

Safety Alert: Control of Hazardous Energy – Lockout/Tagout (LO/TO) Procedures in Shipyard Employment

The control of hazardous energy during servicing and/or maintenance of machines and equipment is very important. OSHA has a standard that establishes minimum performance requirements for the control of such hazardous energy.

Both shipyard employers and employees must be fully aware of the variety of workplace hazards and dangers posed by the servicing and maintenance of equipment or processes involving energy sources including: mechanical systems; electrical systems; radiation systems; thermal and gravity systems; hydraulic systems; and air, gas, or water pressure on ships and at shipyard shore facilities. **LO/TO is an essential step towards protecting workers from injury and possible fatality.** LO/TO involves applying physical barriers in the form of a lock and/or tag to prevent the unexpected release of harmful forces once power source(s) have been shut off and de-energized. When performing LO/TO, you must be certain that “ALL” energy sources within the work space or equipment are identified and isolated.

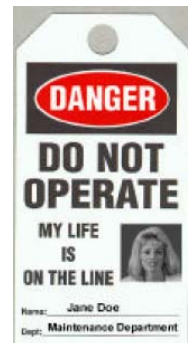


Control of Hazardous Energy Can Prevent Injuries and Fatalities in Shipyards!

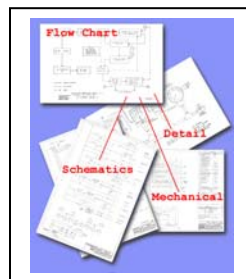


What to Look For

- Create a safe work environment by de-energizing all energy sources.
- Confirm that tags are legible, made of durable material, and are securely fastened.
- Use energy isolation devices such as locks, blinds, double blinds, and blocks in accordance with established written policies, programs, and procedures to prevent transmission or release of energy.
- Confirm that all controls, valves, or mechanisms are in their off or safest position.
- Confirm that electrical equipment, cords, and/or tools are properly grounded.
- Review drawings and schematics to determine all possible energy sources.
- Be alert to the possibility of defective electrical connections, valves, or other devices at collective sources such as pipe manifolds, feed-lines, switchboards, electronic cabinets, generators, fuse panels, and boxes.



De-energize Power Source



Review Drawings



Lock and/or Tag all Sources



Locked and Tagged Out

Guidelines for the Control of Hazardous Energy

Always.....

- Provide initial and periodic training to ensure employees understand how to perform LO/TO procedures. Utilize worker interviews to evaluate their understanding of LO/TO hazards and procedures.
- Conduct periodic worksite inspections to ensure LO/TO procedures are being followed and equipment is working properly.
- Wear personal protective equipment (PPE) such as safety glasses, face shields, and insulated gloves when de-energizing electrical systems and equipment.
- Turn off power supply and test equipment and circuitry to make sure they are de-energized.
- Review LO/TO procedures for all equipment and machinery. Ensure this information is readily accessible to all workers.
- Disable and disconnect energy sources such as generators, emergency circuits, pneumatics, switches, valves, power cords, power panels (primary or secondary voltage), remote operator's stations, and motor circuit relays.
- Deplete stored energy by bleeding, blocking, grounding, etc.
- Verify that controls are disengaged.
- Notify all affected personnel that equipment and circuitry is shut off, locked out, and tagged out.
- Alert nearby employees by using flags, signage, or barricades to remain clear of the isolated equipment or system until it has had its LO/TO (energy isolating) devices removed.
- Ensure that tags are legible and understandable, made of durable material, include the name of the person who applied the tag, and are fastened using a secure attachment.
- Ensure action taken to isolate the hazardous energy source is documented.
- Ensure that when maintenance or repairs have been completed the work area is cleaned and all guards, shields, screens, doors, or panels are replaced.
- Ensure guards are replaced and controls are restored to original positions.
- Remember, only authorized employees may remove locks or tags. Never remove another employees' lock or tag in their absence.



Conduct Training



Verify De-Energization



Perform LO/TO



Wear PPE



Verify Machine is
in Safe Condition

Through OSHA's Alliance Program, this Safety Alert was developed as a product of the Alliances OSHA has signed with the [American Industrial Hygiene Association](#), the [American Society of Safety Engineers](#), the [American Shipbuilding Association](#), the [National Shipbuilding Research Program](#), and the [Shipbuilders Council of America](#). It is for informational purposes only and does not necessarily reflect the official views of OSHA or the U.S. Department of Labor.