LOCK-OUT / TAG-OUT (LOTO)

KEY CONSIDERATIONS:

- Follow this protocol whenever ZEP (ZERO ENERGY POTENTIAL) is required for you to work safely.
- Equipment must be de-energized using the LOTO procedures and use of blocking, cribbing and other shoring applications before rescue operations. ZEP is the objective.
- Qualified on-site personnel to help in securing energized machinery. DO NOT just take their word for it – have them show you and **ADD** your own LOTO devices.
- It's not locked out until **our** LOTO devices are in place.
- **When a tag is the only** control measure possible **POST A FIREFIGHTER** at the controls.
- DO NOT attempt intervention until the machinery/area is de-energized and LOTO is complete.
- Some equipment may have multiple energy feeds and operating switches. In some cases, a certified electrician may need to be consulted.

PROTOCOL:

1. Assume command of the incident and establish an Incident Safety Officer (ISO) and Assistant Safety Officers (ASO) as appropriate.
2. Request the response of utility companies and identify essential on-site personnel for mechanical and electrical consultation.
3. Establish a perimeter. Exclude all non-essential personnel from the operational area.
4. Before firefighters perform any kind of rescue operations the Incident Commander and the Safety Officer will verify that the machine or equipment is isolated and rendered inoperable.
5. The Incident Safety Officer or an ASO shall be assigned responsibility for the Lock-Out/Tag-Out of energy sources and have exclusive control of LOTO devices once in place.
6. If an energy source is capable of being locked out, then it is required that it be locked out utilizing a padlock device. If energy isolating device is incapable of being locked out, then a Tag-Out shall be utilized in conjunction with a firefighter standing guard.
7. On-site personnel knowledgeable of equipment operation should be consulted and/or utilized for shut down or re-start procedures. Re-starting is only permitted if necessary to facilitate the removal of the victim(s) and should only be done with onsite personnel when such personnel are available.
8. Machines or equipment must be isolated from their energy sources and rendered inoperable to prevent injury or death from unanticipated, uncontrolled hazardous energy. Hazardous energy sources include: electrical, hydraulic, pneumatic, mechanical, thermal, chemical, and gravity.
    a. Do so with caution as some energy isolating/reducing procedures may be dangerous (e.g., bleeding off excess pressure in pressurized systems could result in more injuries and escalate the incident).

   b. This will be accomplished by locking out and tagging out energy isolating devices, and otherwise disabling machines or equipment. Specific steps should be taken by using blocking, cribbing, and other shoring necessary as a safety precaution during rescue operations with machinery or any type of manufacturing equipment.
   c. Be aware of all stored or residual energy. Such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, air, gas, steam, or water pressure, etc. All must be dissipated, disconnected, or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.
   d. Pulling fuses is not a substitute for locking out. A pulled fuse is no guarantee the circuit is dead and needs to be tested by a knowledgeable employee or supervisor.
   e. Be aware of intermittently operating equipment such as pumps, blowers, fans, and compressors that may seem harmless when dormant. Do not assume that because equipment isn't functioning, it will stay that way.
   f. Verify that all controls have been put into a neutral or off position, and have workplace supervisors or employees check systems for proper shut down procedures.
9. Test equipment for inoperability before rescue operations begin. This should be done with extreme caution and by a knowledgeable, qualified worker (if available) under the supervision of the Incident Safety Officer or ASO. For example, using voltmeters for electrical circuits and reading pressure gauges.
10. Keep on-scene personnel informed as to the energized status of the emergency scene. Announce clearly that utilities have been secured and power has been disconnected.
11. Once rescue operations have been completed and all personnel and victims have been removed from the area of danger, energy sources shall remain locked out and transferred to workplace supervisors. (Add a second lock and then remove yours.)