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SP 37 Hazardous Energy Control (LOTO)

1.0 PURPOSE:

- 1.1 The purpose of this policy is to ensure that before any employee performs any work activities, testing, servicing, or maintenance on machinery or equipment, where the unexpected energizing, start up or release of any type of energy could occur and cause injury, the machinery or equipment will be rendered safe to work on by being locked and tagged out.

2.0 SCOPE:

- 2.1 This program covers all Kuesel Group employees potentially exposed to the unexpected release of stored energy, which could cause injury to employees during testing, servicing, or maintenance of machines, equipment or systems.

3.0 RESPONSIBILITIES:

- 3.1 **Project/Site Supervisor**- is responsible for initiating and controlling this procedure onsite. She/he ensures that the proper procedures for isolating all energy sources have been conducted.
- 3.2 **Employees**- who perform work activities in which the unexpected energizing, start up or release of any type of energy could occur and cause injury, shall comply with this procedure. Employees will receive the appropriate training according to their responsibilities.

4.0 DEFINITIONS:

- 4.1 **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/Tagout or whose job requires him or her to work in an area in which such servicing or maintenance is being performed. An affected worker cannot perform work under a Lockout/Tagout.
- 4.2 **Authorized Employee**- A person who either applies the locks and tags on machines, equipment and systems or works under the protection of Lockout/Tagout in order to perform testing, servicing, or maintenance on that machine or equipment. This person has completed the mandatory training to be qualified as an Authorized Employee. Only an Authorized Employee installs and removes his or her own lock(s) and tag(s) as required by this program.
- 4.3 **Authorized Locks and Tags**- These are locks and tags that are used to ensure the safety of the Authorized Employees performing testing, servicing, and maintenance of machines equipment or systems. Servicing or maintenance may not begin until these devices are applied to the Energy Isolation Device(s). These locks and tags shall not be used for any other purpose. The print and format of tags shall be standardized and will warn against hazardous conditions if the machine or equipment is energized. The tag shall read "Danger – Do Not Operate" and will have black lettering with a white background. The tag will have an unlocking strength of at least 50 pounds. Personal locks will identify the Authorized Employee applying the device. At a minimum, tags shall contain the name of the authorized employee.

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- 4.4 Energy Source**- Any source of hazardous energy or materials. Energy sources include, but are not limited to; electrical, mechanical, hydraulic, pneumatic, chemical, radiation, and thermal energies, as well as various forms of potential energy such as that stored in springs, compressed gases, or in suspended objects (gravitational).
- 4.5 Double Block and Bleed**- The closure of a line, duct, or pipe by closing and locking and tagging two in-line valves and by opening and locking/tagging a drain or vent in the line between the two closed valves.
- 4.6 Energy Isolation Device**- A device that prevents the transmission or release of hazardous energy or hazardous materials. Examples include, but are not limited to; restraint blocks, electrical circuit breakers, disconnect switches, slide gates, slip blinds, or line valves. For lockout/tagout purposes, isolating devices that provide visible indication of the device's position are desirable.
- 4.7 Lockout Device**- A device that utilizes a positive means such as a lock, either keyed or combination type, to hold an energy-isolating device in a safe position to prevent the energizing of a machine, equipment or system. Other Lockout Devices include dead ends (blanks), bolted slip blinds, valve hand wheel covers, and chains/lock. Lockout devices shall contain the name of the authorized employee when not used in conjunction with a tag.
- NOTE:** If an energy source cannot be locked out a tagout system shall be utilized.
- 4.8 Lockout/Tagout (LOTO)** - Installation of lock(s) and tag(s) on the Energy Isolation Devices to ensure that work can be performed safely. The lock(s) and tag(s) ensure that the Energy Isolating Device(s) and the machine, equipment or system(s) they isolate and/or control, cannot be operated until the lock(s) and tag(s) are removed. Devices shall indicate the identity of the employee applying it.
- 4.9 Other Employees**- Employees whose work operations are or may be in an area where energy control procedures are utilized.
- 4.10 Safe Condition Check (Verification of De-energizing)** - The inspection or test of a system or component performed by the Authorized employee to ensure that the hazardous energy or materials are controlled to prevent injury or accident. **Note: This is an essential element of all energy control programs and procedures, which ensures the safety of all potentially exposed personnel.**
- 4.11 Maintenance and/or Construction**- Work place activities such as maintenance inspections, construction, installing, setting up, modifying, adjusting, testing, maintaining and/or servicing machines, equipment, or systems. These activities include lubrication, cleaning, or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energizing or start-up of the equipment or release of hazardous energy. This applies to all personnel regardless of job title, (i.e., operator, maintenance, electrician, etc.)

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- 4.12 Tag-** A “Danger – Do Not Operate” Tag, which can be securely fastened to an energy isolating device with an unlocking strength of 50 pounds, to indicate that the Energy Isolating Device and the equipment being controlled cannot be operated until the Tag is removed. Tags are essentially warning devices affixed to energy isolating devices and do not provide the physical restraint of a lock. At a minimum, tags shall contain the name of the authorized employee.
- 4.13 Tagout Device** - A warning tag (weather & chemical resistant) standardized in size, color, with wording warning of hazardous energy (Do Not Start) (Do Not Open) (Do Not Close) (Do Not Energize) (Do Not Operate).

5.0 LOCKOUT/TAGOUT (LOTO) PRINCIPLES:

- 5.1** This procedure establishes the requirements for the lockout/tagout of energy isolating devices.
- 5.1 It is mandatory that all personnel comply with the restrictions and limitations of this lockout/tagout program and related procedures.**
- 5.2** No individual shall attempt to start, energize, use, or operate a piece of equipment that has been locked out and tagged out after the safe condition check has been completed.
- 5.3** No individual other than the Authorized Employee who placed the device and tag shall attempt to remove it, except as noted in Section 8.
- 5.4** The personal lockout and “Danger- Do Not Operate” tag signifies that there is an Authorized Employee working on a component and it was installed by that task’s Authorized Employee prior to starting work and will be removed by that Authorized Employee when their work is completed.
- 5.5** The Authorized Employee “Danger – Do Not Operate” tag is reserved for the exclusive use of the authorized worker identified on that tag. The identifying markings shall be made in permanent form.
- 5.6** No one shall authorize another person to ignore or violate this program and its procedures.
- 5.7** No person shall remove a Lockout Device when an unsafe condition exists until they have corrected the condition or another person has installed a Lockout Device.
- 5.8** No Authorized Employee shall install a lockout/tagout on any system without following the proper procedures and have notified the Client or Supervisor.
- 5.9** A check valve cannot be used as an Energy Isolation Device.
- 5.10** Whenever an outside firm is contracted to perform work, The Kuesel Group will inform the management of the outside contractor of the contents and requirements of this program. This is to ensure the safety of all employees. The contents of the outside contractors’ LOTO program will be reviewed by management to ensure that the program does not violate the requirements of the site LOTO program and for the purpose of ensuring that employees are not exposed to any potential hazards that may be created by the outside firm’s LOTO program.

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- 5.11 When electrical system grounds need to be applied, they shall be, the last devices applied and the first devices removed in application of LOTO. Qualified electrical personnel shall only apply grounding devices.
- 5.12 All employees shall receive the appropriate level of training based upon their LOTO duties (i.e., Authorized, Affected, or Other).
- 5.13 Any employee who observes any apparent violation of this program or related procedures shall immediately notify their supervisor.
- 5.14 This program does not apply to the work on cord and plug connected electrical equipment for which exposure to the hazards of unexpected energizing or start up of the equipment is controlled by the unplugging of the equipment from the energy source and by the plug being under the exclusive control (within arm's reach and line of sight) of the employee performing the servicing or maintenance.

6.0 CONDUCTING LOTO AT A CLIENT SITE:

- 6.1 The Kuesel Group employees who will be performing work at a client jobsite must follow, at a minimum, the requirements of The Kuesel Group's LOTO procedure and the Client's program.
- 6.2 The Kuesel Group and the Client must inform each other of their respective Lockout/Tagout procedures. For the protection of the Kuesel Group employees, the Client's LOTO program must be reviewed in detail by the Project/Site Supervisor in charge of the work to ensure that The Kuesel Group employees will not be injured. If there are any discrepancies, it is the responsibility of the Supervisor to ensure that the Kuesel Group employees understand and comply with any restrictions and prohibitions of the Client's LOTO program.
- 6.2 Several LOTO conditions must be met by the Client before The Kuesel Group personnel can begin work at the facility.
 - 6.2.1 The Client shall establish and have available for review a LOTO program that meets 29 CFR 1910.147, Control of Hazardous Energy (LOTO); 29 CFR 1910.333, Lockout/Tagout Electrical Safe Work practices; and 1926.417, locking and tagging of circuits, as they relate to the control of hazardous energy sources.
 - 6.2.2 Prior to The Kuesel Group performing work, a designated point of contact will be made within the Client's organization for the purpose of interfacing and coordinating the Lockout/Tagout procedures.

7.0 PROCEDURE:

- 7.1 A specific written procedure for all machines, equipment or system shall be developed and will be followed before beginning any servicing or maintenance work. The steps outlined in Section 7.1 will serve as a guide to ensure compliance with this requirement.
- 7.2 **Detailed Lockout/Tagout Procedure**

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- 7.2.1** The Authorized Employee will determine all potential sources of hazardous energy (written isolation procedures, equipment walk down, equipment diagrams, and any other resources to properly identify all energy sources). The Client will inform The Kuesel Group of their requirements for Lockout/Tagout. Depending on the site, the Client will identify all energy isolation points and lock them out. It is still important for the Kuesel Group employee who will be performing the work to walk down the equipment to ensure that this has been done correctly.
- 7.2.1.1** The Kuesel Group personnel shall develop specific energy control procedures in the event the Client does not have or provide them for the equipment to be worked on.
- 7.2.1.2** All energy sources shall be taken into consideration when developing the specific energy control procedures. Energy sources to be considered include:
- 7.2.1.2.1** Electrical
 - 7.2.1.2.2** Hydraulic
 - 7.2.1.2.3** Pneumatic
 - 7.2.1.2.4** Steam
 - 7.2.1.2.5** Tension
 - 7.2.1.2.6** Gravity
- 7.2.1.3** The machine or equipment shall be turned off or shutdown using the procedures established for the machine or equipment. Before an authorized or affected employee turns off a machine or equipment, the authorized employee shall have knowledge of the type & magnitude of the energy, the hazards of the energy to be controlled, & the methods or means to control the energy.
- 7.2.1.4** All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located & operated in such a manner as to isolate the machine or equipment from the energy source.
- 7.2.2** The Authorized Employee will obtain the appropriate number of locks and tags. Some Lockout's might require the use of other lockout devices (valve covers, chains, breaker covers, etc.).
- 7.2.3** Depending on the Clients LOTO procedure, the Authorized Employee may go to each identified energy isolation device (which is in the correct position) and place their lock and tag on the device. Lockout devices shall be affixed in a manner that will hold the energy isolating devices in a safe or off position. The host may also lockout all isolation points and put the keys to the locks in a lockbox. (Note: the above procedures may be controlled through the use of a LOTO Permit). The Kuesel Group authorized employee

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would place their lock on the lockbox, preventing unauthorized access to the keys. All authorized employees working on that system shall put their lock on the lockbox.

7.2.4 Tagout procedures

7.2.4.1 Tagout devices, where used, shall be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the safe or off position.

7.2.4.2 Where tagout devices are used with energy isolating devices designed with the capability of being locked, the tag attachment shall be fastened at the same point at which the lock would have been attached.

7.2.4.3 Where a tag cannot be affixed directly to the energy isolating device, the tag shall be located as close as safely as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.

7.2.5 The Authorized Employee's personal key will be kept under their possession.

7.2.6 Following the application of a lockout or tagout device to energy isolating devices:

7.2.6.1 The Kuesel Group employee shall ensure that all stored residual energy has been relieved, disconnected, restrained & other wise rendered safe.

7.2.6.2 If there is a possibility of re-accumulation of stored energy then verification of isolation shall be continued until the servicing or maintenance is complete, or until the possibility of such accumulation no long exists.

7.2.6.3 When all energy isolation devices have been properly de-energized and locked/tagged out, the Authorized Employee will perform the necessary safe condition check(s) and verify the isolation to ensure that all energy has been dissipated and controlled (Example: pushing local start buttons, throwing switches, etc.). The work can now begin.

7.2.7 If testing is required and LOTO devices must be temporarily removed the authorized employee will use the following procedures:

7.2.7.1 Clear away tools, unnecessary equipment, materials, etc.

7.2.7.2 Remove all employees from the area

7.2.7.3 Remove LOTO devices

7.2.7.4 Energize and proceed with testing. Note: the Client may perform re-energizing of the equipment.

7.2.7.5 De-energize and reapply control measures (see 7.1.1 thru 7.1.6).

7.2.7.6 The LOTO permit can be used to document the above procedures.

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7.2.8 When all work on the system is complete, the Authorized Employee will make sure that all machines, equipment, systems, and areas are clear from personnel and equipment before energizing.

7.2.9 The Authorized Employees will remove their locks/tags from the equipment or lock from the lockbox. The Client will be notified when all personnel and equipment are clear. The system will then be put back into service as necessary by the Client.

7.3 Energy Isolation Devices Not Capable of Accepting a Lock

7.3.1 If an energy isolation device is physically incapable of accepting a lock, a tagout system can be used which offers full employee protection similar to that of a lockout system. Tagout devices shall be affixed in such a manner as will clearly indicate that there should be no operation or movement of energy isolating devices from the safe or off position.

7.3.2 The tagout system includes all of the steps of this lockout program except the actual use of a lockout device on that particular energy isolation device. Additional means to be considered as a part of the demonstration of full employee protection shall include the implementation of additional safety measures such as the removal of an isolating circuit element, blocking of a controlling switch, opening of an extra disconnecting device, or the removal of a valve handle to reduce the likelihood of inadvertent energizing.

7.4 Adding Energy Isolation Devices

7.4.1 Energy Isolation Devices may be added to the existing LOTO. The Authorized Employee responsible for the LOTO will review the scope of the additional work task and determined if it can be addressed under the existing LOTO. If the work can be performed under this LOTO, the Authorized Employee responsible for the LOTO will perform the steps per Section 6.1 of this procedure. If this task cannot be addressed by the existing LOTO, a new LOTO shall be developed.

7.5 Group Lockout

7.5.1 It may be necessary during larger projects to have several personnel on one LOTO permit. In this case, it is permissible to have a group LOTO.

7.5.2 An Authorized Employee will be chosen to put on an authorized lock on all energy isolation devices on the permit. He/she will have the responsibility as the LOTO Supervisor to ensure continuity of protection for all Authorized Employees and to coordinate affected personnel. The Supervisor will ensure all locks and tags are properly installed on the energy isolating devices by visually checking all energy isolation points.

7.5.3 The authorized employee shall ascertain the exposure status of individual group members. Each employee shall attach a personal lockout or tagout device to the group's device while he/she is working & then removes it when finished. During shift change or

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personnel changes, there should be specific procedures to ensure the continuity of lockout or tagout procedures. Documentation should be specific.

7.5.4 The Supervisor will list all of the other Authorized Employees on the permit with which he/she is working with. All keys to the locks that are securing the energy isolation devices will be placed in a lockbox or similar lockable holding device.

7.5.5 Each Authorized Employee will put his/her own lock on the lockbox before beginning work.

7.5.6 The Supervisor cannot remove any locks or tags from the energy isolation devices unless all other Authorized Employees have first removed their locks and tags from the lockbox. If there is a need to remove a lock and tag from the lockbox because an Authorized Employee is not on site, then Section 8.0 must be followed.

8.0 REMOVAL OF AUTHORIZED EMPLOYEE LOCKS AND TAGS WHEN OFF-SITE:

8.1 There may be times when the LOTO needs to be closed out to put equipment back into service when an Authorized Employee still on the LOTO is off-site and cannot be located. Removal of an Authorized Employee lock and tag will require a review by the Authorized Employee's direct Supervisor.

8.2 The Authorized Employee's Supervisor will attempt to reach the Authorized Employee to determine if the LOTO may be closed. If the Authorized Employee indicates that the LOTO may be closed, the Authorized Employee must return to the site to follow the normal LOTO removal procedure.

8.3 If the Authorized Employee cannot be contacted or cannot return to the facility, the Authorized Employee's Supervisor may authorize removal of the Authorized Employee from the LOTO.

8.4 If the Supervisor authorizes the removal of the Authorized Employee's lock(s) and tag(s) all potentially affected employees shall be notified.

8.5 The Authorized Employee will be contacted by his/her Supervisor immediately upon their return to work, to notify them that they have been removed from the LOTO.

9.0 LOCKOUT/TAGOUT PERIODIC INSPECTIONS:

9.1 Annually, management shall ensure that a review of its energy control program (LOTO) is being conducted. This review is conducted for the purpose of ensuring that the LOTO procedures and requirements of 29 CFR 1910.147 & 1926.417 are being met. A written report shall be made documenting inspection findings, results, and as appropriate any corrective actions taken for LOTO program deficiencies.

9.1 Periodic inspections shall be scheduled and documented in writing. Periodic inspections shall occur at least annually.

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- 9.2 A representative trained as an Authorized Employee must perform the periodic inspection. The representative may not review any Lockout/Tagout that they currently have responsibility for. The representative must review the procedures being implemented by and under the control of other Authorized Employees. The inspection shall include a review of each Authorized Employee's responsibilities under the program and related procedures. Written documentation of findings shall be made and retained.
- 9.3 If LOTO permits are available, an inspection of various LOTO's that have been closed out will be inspected to verify that they have been properly completed and closed out. Written documentation of findings shall be made and retained.
- 9.4 Active LOTOs will be visually verified that all locks and tags are in place and The Kuesel Group LOTO and/or the host employee's program requirements are being followed.
- 9.5 If during the inspection a discrepancy or procedural inadequacy is found, steps shall be taken immediately to determine the reason for, and the corrective action necessary to remedy the discrepancy. Written documentation of findings shall be made and retained.
- 9.6 All discrepancies or noncompliance with The Kuesel Group program and procedures will be corrected as soon as possible but no later than 7 days from the date of identification. If a discrepancy or inadequacy is identified the appropriate individuals shall be retrained.
- 9.7 The Safety Representative shall certify in writing that the periodic inspection has been performed. This certification shall identify and document the machine, equipment or system, on which the LOTO procedure was utilized, date of inspection, the employees (by name) covered by the inspection, and the individual performing the inspection.

10.0 TRAINING:

- 10.1 Employees shall be trained so that they understand the purpose and function of the LOTO program and procedures. Employees shall also be trained so that they understand the purpose, contents and requirements of 29 CFR 1910.147 and 1926.417.
- 10.1 Authorized Employees shall receive training in the recognition of sources of hazardous energy, the types and magnitude of hazardous energy and the means and methods of isolation and control.
- 10.2 Affected Employees shall be instructed in the purpose and use of the Kuesel Group LOTO program.
- 10.3 Other Employees shall be instructed about the Kuesel Group LOTO program and about the prohibition against attempting to restart equipment, machines or systems that have been locked and tagged out of service.
- 10.4 Employees retraining will be conducted when there are changes in job assignment; machines, equipment or processes; or in the Kuesel Group LOTO program and procedures. Retraining will also be conducted when a periodic inspection of the effectiveness of this procedure reveals inadequacies in employee knowledge or performance.
- 10.5 A record of all training and retraining shall be maintained. The training record shall include the name of the employee, level of training, name of the instructor and the date of the training. The Responsible Safety Representative will keep all training records on file. (Training records will be retained indefinitely or until the employee is no longer employed.)

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11.0 REVISION REGISTER:

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