LOCK OUT / TAG OUT PROCEDURES FOR PUMPS (ICW, LCW, CHW, Domestic, Sanitary & Pond Water)

The authorized craftsperson shall perform the following steps to lock and tag out the Pump before maintenance is performed.

1. **Prepare** the authorized employee shall review this procedure and understand the hazards involved and how to control them.

2. **Notify** the authorized employee shall notify the Building Manager that the Pump will be shut down and locked out.

3. **Shut down** the authorized employee shall shut down the Pump or ensure that it is shut down using the normal stopping procedure.

4. **Isolate** The authorized employee shall isolate the Pump from the following energy sources:

   - *AC electrical power ranging from 120 volts to 480 volts Originating from MCC's, VFD's, or Pump Controller Panels. Pumps may be shut down at their Distribution Panel.*
   - *Suction and Discharge Valve(s) Shall be closed*

5. **Lock and tag out** The authorized employee shall lock and tag out the energy isolating devices with Laboratory-approved locks and tags. A Laboratory-approved tag shall always accompany a lock. The authorized employee shall:

   - Install the lock and keep the key in his or her possession
   - Print his or her name, phone and page numbers, and date on the tag and indicate the reason for the lock and tag out.
   - Attach the tag securely to the lock

6. **Relieve or restrain stored hazardous energy**

7. **Verify** The authorized employee shall: Follow NFPA 70E FOR ALL VOLTAGE TESTING

- Check by conclusive test that the source(s) of energy has actually been isolated from the Pump.
- Ensure that there is no possibility for the re-accumulation of energy.
- After verifying that the Pump is inoperable, perform other required tests to verify that isolation has been achieved and stored energy has been relieved.
- Return all operating controls to the neutral or off position.

The Pump is now locked, and the required work may be performed.

RETURNING THE PUMP TO SERVICE

The authorized craftsperson that applied the lock(s) and tag(s) shall perform the following steps to return the Pump to service:

1. Check equipment Check the Pump and the immediate area around it to ensure that non-essential items have been removed and the machine is ready for safe operation.

2. Check work area Check the work area to ensure that all personnel are safely positioned.

3. Verify Verify that all controls are in the neutral or off position.

4. Remove locks and tags and re-energize The authorized craftsperson that installed the lock(s) and tag(s) shall remove them and then may re-energize the Pump.

5. Notify Notify the Building Manager and requester that the repair work on the Pump is complete and that it may be returned to service.

The Pump is now ready to be returned to normal service.

TEMPORARY REMOVAL OF LOCKS AND TAGS FOR TROUBLESHOOTING, TESTING, OR POSITIONING

If a lock or tag must be temporarily removed from an energy isolating device so that the Pump may be energized to troubleshoot, test, or position it, the steps, 'RETURNING THE PUMP TO SERVICE" shall be followed with the exceptions that:

I. Only personnel in the immediate area or who may have reason to use or come in contact with the Pump need to be notified.

II. Those people shall be notified that the lock(s) and tag(s) have been removed as part of the repair operation and that the Pump is NOT ready to be returned to service.

If testing or troubleshooting of an energized or operating equipment will put a craftsperson at any significant risk of injury resulting from contact with moving parts, live electrical or other hazards within the equipment then at least two (2) employees who are knowledgeable about the work to be performed and the hazards involved must be assigned to the work.

If further maintenance is to be performed which will require lock and tag out, the steps "LOCK OUT/TAG OUT PROCEDURE" shall be performed with the exception those only personnel in the immediate area or who may have reason to use or come in contact with the Pump need to be notified.

GROUP LOCK OUT/TAG OUT PROCEDURE

If more than one (1) person will be involved in the repair work on this Pump, then the Group Lock out/Tag out Procedure given in the Fermilab ES&H Manual Chapter 5120 (14) (14.1) (14.2) shall be applied in addition to the steps given in this procedure.

Revision & History Review

Version Number	Date	Author	Change Summary
1	3/25/2012	L. Huitt	Original