ILO TOOLKIT CONTROL SHEET S100 CONTROL OF SAFETY RISKS

LOCK-OUT TAG-OUT PROCEDURES

Scope

This control sheet is part of the ILO Chemical Control Toolkit. It provides general advice on the procedures for setting up and operating a lock-out tag-out system. It is recommended that this guidance be used alongside other sheets in the series, especially those in the 300 series where inspection, cleaning, repair or maintenance is undertaken, and the plant, if inadvertently activated or energized, is liable to cause bodily injury to any person.

Why use "lock-out procedures"

Lockout procedures are used:

- To ensure that all energy sources to the relevant plant, machinery or equipment will be isolated, disconnected or discharged; and
- To prevent any part of the plant, machinery or equipment from being inadvertently activated or energized.

How to implement a lock-out procedure.

To operate a successful lockout procedure for plant inspection, cleaning, repair or maintenance, there are five simple steps that need to be followed:

STEP	ACTION	REMARKS
1	**Announce the shutdown**	Inform the persons whose plant, machinery, or equipment has to be turned off or shut down that a lock-out procedure is to be implemented
2	**Shut down the machine**	Shut down the machine using the normal shutdown procedures
3	**Disconnect all energy sources**	Disconnect all sources of energy (e.g. electrical, pneumatic or hydraulic energy) coming to the machine. Use energy-isolating devices, such as a manually operated circuit breaker or an isolating switch to disconnect the energy sources
4	**Apply lock-out**	Use lock-out devices such as padlocks over the energy-isolating devices to ensure that energy cannot be restored unexpectedly or accidentally while work is being carried out on the machine. Attach tags to indicate that persons are working on the machine

5	**Verify the isolation and lock-out**	Never assume that the isolation and lock-out has worked. Release any residual or stored energy such as energy capacitors. Operate the machine's controls to confirm that the machine has been isolated and cannot be re-energized. Return the controls to the neutral position

It is now safe to carry out the inspection, cleaning, repair or maintenance work on the machine.

How to restore normal operation

After the work has been completed on the machine and the machine is ready for return to normal operating condition, the following five steps need to be taken to ensure the machine is safely restored to operation:

STEP	ACTION	REMARKS
1	**Check**	Check to ensure that all tools have been removed from the machine and safety guards, if previously removed, have been replaced on the machine
2	**Verify**	Verify that all personnel are safely clear of the machine
3	**Announce**	Announce that the machine would be turned on
4	**Reactivate**	Remove the tags and lock-out devices and re-energize the machine
5	**Inform**	Inform those personnel whose machine was shut down that the machine is now ready for operation

Other factors which may need to be considered.

- If more that one person or group of people are working on the machinery, a single co-ordinator should be appointed to take charge of all lock-out tags and keys and ensure that procedures are followed.
- Specific procedures will need to be developed to ensure continuing protection of people during changes of personnel (replacement or addition) during the same shift or during shift changes. The incoming persons and outgoing persons should be present together to apply the lock-out device and remove the lock-out device respectively. In no case should the outgoing personnel remove the lock-out device before the incoming personnel had applied the lock-out device. The transfer of lock-out could take the form of a transfer of the key of the lock.
- Care should be taken whenever personnel from an outside contractor (i.e. persons not employed directly by the occupier) are involved in the work, the occupier shall ensure that these persons have been trained in the lock-out procedures and comply with the lock-out procedures.

Training

- The factory occupier should provide training to ensure that anyone working in the factory (whether or not they undertake maintenance activities) is familiar with the site lock-out procedures.

Supervision

- The occupier should carry out audits of each of the lock-out procedures at least once in every 12 months to check procedures are being complied with. Any inadequacies detected should be corrected.