

RETA Chapter Meeting Schedule

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MINNESOTA

NORTHERN PLAINS
3rd Thursday; 6 pm

N/S CAROLINA

CAROLINAS
1st Thursday; time varies
No meeting in June, July or August

NEW YORK

WESTERN NEW YORK
2nd Tuesday; 6 pm

OREGON

WILL H. KNOX
1st Monday

OKLAHOMA

TULSA
2nd Tuesday; 6:30 pm

PENNSYLVANIA

NORTHEASTERN (NEPA)
2nd Thursday; 6 pm
SOUTHEASTERN (SEPA)
2nd Tuesday; 6:30 pm
No meeting in June, July or August
PHILADELPHIA
Not scheduled

TEXAS

HIGH PLAINS
3rd Tuesday; 7 pm
DALLAS/FT. WORTH
3rd Thursday; 7 pm
HOUSTON
4th Thursday; 6:30 pm
No meeting in July, November or December

WASHINGTON

CONNELL
Not scheduled
TRI CITIES
Not scheduled
YAKIMA
Not scheduled
PUGET SOUND
2nd Wednesday; 6 pm

WISCONSIN

MADISON
2nd Wednesday; 6 pm
No meeting in June, July or August
MILWAUKEE
2nd Thursday; 6 pm
No meeting in June, July or August

Check out the Chapter News section of the RETA website for additional information on Chapter events and activities: www.reta.com

PSM/RMP Compliance

LOCK IT/TAG IT/TRY IT

Lee Pyle and Aaron Apostolico, CIH, SCS Tracer Environmental

Our present day industry standards have led us to rethink safety in the workplace. While many workers are familiar with the old acronym LOTO (Lock Out/Tag Out), more recent injuries and accidents have forced us to review this process. The Occupational Safety and Health Administration (OSHA) promulgated the LOTO procedure under 29 CFR 1910.147, controls for hazardous energy. The LOTO procedure is intended to safeguard the unexpected energization or start-up of equipment or release of hazardous energy during service or maintenance activities. The new acronym LTT (Lock it/Tag it/Try it) coincides with the old LOTO process, with the addition of verifying the safeguarding procedure by physically testing the equipment prior to starting the service or maintenance activities.

The United States Department of Labor, Bureau of Labor Statistics, estimates about 3 million workers, who service equipment, are exposed to the risk of serious injury if LTT is not implemented. As recently as 2008, OSHA estimated that 120 fatalities and 50,000 injuries were prevented by LOTO procedures. Despite the well recognized LOTO procedures, deaths occur each year as a result of failing to completely de-energize, isolate, block and/or dissipate all of the stored energy sources. This accounts for about 82 percent of the LOTO related fatalities where systems were locked and tagged, but stored energy remained. This is why it has become imperative to try, test and verify that **all** forms of stored energy have been completely eliminated.

Most people associate LOTO with electricity and fail to recognize that energy comes in many forms. Likewise, many industrial processes today contain multiple forms of **energy sources** that require LTT prior to service and maintenance activities. Examples of alternative forms of **energy**

sources include but are not limited to: kinetic energy, stored electricity, hydraulic, pneumatic, steam, liquid and gas materials, and gravitational forces. The presence of any of these items may produce hazardous results if not included in your LTT process. Alternative hazards that may be present include: inhalation (e.g. exposure to ammonia), absorption, heat and burning, fire and explosion, pinch/crush and entrapment, and slip, trip and fall. Identifying all forms of energy to be locked and tagged is an essential first step.

LOCK IT

Once the **energy sources** have been identified, it is now time to implement your company's LOTO procedure. (Remember, an **energy source** could also include inhalation of or exposure to ammonia.) In almost all cases, this requires that an authorized individual place their lock on an approved lockout device that can physically prevent the energy source from being turned back on. **Older facilities may have electrical boxes that do not allow locks to be placed on levers, physically preventing energization.** These facilities should perform audits of their systems to make sure they are compliant with industry standards, such as NFPA 70 E: Standard For Electrical Safety In The Workplace®. The NFPA 70 E standard includes criteria requiring that items be physically locked. Additional audits may be required to identify locations where emergency shut-off, or lockout devices may be placed to isolate segments of a larger process, or electrical/energy systems.

Note that for refrigeration systems, where the energy source is chemical exposure, it is important to refer, not only to the company's LOTO procedure, but also to the refrigeration system procedures for line opening.

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LOCK IT/TAG IT/TRY IT

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In addition, for ammonia refrigeration systems, OSHA's Process Safety Management Program (PSM), 29 CFR 1910.119(f)(4), "the employer shall develop and implement safe work practices to provide for the control of hazards during operations such as **lock out/tag out**; confined space entry; **opening process equipment or piping**; and control over entrance into a facility by maintenance, contractor, laboratory, or other support personnel." The process of Lock It/Tag It/Try It can be part of the overall PSM program.

TAG IT

Following the lockout portion of the method, each **energy source** should be tagged with a label identifying the following:

1. who placed the lock;
2. what work is being performed;
3. date and time lock was placed; and
4. any other information required by your company's LOTO procedure.

These tags should be recognized by all people working within your facility, and should alert them to the fact that a process is being shut down for service and maintenance activities.

TRY IT

The final step in the process, prior to beginning service or maintenance activities, is to verify that the lockout device physically prevents energization, and that any remaining energy (or **energy source** such as ammonia exposure) in the system has been bled and blocked. This step may require the use of a volt meter in the case of electrical components, a grounding device where capacitors may store energy, a gas measuring instrument, or a pressure gauge where alternative energies are supplying a process. It is also important that you be familiar with the device that is being used for verification. For example, not all models of volt meters are set up the same, placement of the dial on the wrong setting may give a false reading that energy is not present. Lastly, locate any start-up switches and try to engage the process.

Finally, if you have met these requirements and are satisfied that the process does not present a hazard to you or your co-workers, then proceed with your work in a diligent and safe manner. Upon completion of your work, remember to remove your locks and tags in an order so as not to cause accident or injury during the re-energization to the process. Complete the required documentation per your company's policy, and report any deviations or observations that occurred, which may prove useful to others repeating this process at a later time.

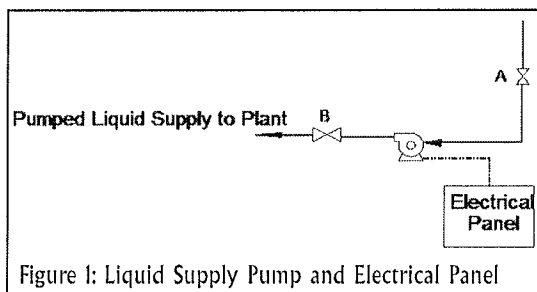


Figure 1: Liquid Supply Pump and Electrical Panel

Most line opening procedures for refrigeration systems include isolating the piece of equipment in question to prevent exposure to a toxic material. For some equipment, like the pump shown in Figure 1 (above), the operator should consult not only their Lock Out/Tag Out Procedures, but the line opening procedures to ensure that the toxic **energy source** has been properly isolated. Whatever the **energy source**, the concept of *Try It* can be a powerful tool.

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