FSGA/HAAF GARRISON
FT. STEWART, GA 31314

GARRISON SAFETY SOP – ANNEX S

CONTROL OF HAZARDOUS ENERGY
LOCKOUT / TAG-OUT (LOTO)

FSGA/HAAF Safety Program SOP
21 October 2024

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1. Purpose:

This Annex to the FSGA/HAAF Garrison Safety and Occupational Health (SOH) SOP establishes the minimum requirements for the lockout/tagout of energy isolating devices. It shall be used to ensure that the machines or equipment are isolated from all potentially hazardous energy, locked-out and tagged-out before employees perform any service or maintenance activities where the unexpected energization, start-up, or release of stored energy could cause injury.

2. Scope

This Annex to the Garrison SOH SOP applies to all military and civilian personnel assigned to the FSGA/HAAF Garrison. It is intended to provide additional information so all levels of leadership, SMs, and civilian workforce can properly implement the Garrison SOH Program.

3. References

29 CFR 1910.147 – Control of Hazardous Energy (lockout/tagout)

AR 25-400-2, The Army Records Information Management System (ARIMS)

AR 385-10, The Army Safety Program

AR 690-700, Personnel Relations and Services – Table of Penalties for Various Offenses

DA Pam 25-403 – Guide to Recordkeeping in the Army

DA Pam 385-10, Army Safety Program

4. Records Management:

Records created throughout the processes prescribed by this Annex will be identified, maintained, and disposed of according to AR 25-400-2 (The Army Records Information Management System (ARIMS) and DA Pam 25-403 (Guide to Recordkeeping in the Army). The primary means of recordkeeping for the Garrison Safety Office (GSO) will be the Army Safety Management Information System (ASMIS) located at https://mishap.safety.army.mil . Record titles and descriptions are available on the ARIMS website https://www.arims.army.mil

5. Responsibilities

Directors and Managers:

- Enforce all requirements established in the Control of Hazardous Energy Program within assigned Directorate.
- Ensure all affected Directorate employees are properly trained to meet the requirements of this publication.
- Ensure all applicable equipment is surveyed to locate and identify all isolating devices to be certain which switches, valves or other energy isolating devices apply to the equipment located within their directorate to be locked or tagged out. More than one energy source (electrical, mechanical, or others) may be involved. This list will be updated at least annually, and a copy of any changes furnished to the GSO.

Division Chiefs:

- Enforce all requirements established in the Control of Hazardous Energy Program within assigned division.
- Ensure all affected employees are properly trained to meet the requirements of this publication.

Supervisors of Authorized Employees:

- Ensure all Authorized Lockout/Tagout employees receive the appropriate level of training, and these employees are provided with the proper equipment and personal protective equipment (PPE) to perform the job safely.
- Provide and maintain necessary equipment and resources, including accident prevention signs, tags, padlocks, seals, and/or similarly effective means.
- Ensure all authorized employees know all energy sources to the equipment/machinery that they are working on and know how to control the energy sources.
- Ensure that all authorized employees understand the safety plan for the equipment/machinery they are working on.

Supervisors of Affected Employees:

- Ensure that all affected and other employees (including new and transferred employees) are trained in the safety significance, purpose, and use of these lockout/tagout procedures, and are provided with the proper equipment/devices and PPE to perform the job safely.
- Ensure all affected employees adhere to this publication.
- Ensure all affected employees are informed of all energy sources in their work areas.
- Ensure equipment is appropriately isolated from sources of energy and locked/tagged out when a work order is submitted on applicable equipment that require lockout/tag-out procedures.

Contract Office Representatives (CORs):

- Require that all new/modified equipment releases for production/operation have a Lock Out/Tag Out Energy Control Procedure completed, filed on record, and installed on the equipment before the equipment will be released for production.

Directorate of Public Works (DPW):

- DPW will at a minimum, identify all sources of energy for each piece of critical infrastructure and/or equipment at FSGA/HAAF and complete a Lockout/Tagout Energy Control Procedure for each that has multiple energy sources. DPW will continue to identify all sources of energy for all other pieces of equipment. DPW will document sources and locations of energy to be able to isolate the sources of energy. Equipment that does not have multiple sources of energy are not required to have a Lockout/Tagout Energy Control Procedure, however Lockout/Tagout procedures for the equipment should be identified.

- Attach or place with each piece of equipment that has multiple sources of energy a Lock Out/Tag Out Energy Control Procedure with the equipment.
- The Lock Out/Tag Out Energy Control Procedure will be kept on the equipment for reference for any authorized employee that is required to isolate the sources of energy for maintenance and servicing. A copy will also be kept in the appropriate organization's files under the bar code of the equipment.

Note: DPW will have to identify all sources of energy to each piece of equipment and/or machine. If DPW works on a piece of equipment that does not have all energy sources documented, then they will document, the Lock Out/Tag Out Energy Control Procedure for all energy sources prior to beginning the task.

Garrison Safety Office (GSO):

- Develop, implement, and ensure that the Control of Hazardous Energy program is updated.
- Develop and implement required training in support of the Control of Hazardous Energy Program.
- Perform annual audits of this program of all work centers with authorized lockout/tagout employees to ensure that all aspects of this publication are being complied with.
- Conduct periodic inspections of this program to correct any deviations or inadequacies identified and corrected.
- During new employee orientation, include the safety significance and purpose of lockout/tagout devices, and inform employees of procedures and prohibitions relating to restarting or reenergizing systems that are locked or tagged out.

6. Policy

Disciplinary Action Required for Bypassing Lockout/Tagout Devices

The only person authorized to remove lockout/tagout devices is the person who installed the devices. The purpose of the lockout/tagout procedure is to prevent injuries caused by equipment being activated while someone is servicing or repairing it; therefore, unauthorized removal or bypassing the lockout/tagout device procedure compromises the worker's safety. Any person who bypasses a lockout/tagout device and energizes, starts, or otherwise activates equipment or who removes a lockout/tagout device without authorization shall be disciplined in accordance with Army Regulation (AR) 690-700, Personnel Relations and Services (General), Chapter 751, Table of Penalties for Various Offenses. For procedures on authorized removal of lockout/tagout devices when an employee has left the facility, review the remainder of this annex.

7. Procedures

All work performed at FSGA/HAAF requiring the control of hazardous energy will comply with the following controls.

- If de-energizing is chosen, a thorough inspection should be performed to identify all potentially hazardous energy sources, including adjacent equipment or energy sources that represent hazards to personnel.

- When all potentially hazardous sources of energy have been identified, each source must be controlled and the device controlling the energy source must be secured and verified. The following are steps to accomplish the control of hazardous energy sources:
    - All energy sources identified as hazardous shall be isolated, blocked, or dissipated at points of control that cannot, with reasonable effort, be overridden or by-passed. These isolated points of control must be secured with paragraph 16 of these guidelines to ensure complete blockage for the duration of the maintenance operation to preclude any possibility of reactivating the flow of energy.
    - Energy is considered adequately isolated, blocked, or dissipated when an unplanned event would not reactivate the flow of energy. Adequate isolation can be achieved by many methods or combinations of methods so long as the controls are not likely to be accidentally turned on. The following are types of energy:
        - Electrical – can be a direct source of energy, such as a machine that uses an electric motor, or an indirect source such as the electricity that runs a pneumatic or hydraulic motor.
        - Hydraulic – uses fluid under pressure
        - Pneumatic – uses air under pressure
        - Kinetic – the energy created in a moving object
        - Potential – stored energy such as the energy in capacitors, compressed air hydraulics, and springs.
        - Pressurized liquids or gases – including steam and chemicals present in pipes and supply lines, storage tanks and vessels.
        - Any other energy – including thermal or mechanical energy, gravity, pressurized systems, and elevated parts which must be dissipated or restrained by grounding, blocking, bleeding, blanking or some other type of control.
    - Stored or residual energy that constitutes a personnel hazard shall be isolated, blocked, or dissipated. Another necessary step is to block or dissipate any hazardous residual energy once the decision is made to de-energize. Residual energy is not always as obvious a hazard as the incoming energy supplies. For this reason, special effort must be made to identify any stored energy that could result in personnel hazards. The following are forms of potential energy which may be stored in sufficient quantities to represent hazards:
        - Hydraulic or pneumatic pressure
        - Pressure below atmospheric (as in vacuum systems)
        - Compressed or extended springs
        - Potential energy due to gravity
        - Stored mechanical energy (as in flywheels)
        - Static electricity
        - Stored electrical energy (as in batteries)

        - Stored electrical energy (as in capacitors)
        - Thermal energy due to residual heat or low temperature
        - Residual chemicals in pipe, which may cause thermal or pressure buildups
- If stored hazardous energy is present in any form, care must be taken to ensure that the residual energy is reduced to a non-hazardous level. Extra care must be exercised to avoid re-accumulation of energy to hazardous levels. Special measures to continuously bleed off energy should be used if energy buildup is possible. In addition, monitoring to be sure energy has not accumulated to dangerous levels may be necessary.
- Positive isolation (double blocking or blinding) - All steam lines, chemical lines, and any lines under pressure will require positive isolation and bleeding the line proper to performing any maintenance or service to equipment.
    - The point(s) of control shall be secured so that unauthorized persons are prevented from reenergizing the machine, process, or system. A means of security must be implemented to ensure that the equipment being maintained or serviced is not somehow reenergized.
    - The method of securing the points of control by physical means that prevent unauthorized persons from reenergizing the machine, process, or system widely used is a padlock. A warning containing appropriate information shall be displayed at the point(s) of control.
    - Post a warning (tagout) at the point(s) of control providing information as to why the energy sources have been isolated, blocked, or dissipated, the date, and the person(s) responsible for the control measure.
- Before starting maintenance, verify that all steps have been effective in isolating, blocking, or dissipating hazardous energy, and securing the point(s) of control.
    - In applying any method or technique to isolate, block, or dissipate energy from specified areas, devices, machines, systems, or processes, it should be verified that deenergizing has been affected prior to the start of maintenance. Verification should be accomplished each time energy is eliminated and reapplied, regardless of the time interval between removal and reapplication. Proven methods should be used to effectively demonstrate that all hazardous energy has been isolated, blocked, or dissipated in the areas where personnel will perform the required tasks. If there is the possibility of re-accumulation of energy to hazardous levels, verification should be continued until the maintenance activity is completed.
    - All locks and tags are checked for defects. If any are found, the lock or tag is discarded and replaced.

Returning the Machinery or Equipment to Production

- The authorized employee checks the machinery or equipment to be certain no tools have been left behind and ensures that any means to dissipate energy have been reverted to normal.
- All safety guards are checked to be certain that they have been replaced properly.
- All affected employees are notified that the machinery or equipment is about to go back into production.

- The authorized employee performs a secondary check of the area to ensure that no one is exposed to danger.
- The authorized employee removes the locks and/or tags from the energy-isolating device and restores energy to the machinery or equipment.

General Procedures for Multiple Employee Lockout/Tagout

- Employees and/or contractors may at times be required to repair/service equipment that requires the expertise of more than one (1) person. For these applications, a Multiple Employee Lockout procedure will be used. The following steps will be followed to properly lockout/tag out equipment that has more than one employee performing maintenance and/or service:
    - Authorized Employees will place isolation locks/tags on the equipment/machinery being repaired or serviced using a multi-lock hasp. If a multi-lock hasp is not available, the following group lockout procedures shall apply.
    - Authorized Employee (Custodian) will place all the required isolation locks/tags on the equipment/machinery being repaired or serviced. Isolation locks and tags will be placed on the equipment by following a written procedure developed for the particular piece of equipment.
    - All keys are then placed into a lock box by the Custodian.
    - The Custodian will then place his/her personal lock on the lock box. Any additional employees working on the locked out equipment will have to verify all isolation points have been locked and tagged out before placing their personal lock and tag on the lock box.
    - If maintenance/service of the equipment will occur on different shifts and with different employees, the employees on the leaving shift will meet with the employees on the incoming shift to change out locks. A new Custodian will be designated for the new shift and will be responsible for the isolation locks, tags and keys that are directly on the equipment.
    - Once an employee has completed their work on the locked out piece of equipment, they will remove their personal lock and tag from the group lockout box.
    - Once all employees have removed their locks and tags from the group lockout box, the Custodian that placed the isolation locks on the piece of equipment will be able to access his/her key and can proceed to unlock the entire piece of equipment.

Procedure When Work Is Left Unfinished

- Locks, tags, and all other safety warning devices must be left in place during all short absences such as breaks or trips to pick up parts.
- When work is incomplete and temporarily suspended overnight or over a weekend, all locks, tags, and other safety warning devices must be left in place.

Procedure When One Employee Leaves the Area without Removing Their Lock

- When an employee leaves the facility site and does not remove their lock(s) from the energy isolating device(s) (for example, if the employee became sick and left the site) then the

responsible supervisor must attempt to contact that employee to determine if they will be able to return to remove the lock. Prior to the equipment that has been locked out being reenergized, a full inspection by a Qualified Technician qualified personnel shall be performed. If it is verified the equipment is ready to be returned to service, and the employee is unavailable or cannot return, then the supervisor of the owner of the lock will cut the lock(s) off the energy isolating device(s).

- Once the employee returns to the work site, the employee must be informed by their supervisor that their lock(s) was removed and the status of the equipment that was locked out (e.g., returned to service, still under lockout, etc.).

Procedure Involving Personnel Changes During the Job

- Persons being replaced or exchanged on a job during a shift or at the end of a shift must ensure the lock(s)and/or and tag(s) of their replacement are substituted for their own before leaving the job, and if appropriate, keys exchanged with appropriate documentation to show transfer of responsibility.
- If a lockout procedure is to continue through the following work shift, the oncoming work crews must place their locks and/or tags on the energy isolating devices before the departing crew removes their locks and tags, and if appropriate, keys exchanged with appropriate documentation to show transfer of responsibility. Before work begins on the subsequent work shift, the oncoming crew must re-verify that all safety devices, such as blocking, are in place, and they should attempt to restart or re-energize the system before anyone enters the hazard zone to verify that there is still zero energy in the system.

Procedure When Machine Testing Is Required During a Lockout

On some machines, it may be necessary to energize or start up machinery or equipment during a lockout procedure to troubleshoot, tune, adjust, or make measurements before the machine is fully restored to service. In those instances, all persons must clear the hazard zone of all tools and equipment, leave the hazard zone, verify that all persons are clear of any hazards, remove the necessary locks, and then the equipment can be energized. A qualified person must then make the necessary measurements or adjustments, and the equipment shut down. The locked-out condition must then be re-established by repeating the exact same work steps specified on the written procedure for fully locking out the equipment.

Exceptions and Deviations

Process, electrical, and mechanical equipment may have unique lockout/tag out requirements. If unusual conditions arise before or during the course of work, which require deviation from this procedure, contact the GSO to discuss how the work may proceed safely. Deviation from set procedures must be documented and maintained on file at the GSO**.**

Training

- Training shall be provided to ensure the purpose and function of the hazardous energy control procedures are understood by employees and that employees possess the knowledge and skills required for the safe application, usage, and removal of energy controls.
    - Each authorized employee shall receive training in the recognition of hazardous energy sources, the type and magnitude of energy available in the workplace, and the methods

and means for energy isolation and control. All authorized employees will be retrained every two years. Production shop employees will be trained as needed.

- Each affected employee shall be instructed in the purpose and use of the energy control procedures.
- All incidental personnel shall be informed of the procedures and prohibitions relating to restarting or reenergizing systems that are locked or tagged out.
- When tagout systems are used, employees shall be trained in the limitations of tags.

- **Employees shall be retrained in hazardous energy control procedures whenever:**
  - There is a change in their job assignments, a change in systems or processes that present a new energy control hazard, or a change in energy control procedures; or
  - Periodic inspection reveals, or there is reason to suspect the presence of, inadequacies in or deviations from the employee's knowledge or use of energy control procedures.
  - The supervisor shall certify training has been accomplished and is being kept up to date. Certification of training must include employee's name and dates of training. Training records will be maintained at the work center.

Periodic Inspections

- The supervisor or designee shall conduct a periodic inspection of the energy control procedure at least annually to ensure the procedure and the requirements of this regulation and OSHA standards are being followed.
- The periodic inspection shall be performed by an authorized employee other than the ones(s) utilizing the energy control procedure being inspected.
- The periodic inspection shall be conducted to correct any deviations or inadequacies identified.
- Where lockout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected.
- Where tagout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure being inspected, and the limitations of tags (OSHA 1910.147(c)(7)(ii) (A through F).
  - Tags are essentially warning devices affixed to energy isolation devices, and do not provide the physical restraint on those devices provided by a lock.
  - When a tag is attached to an energy isolating means, it is not to be removed without approval of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defected.
  - Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.

- Tags and their means of attachment must be made of materials, which will withstand the environmental conditions encountered in the workplace.
- Tags may give a false sense of security, and their meaning needs to be understood as part of the overall energy control system.
- Tags must be securely attached to energy isolating devices so they cannot be inadvertently or accidentally detached during use.

- The employer shall certify that the periodic inspections have been performed. The certification shall identify the machine or equipment on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the person performing the inspection.

Lockout and Tagout Devices

- Lockout and Tagout devices shall:
  - Be capable of withstanding the environment that they are exposed to for the maximum period of time the exposure is expected; and
  - Indicate the identity of the employee applying the device to include name (print and sign) of the employee applying the device, date, and time the device was applied, date the device is expected to be removed, and phone number the individual can be reached at. Device should identify the shop and primary shop POC.
- Lockout devices shall be substantial enough to prevent removal without the use of excessive force or unusual techniques (such as with the use of bolt cutters).
- Tagout devices shall meet all of the following requirements:
  - Have standardized (within a project) print and format
  - Be constructed and printed so that exposure to weather conditions, ultraviolet light, wet or damp locations, or corrosive environments will not cause the tag to deteriorate or the message to become illegible
  - Be attached by means that are:
    - Non-reusable
    - Substantial enough to prevent inadvertent or accidental removal
    - Attachable by hand
    - Self-locking
    - Non-releasable, with a minimum unlocking strength of no less than 50 pounds
    - Have the basic characteristics of being at least equivalent to a one-piece, all environmental- tolerant nylon cable tie
  - Warn against the hazardous condition resulting from system energization and include a legend such as **“DO NOT START”**, **“DO NOT OPEN”**, **“DO NOT CLOSE”**, **“DO NOT ENERGIZE”**, **“DO NOT OPERATE”**, etc.

- Tags shall be destroyed and disposed of after removal from the equipment to prevent reuse of the same tag on other lockout/tagout situations unless they are cleaned of information before replacing in the storage location/cabinet.

Tags and Locks

Lockout/tagout devices must be standardized across FSGA/HAAF. OSHA's hardware standardization requirement requires devices to be unique to the particular use (the only ones authorized for that purpose); to be singularly identified, durable, standardized, and substantial; and to identify the user. Also, the lockout devices cannot be used for purposes other than the control of hazardous energy.

- Tags will only be used alone as a last resort if locks cannot be placed on the energy source or if attachments cannot be constructed on the equipment for locks to be applied.
- Locks to be used for lockout/tagout at FSGA/HAAF will be RED only. Lock color is not the only prescribed factor for the standardization of lockout and tagout (LOTO) devices. At a minimum, a lock's shape, or size, or color must provide employees with the capability to identify and distinguish a lockout device from other similar devices (e.g., security locks) in the workplace.

Appendix A – Abbreviations

AR	Army Regulation
ARIMS	Army Records Information Management System
ASMIS	Army Safety Management Information System
CFR	Code of Federal Regulations
COR	Contract Office Representative
DA Pam	Department of the Army Pamphlet
DPW	Directorate of Public Works
DoDI	Department of Defense Instruction
FSGA	Fort Stewart Garrison
GC	Garrison Commander
GSO	Garrison Safety Office
HAAF	Hunter Army Airfield
OSHA	Occupational Safety and Health Administration
POC	Point of Contact
PPE	Personal Protective Equipment
RM	Risk Management
SM	Service Member
SOH	Safety and Occupational Health

SOHMS	Safety and Occupational Health Management Systems
SOP	Standard Operating Procedure
USO	Unit Safety Officer

APPENDIXB – Definitions

Affected employee: An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tag out, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

Authorized employee: A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

Capable of being locked out: An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

Custodian: Lead employee in charge of placing all the isolation locks and tags for a group lockout.

Energized: Connected to an energy source or containing residual or stored energy.

Energy isolating device: A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

Energy source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Hot tap: A procedure used in the repair, maintenance and services activities which involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Lockout: The placement of a lockout device on an energy isolating device, IAW an established procedure, ensuring the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device: A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. A lock's shape, or size, or color must provide employees

with the capability to identify and distinguish a lockout device from other similar devices (e.g., security locks) in the workplace. Included are blank flanges and bolted slip blinds.

Normal production operations: The utilization of a machine or equipment to perform its intended production function.

Servicing and/or maintenance: Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or un-jamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the **unexpected** energization or startup of the equipment or release of hazardous energy.

Setting up: Any work performed to prepare a machine or equipment to perform its normal production operation.

Tag out: The placement of a tag out device on an energy isolating device, IAW an established procedure, to indicate the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tag out device: A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device IAW an established procedure, to indicate the energy isolating device and the equipment being controlled may not be operated until the tag out device is removed.

APPENDIX C – ANNUAL GSO REVIEWS

DATE	REVIEWED BY	CHANGES Y/N	SUMMARY OF CHANGES
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