – domestic sewage and industrial wastewater.
- On-site biological treatment in the form of a septic-tank system (for example, with a drain field or other similar biological treatment). Please note septic-tank effluent must be treated to reduce its polluting potential, hence the need for a drain field or other form of biological treatment. Septic-tank effluent is not suitable for direct discharge to the environment.
- On-site biological treatment in the form of compact domestic-wastewater treatment units.

All treated domestic wastewater effluent must meet local discharge criteria as a minimum, and must meet the LS&CO. GEG, where the domestic sewage is treated with industrial wastewater.

If sludge-drying beds are used to manage wastewater treatment sludge, as is common practice in some parts of the world, excess wastewater run-off from the sludge should be routed back to the wastewater treatment influent for treatment. Factories should have measures in place to prevent public health issues and nuisances.

15. STANDARD LETTERS AND FORMS: IN-SITU MEASUREMENTS

Note: These are to be used only if the factory's technical staff conducts the in-situ measurements.

LS&CO. prefers for measurements to be taken on site by a third-party laboratory, according to the relevant standard analytical method. However, in some situations, this is not achievable. In this case, the factory's technical staff may take the sample, using well-maintained and calibrated instruments. The final results shall be recorded on the standard LS&CO. form on the following page.

continued on next page

Monitoring Program In-Situ Sampling and Analysis Form

Factory				
Name				
Address				
Factory Wastewater Technician				
Name				
Title				
Sampling Event				
Sampling Date				
Sampling Time				
Sample Location				
In-Situ Sampling and Analysis				
Parameter	Result	Units	Analytical Method	Remarks
Temperature		°C		
Temperature of receiving water body (If temperature of the effluent is >37°C)		°C		
pH				
Visible Color	Hue (color—e.g., yellowish, reddish, brown, blue)			
	Intensity (e.g., light, dark, very dark, opaque)			
	Determination	<input type="checkbox"/> Offensive <input type="checkbox"/> Not Offensive		
Foam Observation	Floating solids	<input type="checkbox"/> Some <input type="checkbox"/> None		
	Foam	<input type="checkbox"/> Some foam generated but immediately dissipates <input type="checkbox"/> Persistent foam build-up at effluent discharge point		
	Determination	<input type="checkbox"/> Foam <input type="checkbox"/> No Foam		

Comments:

Technician's Signature: _____

Date: _____

16. STANDARD LETTERS AND FORMS: DOMESTIC SEWAGE

Factories shall submit the attached form concerning their treatment of domestic sewage at the start of their business relationship with LS&CO. and whenever there are changes in their treatment of domestic sewage.

The completed form shall be submitted to the LS&CO. TOE Assessor.

Monitoring Program Domestic Sewage Form

Factory		
Name		
Address		
Factory Wastewater Technician		
Name		
Title		
Domestic Sewage Treatment	Is domestic sewage treated?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Where is domestic sewage treated?	<input type="checkbox"/> On-site <input type="checkbox"/> Off-site
	Treatment Method	<input type="checkbox"/> Septic Tank System <input type="checkbox"/> On-site biological treatment <input type="checkbox"/> On-site biological wastewater treatment plant combined with industrial/process wastewater treatment <input type="checkbox"/> Off-site municipal wastewater treatment with NO biological treatment <input type="checkbox"/> Off-site municipal wastewater treatment WITH biological treatment <input type="checkbox"/> Domestic sewage trucked off site to municipal wastewater treatment (select type of off-site treatment above)
Additional Comments (e.g. future changes with timeframes)		

Technician's Signature: _____

Date: _____

17. STANDARD LETTERS AND FORMS: PUBLICLY OWNED TREATMENT WORKS (POTW)/MUNICIPAL TREATMENT WORKS

The purpose of the standard letter and form is to obtain high-level information on whether the POTW is adequately equipped for our purposes. “Adequately equipped” means that the treatment facility is designed to carry out secondary or biological treatment, and that the equipment is working.

Ideally, the attached standard letter and accompanying form are communicated to the POTW by the Factory Contact for TOE. The completed form, on return from the POTW, shall be copied and forwarded to the TOE Assessor. The factory shall keep this information in its environmental files.

The letter and the form may be translated by the factory, next to the English version, which remains in order to facilitate processing within LS&CO.

The standard letter may or may not be used, depending upon how the factory decides to approach the POTW. The survey form may instead be completed through a site visit and interview with POTW personnel.

The actual approach used depends upon the collaborative relationship that the factory maintains with the POTW.

continued on next page

Name and Title of Factory Contact

Factory Name and Address

Date

POTW Name and Address

Dear Sir/ Madam

Please find attached a short survey form, requesting information on the municipal treatment works that our Company {Factory Name} uses for the final treatment of our wastewater.

This information is being requested by our customer, Levi Strauss & Co., as part of their LS&CO. Global Effluent Guidelines Program, and will be treated as confidential company information for internal use only.

Please complete the form and return it to the address above. I am expecting to communicate this to LS&CO. by {date}.

If you have any questions, or if any clarifications are required, please do not hesitate to call at {Telephone Number of Factory Contact}.

We look forward to receiving the completed form

Thank you.

Sincerely,

{Name of Factory Contact}

Encl.

continued on next page

CONFIDENTIAL POTW INFORMATION
For LS&CO's internal use only
Publicly-Owned Treatment Works / Municipal Wastewater Treatment Facility Survey

Please complete information in empty fields, otherwise check where appropriate.

Factory Name	(To be completed by Factory)		
Factory Address	(To be completed by Factory)		
Name of Municipal Treatment Works	(From this point forward, to be completed by Factory or POTW)		
Address of Municipal Treatment Works			
Country			
Daily Treatment Capacity (m³)			
Treatment Categories	Primary	Secondary	Tertiary
List Treatment Processes			
Final Effluent Quality	<input type="checkbox"/> Good	<input type="checkbox"/> Average	<input type="checkbox"/> Bad
Final Effluent Appearance	<input type="checkbox"/> Yellow	<input type="checkbox"/> Pale	<input type="checkbox"/> Floating matter
	<input type="checkbox"/> Red	<input type="checkbox"/> Dark	<input type="checkbox"/> Foam
	<input type="checkbox"/> Green	<input type="checkbox"/> Clear	
	<input type="checkbox"/> Brown	<input type="checkbox"/> Cloudy	
	<input type="checkbox"/> Colorless	<input type="checkbox"/> Opaque	
Treatment process performs as designed	<input type="checkbox"/> At all times	<input type="checkbox"/> Most of the times (>75%)	<input type="checkbox"/> Seasonally
Major operating challenges	<input type="checkbox"/> Industrial user effluent out of specifications <input type="checkbox"/> Technical know-how <input type="checkbox"/> Process overload <input type="checkbox"/> Funding <input type="checkbox"/> Environmentally sensitive receiving waters <input type="checkbox"/> Community relations		
Receiving Waters	<input type="checkbox"/> Stream <input type="checkbox"/> Lake <input type="checkbox"/> Underground water <input type="checkbox"/> River <input type="checkbox"/> Sea		
Additional Comments			

continued on next page

The following template can be used for translation.

CONFIDENTIAL POTW INFORMATION For LS&CO's internal use only Publicly-Owned Treatment Works / Municipal Wastewater Treatment Facility Survey Please complete information in empty fields, otherwise check where appropriate.			
Factory Name	(To be completed by Factory)		
Factory Address	(To be completed by Factory)		
Name of Municipal Treatment Works	(From this point forward, to be completed by Factory or POTW)		
Address of Municipal Treatment Works			
Country			
Daily Treatment Capacity (m³)			
Treatment Categories	Primary	Secondary	Tertiary
List Treatment Processes			
Final Effluent Quality	<input type="checkbox"/> Good	<input type="checkbox"/> Average	<input type="checkbox"/> Bad
Final Effluent Appearance	<input type="checkbox"/> Yellow	<input type="checkbox"/> Pale	<input type="checkbox"/> Floating matter
	<input type="checkbox"/> Red	<input type="checkbox"/> Dark	<input type="checkbox"/> Foam
	<input type="checkbox"/> Green	<input type="checkbox"/> Clear	
	<input type="checkbox"/> Brown	<input type="checkbox"/> Cloudy	
	<input type="checkbox"/> Colorless	<input type="checkbox"/> Opaque	
Treatment process performs as designed	<input type="checkbox"/> At all times	<input type="checkbox"/> Most of the times (>75%)	<input type="checkbox"/> Seasonally
Major operating challenges	<input type="checkbox"/> Industrial user effluent out of specifications <input type="checkbox"/> Technical know-how <input type="checkbox"/> Process overload <input type="checkbox"/> Funding <input type="checkbox"/> Environmentally sensitive receiving waters <input type="checkbox"/> Community relations		
Receiving Waters	<input type="checkbox"/> Stream <input type="checkbox"/> Lake <input type="checkbox"/> Underground water <input type="checkbox"/> River <input type="checkbox"/> Sea		
Additional Comments			

continued on next page

18. GLOSSARY

Adequately Equipped: A term used in the LS&CO. GEG program to describe POTWs that have the infrastructure and equipment to properly carry out secondary or biological treatment.

Analytical Method or Test Method: A documented technical procedure for measuring the parameters defined in the LS&CO. GEG from wastewater samples collected at factories.

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

Biological Oxygen Demand or BOD5: An indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria.

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

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 “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).

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.

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.

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

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

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

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

pH: A measure of a liquid’s acidity or alkalinity. A pH of 7 is defined as neutral; large variations above or below this value are considered harmful to most aquatic life.

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.

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.

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

