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Lockout/Tagout Procedure

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1.0 PURPOSE

A Lockout/Tagout (LO/TO) procedure defines the standard work process for the control of hazardous energy associated with systems and equipment in service within Entities, Facilities, and other contracted areas conducting operations and maintenance activities. This includes mechanical, pneumatic and hydraulic systems with stored energy, low voltage electrical equipment and wall/floor penetrations where “live” services could be encountered.

2.0 SCOPE

The scope of this procedure is to provide means to the user to create a custom procedure outlining and detailing the requirements and responsibilities when working with and around hazardous stored energy (e.g., electricity, pressurized liquid and gas, spring-loaded equipment. As this procedure is written very methodical and step-by-step, it should be used a close guideline in creation of the Entity’s custom LO/TO program. This procedure applies throughout the Kingdom of Saudi Arabia to Operations and Maintenance functions and activities on, in, and around government owned facilities and projects.

It also provides a method to define and identify systems, equipment, and components that are out of service, or are in limited service. LO/TO also includes wall and floor penetrations where “live” services could be encountered.

3.0 DEFINITIONS

Definitions	Description
Affected Employee	A person whose job requires him/her to work in an area in which LO/TO is being performed (i.e., within a safety boundary), or, whose work requires them to operate or use a machine, system or equipment on which work is being performed under lockout/tagout. An affected employee shall not work on isolated equipment unless he is signed on to the associated permit and placed a personal isolation lock and tag at all relevant isolation points. From that point forward the affected employee becomes an authorized employee.
AO	Authorized Operator
Authorized Employee (AE)	An AE is a person who is signed on the work permit and performs or directs work on equipment or systems that have been locked and tagged out for personal protection against hazardous energy.
Authorized Operator (AO)	An AO is defined as a person qualified to operate plant equipment as required to establish the safety boundary effecting the conditions described in the LO/TO Permit and restoring the system or component when the permit has been closed.
Equipment/System Boundary’s	Are established isolation points designed to segregate and control the hazardous energy associated with the plant, equipment, system or partial system/circuit. Examples but not limited to: circuit breakers, pumps, valves, hydraulic rams, springs or items with stored energy
Hazardous Energy	Hazardous Energy is anything that could cause harm to people, equipment or the environment. Energy sources include but are not limited to items such as: Electrical, Kinetic Energy (including gravitational) Potential energy Pressurized liquids or gases including air Chemical Energy Thermal Energy
High Voltage (HV)	Exceeding 1000 V ac. or 1500V dc; also, described as exceeding low voltage
HV	High Voltage
HWP	Hazardous Work Permit
LO/TO	Lockout /Tagout - The placement of a personal lockout and tagout device on an energy-isolating device, (e.g., valve, disconnect switch, circuit breaker, fuse holder, lifted lead) to indicate that the equipment/system being controlled may not be operated until the lock and tag device is removed. Push buttons, selector switches, and other control circuit type devices are not energy isolating devices
LO/TO	Lockout/Tagout

Definitions	Description
Lockout Box/Key Control	A box designed to accommodate multiple locks and tags, and is configured so it may not be opened until all locks and tags have been removed.
Lockout Device	A lockout device may be a single device or a combination of devices as required preventing the operation of equipment, or the repositioning of switches or valves. Lockout devices may include locks, chains, locking switch covers, multiple locking hasp, etc.
Low Voltage	(a) Extra-low voltage: Not exceeding 50V ac. or 120V ripple-free dc. (b) Low voltage: Exceeding extra-low voltage, but not exceeding 1000V ac. or 1500V dc.
P&ID	Piping & Instrumentation Diagram
Permit Requestor (PR)	The PR is defined as the individual who requests a LO/TO to be placed on equipment or systems to prevent the unexpected energizing or startup of equipment or the release of stored energy.
PPI	Positive Physical Isolation
PR	Permit Requestor
RE	Responsible Engineer
Responsible Entity	Entity, Contractor, Subcontractor, Company
Senior Isolating Authority- Electrical (SIAE)	Person(s) who has been appointed to oversee any activity that could impact High Voltage systems on site (energized or de-energized). This appointed person(s) has the final approval for activity involving High Voltage.
SIAE	Senior Isolating Authority – Electrical
TA	Tagging Authority
Tagging Authority (TA)	The TA is defined as the LO/TO Authority (qualified individual(s)) designated to implement the lockout/tagout of required equipment or systems.

4.0 REFERENCES

- EOM-KS0-PR-000001 Incident Notification, Investigation and Reporting Procedure
- EOM-KSS-PR-000001 General Safe Working Requirements Procedure
- EOM-KSS-PR-000016 Hazardous Work Permit Procedure
- EOM-KSS-PR-000021 Electrical Safety Procedure

5.0 RESPONSIBILITIES

5.1 Facility / Contract Manager

- Support the implementation of this Plan
- Provide support and resources for the training of Authorized and Affected Employees in accordance with this Plan
- Owns and manages the administration of the Lockout/Tagout (LO/TO) program.
- Verifies that the AO, and TAs are trained, qualified and competent.
- Approves, as applicable, variances/deviations of mechanical equipment if isolation is not in alignment with manufacturer's recommendations.

5.2 HSE Representative

- Monitors to confirm that employees have been properly trained in accordance with this Plan.
- Maintains a list of personnel that are trained on the application of this LO/TO Plan and on the roles and responsibilities of the Plan.
- Monitors compliance to this procedure.

5.3 Responsible Engineer

- Confirm that equipment and systems under the RE's jurisdictional control are properly protected from inadvertent operation, energizing, or pressurization.

- Approves, as applicable, variances/deviations of mechanical equipment if isolation is not in alignment of manufacturer's recommendations.

5.4 Supervisor

Responsible for coordinating and monitoring activities in their facility/area.

- Authorizes Permit closures and changes.
- Ensures that the work proposed is necessary and risks associated with simultaneous activities, inclusive of specific work site and adjacent work activities, are identified and mitigated
- Stopping work due to any permit or LO/TO non-compliance
- Ensures personnel are trained, qualified and competent.
- Coordinates activities to avoid conflicts or interference by evaluation the number of LO/TO, hazardous or environmental work permits occurring in the same area.
- Approves and maintains the register of TAs.
- Coordinates variances/deviations of mechanical equipment if isolation is not in alignment with manufacturer's recommendations.
- Coordinates the interface when multiple Entities work activities involve LO/TO.
- Periodically reviews the open and closed LO/TO Permit files and performs random LO/TO Field Permit reviews.
- Coordinates with contractor and facility teams to identify any issues with the submission of multiple permits from different parties.
- Supervises the Tagging Authorities ensuring that the approved process is followed.
- Provides additional input to troubleshoot issues, such as additional knowledge to assist in identifying the required isolation points for a given task.

5.5 Tagging Authority

- Verifies that Permit Requestors (PRs) are trained.
- Issues, modifies, and closes LO/TO Permits as required under this Plan.
- Concurs with the PR and Supervisor the protective measures required to ensure that component(s) or system(s) identified on the LO/TO Permit are completely isolated so that work activities can be safely performed and protect personnel, equipment and environment.
- Advises and consults with the Supervisor, where applicable, for the equipment or system impacted by the LO/TO Permit prior to authorizing the permit.
- Confirms that safety tags and locks YELLOW locks will be used for all isolations (except for HV equipment where BLACK locks are used for isolation) are placed and removed from designated equipment and systems, including boundaries and supplemental sources, as required by the LO/TO Permit.
- Places a GREEN lock (Tagging Authority Lock) and tag on the lock box and/or multi-hasp device. The TA GREEN lock should be the first lock on, and last lock off to ensure proper control and protection against the introduction of hazardous energy into systems where work is being conducted.
- Approves permit and issues lockout devices to AO to lock and tag system components.
- Confirms that the protective measures are restored after the work is completed.
- Confirms that the equipment/system is in a safe configuration after the work is completed.
- Maintains LO/TO records, which includes open and closed Permits.
- Manages Master Clearance process as described in this Plan.
- Participates in audits as described in this Plan.
- Signs the LO/TO Permit when work is completed, closing Permit.
    - Tagging Authorities shall have common authority to sign off Permits raised by other Tagging Authorities.

5.6 Contractor Senior Isolating Authority-Electrical (SIAE)

This may be the Facility/Contract Manager or Supervisor.

- Manages and develops High Voltage LO/TO Plans/Permits.
- Shall be responsible for switch room security, access control and personnel accreditations.

- Manage the electrical distribution system and ensure effective co-ordination of all switching, isolation and earthing.
- Installs BLACK locks/tags to isolate HV equipment.
- Approve HV Access Permit Applications ensuring that all intended HV switching operations shall be communicated between areas and examined for possible impacts on construction or pre-commissioning areas. This includes power generation capacity and possible consequences upon a trip or fault during switching.
- Approves HV Switching Programs.
- Assess and authorize Competent Persons to act as the following Authorized Persons within the areas of their responsibilities: HV Switching Co-coordinator, HV Switching Program Checker, HV Switching Operator, HV Switching Operator's Assistant and Permit Holder.
- Ensures HV Switching Operators have been trained and verified as competent to fill the role before granting authorization.
- Provides guidance and direction to Authorized Isolators in the application and removal of LO/TO as part of the HV Switching Program. Issue and cancel LO/TO Permits, which shall accompany HV Access Permits.
- Ensures all isolations and safe working instructions have been recorded and constraints of the Permit understood by the applying Permit Holder.
- Approve HV Access Permits as the Permit Approver, certifying that isolations and earths have been applied in accordance with the approved HV Switching Program. Route approved HV Access Permit for logging in the permit register by the Permit Co-coordinator.
- Cancel HV Access Permits, certifying that affected equipment and systems shall be regarded as live.

5.7 Permit Requestor (Responsible Person)

- Coordinate with the Supervisor, as appropriate, to identify the appropriate protective measures to control energy, and refer to the relevant drawings/diagrams (P&IDs, Line Diagrams, etc.) applicable to the activities being performed.
- Fills out the permit defining the work or testing to be performed providing sufficient detail to allow adequate evaluation of the equipment or system boundary
- Submits the LO/TO Permit to the TA for review and approval
- Nominates the equipment and/or electrical circuits to be locked and tagged out.
- Requests guidance and assistance from the Supervisor and TA and/or SIAE as needed to understand all potential energy sources
- Verifies that isolation boundaries are adequate for the work or testing to be performed; ensures that all HWP requirements are in place to do the work required.
- Confirms that each locked and tagged component is in the position indicated on the LO/TO Permit and has been independently verified
- Signs the LO/TO Permit and places a BLUE Permit lock and tag onto lock box signifying that the boundary is adequate and understood, prior to starting the work
- Verifies all AEs sign onto the permit and place RED Personal locks and tags on the lock box
- Verifies the placement of the lock box is suitable for the work task (i.e. will not be damaged)
- Verifies that all AEs have removed their locks and tags from the lock box when work is completed, and the machine, system, or equipment is capable of being safely re-energized
- Communicates the status of the work with the TA if work is not complete. For High Voltage Access permit/activities, PR co-ordinates with the SIAE.

5.8 Responsible Engineer

- Coordinates with PR and concurs with the protective measures and lockout/tagout as defined in the LO/TO Permit (with special emphasis on any interlocks, back-feeds or temporary energy sources).
- Participates and verifies, as required, in implementing protective measures and placing locks and tags as defined in the LO/TO Permit.

- Coordinates with the TA (and PR if necessary) to support correct identification of all energy sources and correct methodology of isolation (with special emphasis on any interlocks, back-feeds or temporary energy sources).

5.9 Authorized Employees

- Verifies, prior to performing work, that the equipment or system being worked on has been properly isolated according to this Plan; verify tags and locks are in place and the equipment or component is in the prescribed position or condition.
- Confirms that all PTW requirements are in place and verify that adequate training needed to safely perform the work tasks is complete.
- Places a RED Personal lock and tag, which singularly identify the AE, on to the lock box prior to performing any work on the system.
- Removes “Red” Personal locks/tags from the lock box and sign off (release) the permit when work is completed or work is no longer being performed under the permit.

5.10 Authorized Operator

An Authorized Operator (AO) may be a PR, or other individual whose name appears on the AO list maintained by the TA. While performing any of the responsibilities of an AO, the PR are acting as an AO. The AO has the following responsibilities:

- Positions or configures components as specified on the Permit.
- Uses YELLOW locks at equipment/multiple point isolation points.
- Removes locks/tags upon completion of tasks (after AE’s have signed off/locked off).
- Positions or configures components in a safe mode upon removal of locks/tags.

6.0 PERFORMING ISOLATIONS

6.1 Planning for Isolations

Prior to proceeding with any isolation work and associative permit applications, the PR and AEs must conduct a hazard analysis to identify the potential hazards associated with the isolation and to determine the necessary controls to ensure that the isolation and/or opening of process equipment can be performed safely. The Job Hazard Analysis shall identify any potential for the presence of stored energy, flammable or toxic gases and other potential hazardous conditions or substances.

When planning for isolations, Supervisors shall consider the need for permits under the administration of the HWP Procedure, in addition to their LO/TO Permit; for example, Confined Space Entry and Hot Work.

The Contractor Superintendent is the responsible person for managing the interface between isolations, subsequent LO/TO Permits and any other Permits issued under the administration of the HWP Procedure. Responsibilities of the Supervisor and the management of these interfaces, should they arise, is covered within the roles and responsibilities section above.

All sources of information – LO/TO permit, other permits, Job Hazard Analyses, etc. shall be readily available to PRs and AEs at the location of the work being performed.

6.2 Preparation for Isolation

Preparations for any isolation shall consider the following as applicable:

- Empty any equipment being prepared for opening of any noxious, toxic or flammable liquid or vapors in a controlled and environmentally sensitive manner (i.e., bunding).
- Vent purged equipment to a safe area where potential ignition sources and personnel are not present.
- Check opened equipment after opening.

- IF previously unidentified hazards exist or previous safeguards are determined to be inadequate, THEN equipment must be closed until safeguards are taken.

6.2.1 Electrical Isolations

- Electrical Isolations shall only be performed by competent, qualified and licensed electricians.

6.2.2 Mechanical Isolations

Isolations of mechanical equipment shall be performed in compliance with the manufacturer's specifications and recommendations for isolation unless Contractor approval is granted in writing for variance / deviation.

6.2.3 Pipeline Isolations and Fluid Containers/ Vessels

The following provisions will be made when isolations relating to pipelines, fluid containers and or vessels are performed, including work relating to hydro and pneumatic testing:

- Provision for pressure relief must be considered for both the section of pipeline being isolated and pipelines either side of the isolated section by use of double block and bleed isolation.
- Depressurized lines containing flammable/combustible liquids must be drained into a grounded/earthed form of containment to prevent static ignition.
- Blind or air gap any pressurized connection to a vessel or system before the equipment is opened.
- All process equipment must be isolated (blind or air gap) whenever possible at the first flange nearest (or upstream of) the equipment to be opened. Valves are then locked and tagged, and blinds must be listed on the LO/TO Permit Form (See **Attachment 3 - EOM-KSS-TP-000021 - LO/TO Permit Template**).
- Double block and bleed methodology may also be used to isolate equipment from process lines. Bleed lines should be carefully checked to ensure they are not plugged.
- Any pressurized connecting points to equipment must have double block and bleed to enable blind flanging before being left unattended.

6.2.3.1 Use of Blind

All pressurized pipeline, equipment or fluid containers / vessel isolation should achieve Positive Physical Isolation (PPI). If PPI cannot be safely achieved for equipment where it is required, then a risk assessment involving the Supervisor shall be conducted to determine if an alternative isolation plan can be implemented to perform the work safely. PPI is achieved when the system being worked on is separated from the hazardous energy and toxic substance by use of one of the following methods:

- Removal of a section (spool) of piping and isolation with blind flanges using double block and bleed.
- Disconnection and/or physical removal of a circuit breaker and grounding (earthing) the system.
- Removal of mechanical couplings.
- Use of blinds.

The planning process for pipelines shall include a process and instrumentation diagram (P&ID) displaying all spade/blind locations identified for mechanical isolation of the piping system. This must include pressure rating required, based on the piping system and task being undertaken.

A unique identification code or number should be given to each location of a piece of equipment (including blinds) used as part of the isolation. These should be marked on the P&ID and attached to the LO/TO permit prior to permit formation. These numbers / codes shall be attached to each piece of equipment in the field.

Work on the line/system can only commence when all spades/blinds are physically verified by the TA, PR, or AO as the correct material type/thickness and are installed in the correct location.

6.3 Equipment/Systems Preparation before Entering Isolation

Equipment shall be prepared prior to any isolation being performed which may include:

- Emptying, flushing or purging pipelines or vessels as required.
- Closing operations valves, switches or other devices as necessary, and ensuring that these are locked and tagged in accordance with the LO/TO Permit requirements below.
- Ensuring that affected personnel are made aware of the changed status of the equipment.
- Where possible, minimizing interfaces and arranging other work tasks to minimize the amount of other work being performed near the isolation work.
- Conducting gas tests if indicated.

7.0 PERMIT REQUIREMENTS

This section contains requirements associated with locking out and tagging isolated equipment or system prior to commencement of work. A sample standard work process for LO/TO is provided (see **Attachment 1 - LO/TO (Standard Process)** and **Attachment 2 - LO/TO (Permit Closure)**).

Protection of each person working on a system affected by a LO/TO Permit will be accomplished by involved individuals placing a personal lock and tag on a lock box containing the lock keys for energy-isolating devices used to lockout system components.

7.1 LO/TO Permit – General Requirements

The intent of the LO/TO Permit is to protect people equipment and the environment. The most conservative approach shall be taken whenever doubt exists.

When more than one group is issued protection on a LO/TO Permit and have signed-on to an existing permit, all must release the Permit before it can be closed.

Personal locks may not be placed on a lock box without signing-on the Permit. All personal tags shall be clearly identified with the person's name and organization. IF personnel are unsure of which lock box or permit they need to work under, THEN they shall clarify requirements with their supervisor.

Personal locks shall be provided to individuals by their respective employer and documented on a Personal Lock Log (see **Attachment 5 - EOM-KSS-TP-000023 - Personal Lock Register Template**). A copy of the completed log shall be submitted to the TA. The log shall be kept current, and updated logs shall also be submitted to the TA as updates occur.

The TA will also issue all lockout devices used by the PR/AO to physically isolate system components. Locks are color-coded to identify the entities. The color-code system is in Lock Colors and Usage (Figure 1).

If any lockout keys are lost or misplaced, the affected lock(s) will be removed utilizing an appropriate cutting device on authorization of the Facility/Contract Manager, and a replacement lock installed. The Permit will then be updated with the new lock number.

The Yellow and Black **CAUTION – RESTRICTED OPERATION TAG** shall not be used for personal protection (Figure 2).

DANGER – DO NOT OPERATE TAG/DO NOT REMOVE TAG and **CAUTION – RESTRICTED OPERATION** TAG shall not be hung on the same component (Figure 3). Tags are to have a white background with black letters except for the DANGER area, which should have white letters in a red oval with red diagonal lines inside a black rectangle.

No one may operate a component with a Safety Danger Tag or Tag and Lock attached, prior to removal by authorized personnel. Violations will result in immediate disciplinary actions according to facility/contract procedures, up to and including termination.

No work may proceed within the boundary of the LO/TO Permit, until the isolation points are verified, the LO/TO Permit has been signed as issued by the TA, and the PR and/or AEs for the working group have signed-on the permit accepting the permit.

LOCK COLOR	DESCRIPTION / USAGE
RED	**Personal Lock** For personal protection with Danger Tag for either single point isolations or multiple point isolations under lock box and LO/TO Permit. Key remains with user.
BLUE	**Permit Requestor Lock** Used with Danger Tag by PR to service Lock Box under LO/TO Permit. Lock easily identifies a LO/TO Permit is in place and the relevant PR. Key remains with PR.
GREEN	**Tagging Authority Lock** Used with Danger Tag by TA to service Lock Box under LO/TO Permit. Lock easily identifies a LO/TO Permit is in place and the relevant TA. Key remains with TA.
YELLOW	**Equipment/Multiple Isolation Lock** Used with Danger Tag on isolation points for group isolations under Lock Box and LO/TO Permit. Keys are placed within Lock Box.
BLACK	**High Voltage Isolation Lock** HV isolations under an approved switching or access procedure. Keys are under the control of CSU Group.

Figure 1: Lock Colors and Usage

Figure 1: CAUTION Tag

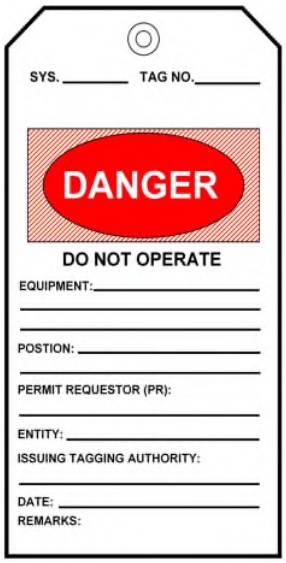


Figure 2: DANGER Tag

7.2 LO/TO Permit – Issue and Implementation

The PR shall complete the applicable sections of the LO/TO Permit Form to request lockout of an equipment component or system. The PR shall coordinate with the AOs, if applicable, to walk-down the equipment or system boundary and identify the recommended protective measures and lockout/tagout. The Permit will then be signed and submitted to the TA for approval. The PR may request guidance from the TA and/or the AO at any time if in doubt on system detail.

The TA shall confirm that the PRs are authorized to request lockout. The TA shall confirm that the type of safety boundary and required protective measures recommended by the PR is adequate for the work or testing identified in the LO/TO Permit.

The TA shall review the LO/TO Permit and associated tags and may assist the Requestors in the preparation. The danger tags shall be numbered using the LO/TO Permit number and a sequential number (e.g., 201-1, 201-2, and 201-3), and the permit shall be entered onto the LO/TO Permit Register (See **Attachment 4 - EOM-KSS-TP-000022- LO/TO Permit Register Template**). If applicable, the TA shall

consult with the AO about the LO/TO Permit request. After verifying the adequacy of the requested LO/TO Permit, the TA shall give the required danger tags, locks, and keys to the PR/AO as appropriate.

The AO (as required) shall implement the specified protective measures, place danger tags and locks as required by the approved LO/TO Permit. The AO will initial the permit at each LO/TO point to document this protective measure. The position of isolation points locks and tags shall be independently verified prior to any AEs signing on to the permit.

Note: *The AO/PR/TA or the person who hangs the tag and places a lock shall not be the same person who verifies and initials the position of each isolation point.*

After the PR, has independently verified all locks/tags and finds the permit boundary acceptable, the PR will lock the lock box with a lock and tag; then the PR will sign and date accepting the Permit. If more than one PR, all PRs must independently verify the safety tags, install their lockout devices, and sign for acceptance of the Permit. If the PR is working on the system (hands–on) the PR must also place a Personal lock on the lock box.

After all component positions, have been verified, the TA shall sign and date to issue the permit and places a **GREEN** Tagging Authority Lock and tag on the designated isolation point/lockbox.

All AEs will place their personal lock and tag on the lock box and sign onto the Permit. No work on the system will be started until the TA has issued the permit, locks and tags are in place, and the work group/individual has placed a Personal lock(s) on the lock box and signed the LO/TO Permit.

7.3 Restricted Operation Process

CAUTION — RESTRICTED OPERATION TAG shall be used in situations where a system or component is required to be energized or operated to safely facilitate a work activity (e.g., a vent valve that must be opened and closed to facilitate a hydrostatic test).

Systems or components with a **CAUTION — RESTRICTED OPERATION TAG** attached may only be operated by the PR identified on the permit. Operation of the system or component may only occur after all PRs have been notified of the intent to operate the system or component.

CAUTION — RESTRICTED OPERATION TAG and **DANGER — DO NOT OPERATE/DO NOT REMOVE TAG** may be requested on the same LO/TO Permit but shall not be hung together on the same component. The permit shall clearly indicate those components to be tagged with a **CAUTION — RESTRICTED OPERATION TAG.**

7.4 Alternative Energy Isolation and Personal Protection Methods

When an energy-isolating device is capable of being locked out, this procedure shall be utilized - not other methods. For all variance/deviation from this procedure, a deviation request must be submitted and approved by Contractor prior to work proceeding.

7.5 LO/TO Permit Modifications

Established protective measures and permit boundaries shall be monitored and verified at the start of each shift and periodically throughout the shift. In the event of a discovered change, all work on the associated system shall stop, and personnel shall sign off on the permit (removing any personal locks). The Permit can then be modified to suit the new boundary requirements however all modifications are required to be approved by the TA. All personnel working on the system are to be made aware of the changes and are to sign on the modified Permit and hang personal locks and tags onto the lock box prior to recommencing work on the system. The PR shall be notified and in turn shall notify Affected Employees that a change will be made. If the change compromises the original intent, all personnel signed-on the permit must agree to the change. Any change shall require all AEs to sign off the permit and the removal of personal locks.

The boundary modification shall be implemented by installing new locks/tags prior to the lifting of the old ones, and keys to newly installed locks shall be placed in the applicable lock box for the permit.

The PRs and TA shall verify the new permit boundaries, locks and safety tags, and shall re-sign the LO/TO Permit. AEs shall place their locks/tags on the lock box, and/or sign-on the Permit, as appropriate, prior to restarting work.

7.6 Temporary Lift Process (Permit Suspension)

Temporary lift is a suspension of the Permit and all works under the permit for the purpose of an alteration of the equipment or system boundary when a complete closure is not required.

Temporary lift can be used to modify the perimeters of the boundary during temporary facilities commissioning procedures.

7.6.1 Temporary Lift Registers

The Temporary Lift Register shall be maintained by the TA in the same area as the Permit Register. Refer to Temporary Lift Register (see **Attachment 7 - EOM-KSS-TP-000025 - Temporary Lift Register Template**).

7.6.2 Temporary Lift Instructions

- The temporary lift requestor (PR) obtains the Temporary Lift Cover Sheet (see **Attachment 6 - EOM-KSS-TP-000024 - Temporary Lift Cover Sheet Template**) from the TA and fills it out, specifying the Permit number and/or Tag Numbers he wishes to have temporarily lifted and a detailed description of the reason for the lift.
- The TA reviews the request, contacts the PR/RE as required to obtain concurrence.
- If concurrence is received, the TA assigns the Temporary Lift Number in the Temporary Lift Register and on the Temporary Lift Cover Sheet.
- The PR contacts all personnel signed on to the affected Permit.
- All personnel signed on to the permit shall sign on the Temporary Lift Cover Sheet to signify they have been notified and have ceased work.
- The PR requestor is responsible to ensure that the Temporary Lift is closed by all personnel signing prior to leaving the work area/shift.
- The temporary lift is closed when all signatures are in the released column. The Permit is considered reinstated and the requestor and TA have signed off the Cover sheet.
- The TA shall remove the Cover sheet from the front of the Permit and place it behind the Temporary Lift Register then closes the item in the Log.

7.7 Specialized LO/TO

7.7.1 Project-Wide Master Clearance

A Master Clearance is a Project-wide process that allows group protection through use of a single LO/TO by the process outlined below. A Master Clearance shall be limited to main terminal points to a site. Examples would include main power feeds, gas supplies, and connections to existing Company managed utilities outside the scope of the Project. A Master Clearance shall only be used for LO/TO protection to provide site-wide isolation or protection. When a Master Clearance tag is used, the following minimum requirements apply:

- The Facility/Contract Manager, HSE Representative, and TA shall place their lock on the Master Clearance isolation point.
- All keys shall be under lock box control.
- A single nominated subcontractor representative (AE) may retain the right to place his/her personal lock on the Master Clearance isolation point provided they are signed onto the associated Permit.
- AEs signed onto master clearance permits shall sign of on the permit and remove personal locks prior to leaving the Project on rotation.
- New AEs shall sign onto a master clearance prior to the existing AE signing off the permit.

Prior to release of the Master Clearance the following requirements shall apply:

- Formal notification to the AEs, including but not limited to published notice, meeting announcements, and signage
- Establishment of downstream LO/TO permits prior to release of a master clearance
- Physical walk-down and verification by the TA that downstream clearance and protection is acceptable and in place
- Concurrence and release by all personnel recorded on the Master Clearance Permit and removal of their appropriate locks.

7.7.2 System Boundary Master Clearance

System Boundary Master Clearances shall be limited to isolation points that bound systems under test from interface systems that remain under construction. Typical examples are the clearance (lock open) of all load breakers on an electrical switchgear/panel that is preparing for test, or a mechanical isolation, such as a locked, closed valve, which enables work to safely continue downstream systems/equipment.

When a System Boundary Master Clearance is used, the following minimum requirements shall apply:

- The PR/AO shall place the lock at the System Boundary Master Clearance isolation point(s).
- All keys shall be under a lock box system.
- Any affected employee shall retain the right to place his/her personal lock on the System Boundary Master Clearance isolation point(s) and effectively becoming an AE, provided they sign onto the associated Permit.

Prior to release of a System Boundary Master Clearance the following requirements shall apply:

- AEs are notified to sign off the Clearance by their respective Work Crew Foreman/Supervisor.
- Establishments of downstream LO/TO permits prior to release of the System Boundary Master Clearance.
- Physical walk-down and verification by the TA that downstream clearances and protection are acceptable and in place prior to the release of the System Boundary Master Clearance.
- Concurrence and release by all personnel recorded on the System Boundary Master Clearance Permit and removal of their appropriate locks.

7.8 LO/TO Permit Closure

All AEs shall remove their personal locks and sign off the applicable permit at the end of each shift.

When the work is completed, the PR shall verify that the work is complete and that the isolated components and system are ready to be restored. The PR shall account for all AEs, and return keys to any locks and close the LO/TO Permit, which shall then be signed off by the PR.

If all AEs have not been accounted for (either by releasing permit or removing their lock from the lock box) the LO/TO Permit shall remain active, and the TA will be notified, (refer to 8.8.1).

After all AEs, have been accounted for, the TA shall ensure that the PR on the LO/TO Permit has released it by signature, and that all personal locks have been removed from the lock box, and personnel have signed-off on the permit. The TA will then sign the bottom of LO/TO Permit, closing it and then remove their **GREEN** TA lock.

7.8.1 Permit Closure - AE not available

If it is determined that a LO/TO Permit unexpectedly must be closed or modified, the PR, will account for all AEs working under the Permit and shall release the Permit by signature. If the PR/AEs are not available, the TA may authorize, with the Facility/Contract Manager approval, a Permit Closure.

If an individual is off-site but can be contacted by telephone, the individual is considered available and may verbally authorize the closure. If the Requestor(s) concur with the closure/change, the TA shall document the concurrence per teleconference, and then proceed with a Permit closure or change as described in LO/TO Permit Form. This verbal authorization to close the permit shall be documented on the Permit.

If the concurrence of the AEs cannot be obtained, the Supervisor of the unavailable AEs/PR shall be contacted to discuss the boundary changes or permit release with the TA. To implement a Permit Closure:

- The available PR shall release the Permit by signing the LO/TO Permit, and shall account for every AE working under the Permit.
- The Supervisor of the unavailable PR shall ensure that AEs working under the Permit held by the unavailable PR are physically accounted for, have removed their lock from the lock box, and signed off the LO/TO Permit.
- If an individual is not available to remove a personal lock, the Supervisor and TA shall contact the individual and account for that person. The individual shall be notified of the proposed change, and that the personal lock will be removed. The individual shall not resume work on the system until the individual places another personal lock, and signs back onto the LO/TO permit.
- The TA and the SM shall approve the Permit Closure. The TA shall document the approval.
- The TA and AO (as required), shall remove all safety tags and locks.
- The TA shall close the LO/TO Permit after ensuring that all locks, keys, and tags have been returned and that special protective measures have been restored.
- The TA shall identify the permit as a Permit Closure, destroy the tags, file the closed Permit, and secure locks and keys for future use.
- The Supervisor of the unavailable PR or AE shall notify the unavailable PR or AE of the Permit Closure upon his/her return, prior to start of work.

If a Permit Closure is not issued, all work within the Permit scope shall be discontinued until the LO/TO Permit can be closed by the standard closure portions of the Plan.

Breaches of the LO/TO plan are considered incidents and shall be reported and managed as per the Incident Notification, Investigation and Reporting Procedure. Examples of these include, but are not limited to, personnel working on insufficiently isolated equipment/systems and personnel not applying personal locks.

7.9 Returning Equipment/System to Service

After the LO/TO Permit has been closed by the TA and locks removed from the lock box, the AO (as required) shall remove all locks and tags from isolation points and proceed with returning the equipment / system to service.

The AO shall conduct an inspection of the isolated equipment/service to ensure that all isolation devices listed on the LO/TO Permit are accounted for and removed. A final walk down and, as appropriate, verification from Supervisor will be completed in anticipation of restoring normal operations.

After the permit is closed, the TA shall destroy all released tags, file the closed LO/TO Permit, and secure the locks and keys for future use.

8.0 ISOLATION NOT REQUIRING A PERMIT

Mobile plant and equipment and low voltage electrical installations that have a single point of isolation, shall have all associated energy sources controlled by way of the isolation process described below and DO NOT require a LO/TO Permit.

8.1 Use of the Personal Danger Tag and Lock

In all instances, other than Mobile Plant equipment, a Tagging Authority shall place a **GREEN** lock and Hasp (of no more than six holes) to all single point isolations. Personnel (a maximum of five (5)) shall then place their Personal Isolation Locks and Personal Danger Tags onto the hasp.

Note: If the task requires more than five persons a lock box shall be used together with a LO/TO permit.

The personnel assigned to the task shall:

- Ensure the Isolation Point is correctly identified prior to isolation.
- Ensure the energy sources are correctly isolated.
- Places Personal Danger Tag, Lock, and Hasp as applicable onto the isolation points and retain the key.
- Checks that isolation has been completed correctly by attempting to start the equipment.

- Ensures Personal Danger Tag is printed legibly with ALL details fully completed.

Upon completion of the task, the personnel assigned shall remove their own Personal Isolation Lock and Tag. If personnel are moving to another job, or at the end of a work shift, the personnel assigned shall remove their own Personal Isolation Lock and Tag, and the Tagging Authority shall place an out of service tag onto the equipment. The tagging Authority shall only remove the Green lock after the work has been completed and the plant or equipment is safe to operate.

9.0 TRAINING

Project personnel assigned specific responsibilities as defined in this procedure will receive additional LO/TO Training concerning their roles, responsibilities and their actions required by this procedure. This training will be completed by affected Project personnel prior to participating in LO/TO permitting or beginning work on a system controlled by a LO/TO Permit. The training will be presented by the LO/TO Tagging Authority.

10.0 MONITORING AND ASSESSMENT

The HSE Representative, RE, and TAs shall monitor the LO/TO process to verify proper implementation and effectiveness of this procedure. The HSE Representative will conduct quarterly audits of LO/TO and document the findings. The LO/TO Assessment Checklist (see **Attachment 8 - EOM-KSS-TP-000026-LO/TO Assessment Checklist**) will be used for quarterly audits. Actions from these assessments and audits shall be tracked to closure.

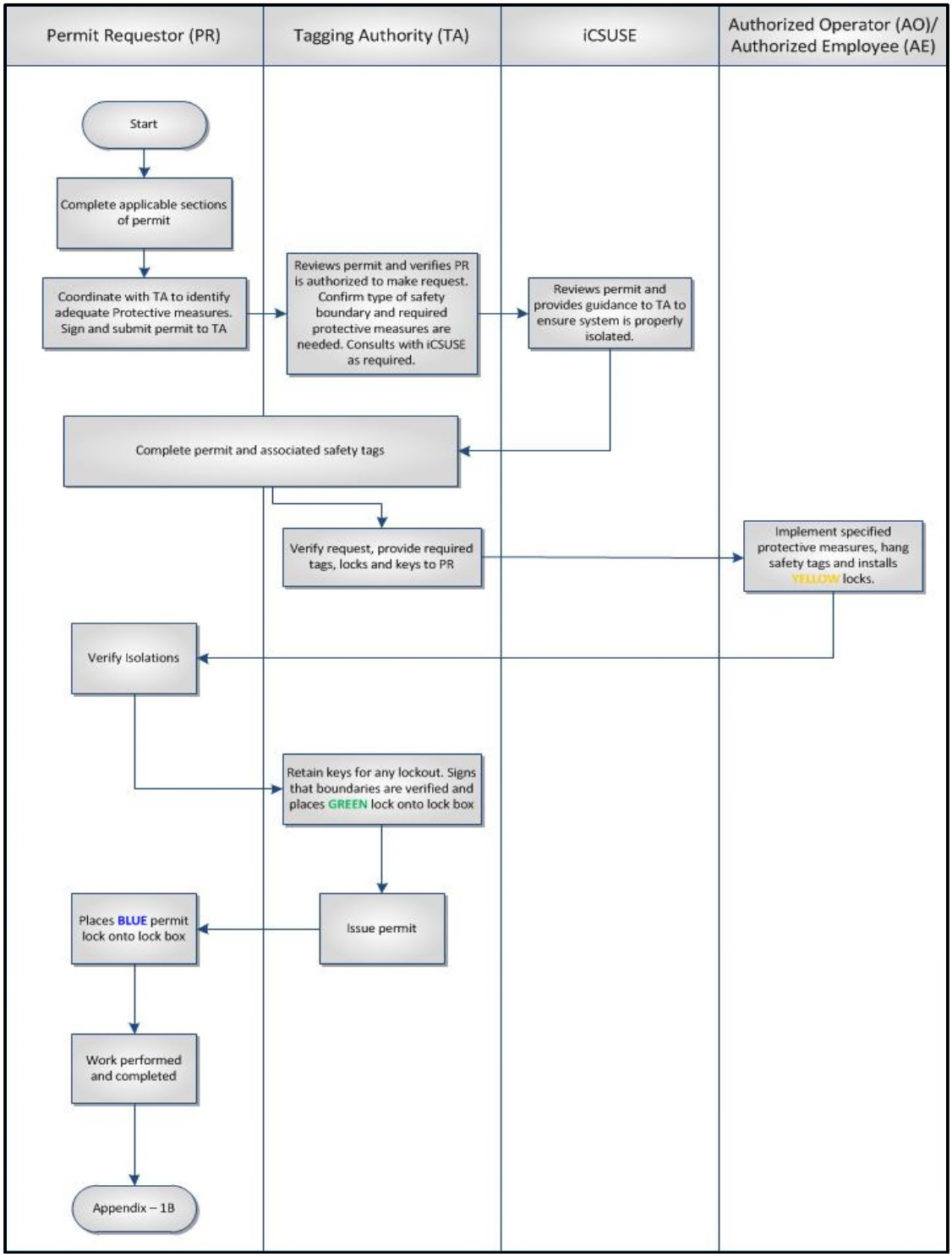
11.0 RECORDS

All records, closed permits, logs etc. will be maintained by the TA for the duration of the Project.

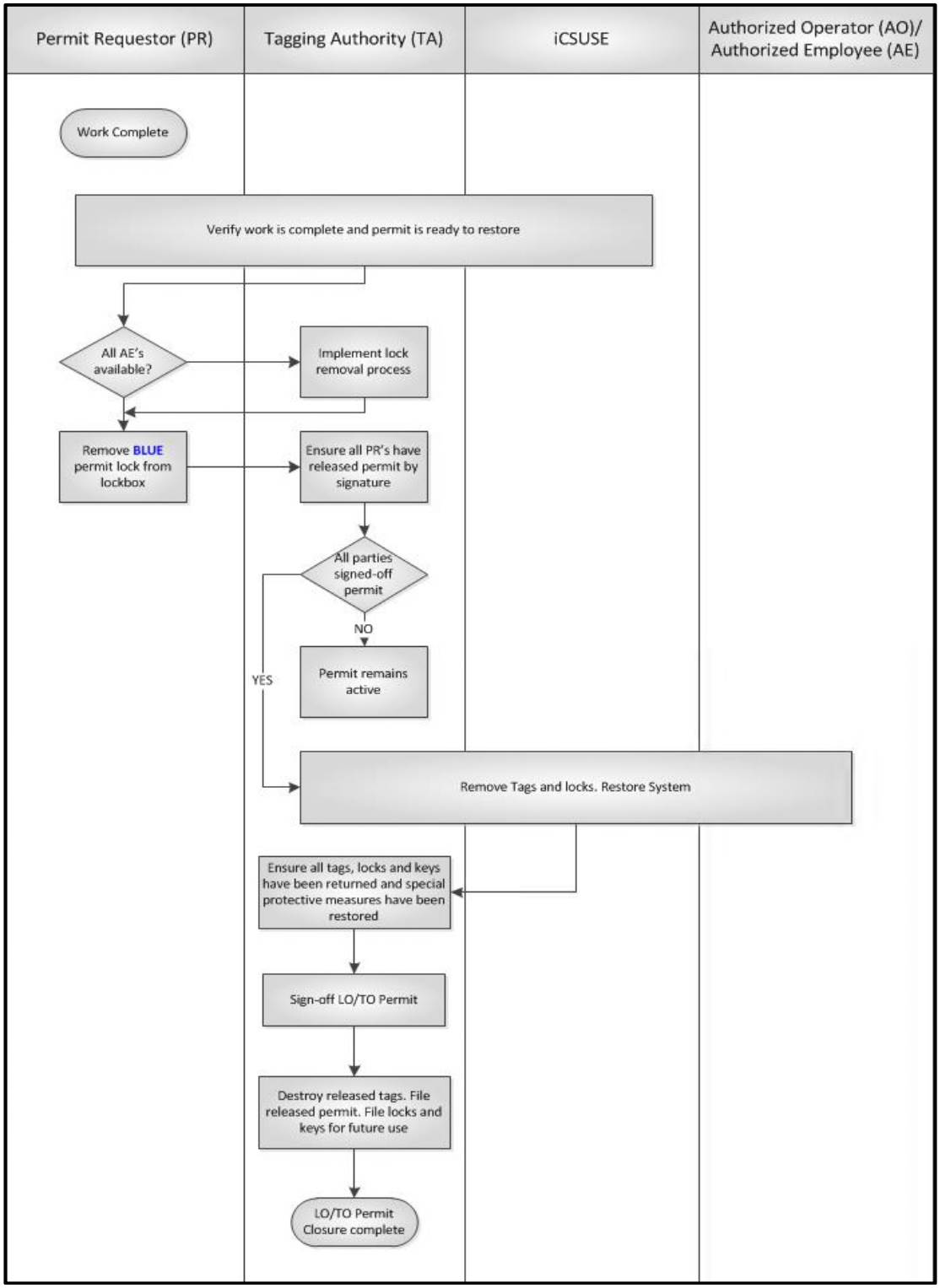
12.0 ATTACHMENTS

1. LO/TO (Standard Process)
2. LO/TO (Permit Closure)
3. EOM-KSS-TP-000021 - LO/TO Permit Template
4. EOM-KSS-TP-000022 - LO/TO Permit Register Template
5. EOM-KSS-TP-000023 - Personal Lock Register Template
6. EOM-KSS-TP-000024 - Temporary Lift Cover Sheet Template
7. EOM-KSS-TP-000025 - Temporary Lift Register Template
8. EOM-KSS-TP-000026 - LO/TO Assessment Checklist

Attachment 1 - LO/TO (Standard Process)



Attachment 2 - LO/TO (Permit Closure)



Attachment 3 - EOM-KSS-TP-000021 - LO/TO Permit Template

LOCKOUT/TAGOUT PERMIT		LOCK BOX NO: SYSTEM No.
PERMIT REQUESTOR:	DATE:	PERMIT NUMBER:
ENTITY:	JOB NUMBER:	SHEET ___ OF___
REASON FOR PERMIT (detailed description): SWA #_____		
SPECIAL CONDITIONS REQUIRED:		
P&ID Attached Y/N / NA		

ISOLATION REGISTER

(12) TAG NO.	(19) TAG TYPE	(7) LOCK NO.	(7) COMPONENT	(7) POSITION	INSTALLED		REMOVED		(20) As Left Position
					(13) INITIAL	(13) DATE	(16) INITIAL	(16) DATE	
(14) PERMIT ISSUED BY TA:						(14) DATE:			
LOCKOUT/TAGOUT PERMIT						LOCK BOX NO:			

TAG CONTINUATION SHEET		
(1) **PERMIT REQUESTOR:**	(10) **DATE:**	(11) **PERMIT NUMBER:**
(2) **ENTITY:**	(3) **JOB NUMBER:**	(4) **SHEET ___ OF___**

ISOLATION REGISTER

(12) TAG NO.	(19) TAG TYPE	(7) LOCK NO.	(7) COMPONENT	(7) POSITION	INSTALLED		REMOVED		(20) As Left Position
					(13) INITIAL	(13) DATE	(16) INITIAL	(16) DATE	

The PR fills in the following information:

BLOCK NO	ENTRY DESCRIPTION
1,2	Enter Permit Requestor name, signature and entity or contractor.
3	Enter the **[contractor]** job number.
4	Enter the sheet number. If more space is required fill out the LO/TO Permit continuation sheet(s).
5, 21	Enter a description of the work to be performed and the reason LO/TO is required. Make the description as complete and detailed as possible so that the extent of the LO/TO (if required) can be accurately determined.
6	If known, list any special conditions required (e.g., system drained, depressurized, and vessel manway removed).
7	Record lock number, component, and position.
8	If any other trade or vendors are to participate in the work, for which the permit is issued, enter the supervisor's name and entity in addition to the requestor's.
9	Enter any applicable reference. (e.g., Drawing or document number)
19	Enter “D” for Danger for “C” for Caution

The TA fills in and/or checks the following information and directs CSUSE/AO to:

BLOCK NO	ENTRY DESCRIPTION
5,6,7,8,9	Based on the reason for the permit, draft, review, and add to/modify the special conditions, safety tagging required, and groups covered by the permit.
10	Enter the date that the permit number is taken.
11	Enter the permit number. This is the next sequential number.
12	Fill out the required danger and/or caution tags. The tags will carry the Permit Number, such as 201-1, 201-2, or 201-3, and Equipment Number.
13	Have the equipment and/or circuits positioned as required by Block 7. Verify the position and install the tag (or lock, if required). Enter the date and the initials of the AO/PR who verifies the position and installs the tag (and, if applicable, the lockout).
14	Obtain signatures for all groups accepting the permit. Issue the permit by signing and entering the date and time.
20	Enter position component was left in (e.g., closed, racked-in)

Complete the following information to close out the permit:

BLOCK NO	ENTRY DESCRIPTION
15	As each group completes its work under the permit, a name, signature, time, and date are required indicating that the group has released itself from the permit coverage.
16	After all entities, have released Block 14 and the safety tagging is no longer required (partially or totally), have the Authorized Operators, Responsible Engineer or System Engineer remove each tag and enter the date and their initials. If locks were installed, the initials also signify that the locks were removed.
17	After all work is complete, the TA closes the permit by signing and entering the date and time.

Attachment 4 - EOM-KSS-TP-000022- LO/TO Permit Register Template

LOCKOUT/TAGOUT PERMIT REGISTER					
Project Name / Number:					
PERMIT NUMBER	**REASON FOR LO/TO / SWA NUMBER**	**REQUESTOR / ORG**	**ISSUED DATE**	**CLOSED DATE**	**Lock Box Number**

Attachment 5 - EOM-KSS-TP-000023 - Personal Lock Register Template

PERSONAL LOCK LOG
Note: A person shall only be issued one lock and may only sign onto one LO/TO Permit at a time.

Project Name / Number:

PERMIT NO.	KEY NO.	ISSUED TO	ENTITY	DATE ISSUED	DATE CLOSED

Attachment 6 - EOM-KSS-TP-000024 - Temporary Lift Cover Sheet Template

	TEMPORARY LIFT COVER SHEET (Shall be a unique color)				
Project:		**Unit:**			
Permit Number:					
	(Permit Number by Requestor, Lift Number By TA)				
Reason for Temporary Lift:					
Temporary Lift Requestor (PR)		**Organization** (i.e., Construction Fitters – Night Shift)		**Extension**	
TA Concurrence				**Date/Time**	
Supervisor Approval				**Date/Time**	
PR Notified				**Date/Time**	
Make notation is per teleconference.					
EMPLOYEES ON PERMIT NOTIFIED					
All employees signed onto permit shall be listed below or emergency contact process shall be followed.					
Name (printed)	**Signature**	**Organization**	**Date**	**Time**	**Lift Release (sign)**
Temporary Lift Release					
PR (sign)		**Date/Time**	**TA (sign)**		**Date/Time**
Temporary Lift Cover Sheet shall be attached over the active permit cover page. The Temporary Lift over Sheet shall not be separated from the Permit until it is released and closed out. ALL work authorized under the permit shall cease until the Temporary Lift is released and the individual has signed above that they have been notified of the release.					
Temporary Lifts shall be tracked in a Temporary Lift Register. They shall be numbered uniquely and sequentially as follows: **TL003-001** **Permit Number 003, Lift number against this Permit (001)**					

Attachment 7 - EOM-KSS-TP-000025 - Temporary Lift Register Template

	TEMPORARY LIFT REGISTER					
Project:		**Unit:**				
Temporary Lift Number	**System**	**Requestor**	**Date**	**Time Authorized**	**Date**	**Time Released**

Attachment 8 - EOM-KSS-TP-000026- LO/TO Assessment Checklist

LO/TO ASSESSMENT CHECKLIST

DIRECTIONS: Check either "YES," "NO," or "NA." If corrective action is required, answer "NO." For every "NO" answer, provide a brief description of the issue in the "COMMENTS" column. Add the finding/issue to the HSSE Tracking Register

No.	LOCKOUT / TAGOUT PROCEDURE & EQUIPMENT SAFETY TAGGING AND LOCKOUT	ANSWER			COMMENTS
		YES	NO	N/A	
	Subcategory 1: Requirements				
1	Has the project designated a Tagging Authority for control and disposition of the Lockout/Tagout program?				
2	When more than one group is issued safety protection on a System/ Component Safety Tagging Permit and have signed on to an existing permit, does the project ensure that all personnel involved must release the permit before it can be closed?				
3	Are Lockout keys kept in a lock box under the control of the TA?				
4	Are records on file that address provisions if a Lockout key is lost or misplaced?				
6	Do the Tagging Authority and Responsible Engineer approve all cases when LO/TO Permit must be temporarily lifted and replaced (i.e., to support work or testing)?				
7	When temporary lifts are necessary, are all parties identified on the LO/TO Permit informed prior to the lift?				
8	If the safety of affected personnel may be compromised during a temporary lift, do they stop their work and sign the permit?				
9	Are temporary lifts only performed while the Permit Requestor is in direct personal control of the lift?				
10	Does the TA ensure that temporary lifts are not extended beyond the Permit Requestor's shift?				
11	When engaged in LO/TO operations, does the project ensure that "CAUTION – RESTRICTED OPERATION" tags are not used for personal protection for isolating against hazardous energy sources?				
12	Does the project ensure that "DANGER – DO NOT OPERATE" tags and "CAUTION – RESTRICTED OPERATION" tags are not hung on the same component?				

No.	LOCKOUT / TAGOUT PROCEDURE & EQUIPMENT SAFETY TAGGING AND LOCKOUT	ANSWER			COMMENTS
		YES	NO	N/A	
	Subcategory 2: Safety Tagging Permit Requirements				
13	Is the appropriate System/Component Energy Isolation and Safety Tagging Permit being used, as required?				
14	Does the Permit Requestor conduct the required walk-down of the equipment or system boundary and identify the recommended protective measures, safety tagging and lockouts?				
15	When Supplemental Requestors will be performing work under the permit, does the Tagging Authority ensure that they are identified by name on the System/Component Energy Isolation and Safety Tagging Permit?				
16	Does the Tagging Authority confirm/verify all information contained on the permit request before authorizing the permit?				
17	Has the Tagging Authority implemented a tag numbering system to ensure proper tracking and accountability for all tags being issued under each permit?				
18	Are the specific protective measures (safety tags and locks), as per the applicable/approved System/Component Energy Isolation and Safety Tagging Permit, being properly implemented?				
19	After any required locks are placed, are the keys returned to the Tagging Authority for retention and control until all parties release the safety tag?				
20	Does the Permit Requestor (and any supplemental Requestors, when applicable) independently verify all tags/locks are within the permit boundary before signing and dating the permit?				
21	Does the project ensure that personal locks are not used in lieu of a safety lockout/tag out and that they are removed when the person is not actively working on the equipment/system?				
22	When used, are personal locks issued to authorized workers by the Tagging Authority and recorded in the personal lock log?				
23	Do personal locks have the individual's name and entity clearly identified?				
24	Does the Tagging Authority verify all component positions before signing and dating the permit?				
25	Does the project ensure that no work on the system will be started until the Tagging Authority has approved the request, the tag(s) are in place and the work group/individual has signed onto the permit?				
26	Do the Permit Requestor(s) and/or Supplemental Requestor(s) continuously monitor the effectiveness of established protective measures and permit boundaries to determine if there is a need to modify the System/Component Energy Isolation and Safety Tagging Permit?				

No.	LOCKOUT / TAGOUT PROCEDURE & EQUIPMENT SAFETY TAGGING AND LOCKOUT	ANSWER			COMMENTS
		YES	NO	N/A	
27	When any proposed changes increase the risk of exposure, are all parties notified and the appropriate modifications in tagging/lockout requirements made prior to continuing with work?				
28	When boundary modifications are required, are new locks/tags installed prior to the lifting of the old ones?				
29	Do the Requestor(s) and Tagging Authority verify the new permit boundaries, safety tags and locks, and resign the Permit prior to restarting work?				
30	When work is completed, do the Requestor(s) verify that the work is complete and that the isolated components and system are ready to be restored?				
31	Does the Tagging Authority ensure that all locks/tags are properly accounted for before authorizing the release of the permit?				
32	Does the Tagging Authority ensure that all locks/tags are properly accounted for before authorizing the release of the permit?				
33	In the event an emergency closure/change of permit becomes necessary, does the project ensure that all safeguards are in place in accordance with the provisions of the procedure?				
34	Does the Tagging Authority approve all emergency closures/changes?				
35	Are "Caution - Restricted Operation" tags used when a system or component must be energized or operated to safely facilitate a work activity?				
36	Does the project ensure that systems or components with a Contractor "Caution - Restricted Operation" tag attached can only be operated by the Requestor(s) identified on the permit?				