TAMPA ELECTRIC COMPANY

ENERGY SUPPLY

HAZARDOUS ENERGY CONTROL PROGRAM

Revision Date: 01/01/2023

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PURPOSE

The Tampa Electric Company (TEC) - Energy Supply Department - Hazardous Energy Control (HEC) Program has been established, in accordance with OSHA Standards to prevent the unexpected release of potentially hazardous energy (e.g. mechanical, electrical, hydraulic, thermal, chemical, pneumatic, potential, radiation, etc.) during the maintenance and servicing of equipment. This HEC Program consists of a comprehensive set of equipment specific HEC Procedures, personnel training requirements, and guidelines for the periodic inspection of the HEC Procedures and program.

INTRODUCTION

Tampa Electric Company is dedicated to providing a safe and healthy workplace for its employees by communicating information concerning hazardous energy control. This program applies to Tampa Electric Company Energy Supply employees and contractors to prevent the loss of life and property from exposure to hazardous energy resulting from hazardous energy activities.

The Energy Supply Hazardous Energy Control Program applies to the servicing and maintenance of equipment at all Tampa Electric Company facilities under the jurisdiction of the Energy Supply Business Unit. Hazardous Energy Control requirements also apply to all construction and start-up activities under the supervision of Tampa Electric Company, Energy Supply. The HEC Supervisor has lockout authority and control over the equipment in all generation plants. The division of responsibility between the Energy Supply Department and the Electric Delivery Department will be the centerline of the unit transformers at the fossil generation plants, or the medium voltage switch on the line or feeder side of the medium voltage breaker for Solar and Energy Storage generation plants, unless otherwise indicated in specific HEC Procedures or switching orders.

RESPONSIBILITY

General

It is the responsibility of Energy Supply Management to approve, implement, monitor, and enforce the Energy Supply HEC Program. Joint responsibility for continuous improvement of the Program is shared between craft and management through a partnership dedicated to protection of workers and compliance with regulations. It is the responsibility of Plant Management to select competent and qualified employees to act as HEC Supervisors. The HEC Supervisor is the person under whose orders the HEC Procedures are performed.

The facility Director is responsible for the implementation and maintenance of the Hazardous Energy Control Program. Duties supporting this objective may be assigned to the Plant Safety Professional or others as designated. Plant management is responsible for coordinating work of outside contractors and will work jointly with the HEC Supervisor in the implementation of the HEC Program for outside contractors.

The Manager, Energy Supply Safety in conjunction with the Energy Supply Joint Departmental Committee are responsible for reviewing, maintaining and revising this Program as necessary. Other responsibilities supporting this objective may be assigned to others as designated.

Electronic signatures and timestamps used in a Tampa Electric Company approved HEC software program shall carry the same authority as a physical signature and written timestamp, and may include:

- Creating the HEC Procedure
- Approving the HEC Procedure
- Confirming a Procedure
- Applying personal locks
- Removing personal locks
- Boundary Modifications

Over-riding an electronic signature shall follow the same steps described in the COMMITTEE A HEC DEVICE section of this Program.

If the software program is not available for use (network outage, software failure, etc.) each step and process described in this Program document shall be carried out in written form, with all hard copies retained by Operations for at least one year to facilitate periodic inspection.

The Operations Manager/Superintendent is responsible for:

- providing overall administration of the HEC Program.
- selecting competent and qualified employees to act as HEC Supervisors.
- selecting competent and qualified employees to act as HEC Operators.

The HEC Supervisor is responsible for:

- Serving as the main point of contact for the HEC Program at their generating facility,
- creating the written HEC Procedure,
- gathering input from the Job Lead(s) and/or the Technical or Engineering Lead(s) regarding job scope to effectively write the HEC Procedure,
- communicating with the Job Lead(s) to ensure that the scope of work and scope of hazardous energy control match. The work order and task numbers or scope of work description shall be recorded on the Hazardous Energy Control Procedure by the HEC Supervisor and shall be maintained together with the Primary Lock Box.
- communicating with the affected employees.
- providing direction to the HEC Operator regarding placement and removal of all locks and lockout devices.
- maintaining the key to the Isolation Confirmation Team lock and transfers this key to the oncoming HEC Supervisor each shift.

- notifying the SPO and/or Supervisor of the area of the affected equipment to assist in assembling an Isolation Confirmation Team. Those selected for this team shall consist of qualified individual(s) with at least one Authorized Employee to determine adequate isolation for each energy source type.

The HEC Approver is responsible for:

- receiving the written HEC Procedure
- The HEC Approver cannot be the creator of the written Procedure
- ensuring that the scope of work matches the scope of the boundary points identified for hazardous energy control
- approving the HEC Procedure by generating applicable documents, which authorizes the HEC Operator to place and/or remove equipment locks and lockout devices on energy isolating devices

The HEC Operator is responsible for:

- implementing and/or terminating HEC Procedure under the direction of the HEC Supervisor.
- following written procedure to prepare equipment for shutdown and isolation and performs equipment shutdown.
- following written HEC Procedure to place and/or remove equipment locks and lockout devices on energy isolating devices.
- ensuring effective energy control by following the written HEC Procedure and performing verification of zero hazardous energy by testing themselves or observing a qualified person performing verification of zero hazardous energy.
- notifying HEC Supervisor when issues with energy isolation arise.

The Isolation Confirmation Team is responsible for:

- consisting of at least one qualified person to confirm isolation and de-energization of the machine or equipment has been accomplished, including that zero hazardous energy has been established. Any of the following areas of expertise could be included: Operations, I&C, Mechanical, Electrical, Contractor, etc. The team must include at least one Tampa Electric Energy Supply employee.
- visually inspecting (confirming) all Energy Isolation Devices listed on the written HEC Procedure.
- certifying their confirmation of the HEC Procedure isolation by printing and signing their name in the notes section of the HEC Procedure and notifying the HEC Supervisor to apply the gold hasp and lock to the Primary Lock Box. The key to this lock is maintained by the HEC Supervisor and is transferred to the oncoming HEC Supervisor each shift.

The Job Lead(s) is(are) responsible for:

- Having awareness of these responsibilities through training on the Tampa Electric Hazardous Energy Control Program
- Communicating with the HEC Supervisor and walking down the isolation before work begins to ensure the scope of work and scope of hazardous energy control match. The Job Lead provides the work order and task numbers or scope of work description for recording on the Hazardous Energy Control Procedure by the HEC Supervisor.
- Contractors may not be Job Leads until they have received an enhanced orientation on this Energy Supply HEC Program and the specific responsibilities of Job Leads
- Labeling the group/crew lock box with the identifying information
- Placing a copy of the HEC Procedure and any subsequent changes with the group/crew lock box
- Providing guidance to personnel requiring protection from hazardous energy while performing work on equipment
- Applying a personal lock to the Primary Lock Box, which indicates the Job Lead will walk down each isolation point and confirm with the HEC Supervisor that the work scope matches the boundary before starting work, and places the key to this lock in a group/crew lock box to which authorized employees shall affix their personal lock
- Applying a personal lock to the group/crew lock box and maintains possession of the key
- Leaving their personal lock on the Primary Lock Box until the job is completed. (The Job Lead lock must be the last lock removed from the group/crew lock box)
- After removing their personal lock from the group/crew lock box, the Job Lead's key shall be removed from the group/crew lock box and maintained in their possession and not passed to anyone else.
- The Job Lead shall not remove their personal lock from the Primary Lock Box, unless:
  - Another Job Lead places their personal lock onto the Primary Lock Box for the same work scope(s), or
  - The work scope(s) are complete, all applicable tools have been removed, all applicable guards have been replaced, the applicable group/crew lock boxes have been cleared, and their work scope(s) do not prevent the equipment from being restored into service

Authorized Employee(s) are responsible for:

- Not performing work requiring protection from hazardous energy without proper energy isolation and locking.
- Personally affixing a personal lock to the group/crew lock box prior to the start of work requiring protection from hazardous energy.
- Verifying that their personal lock is on the group/crew lock box EACH SHIFT prior to commencing work.
- Removing their personal lock from the group/crew lock box when they no longer require hazardous energy control protection or at the completion of their shift, based on the generating facility's policy.
- Notifying the Job Lead when issues with energy isolation arise.

- Keeping their personal lock key on their person and not passing the key to any other person.
- Notifying the Job Lead when their work is complete.
- At their personal discretion, the Authorized Employee may perform confirmation of hazardous energy control prior to starting work. This is optional and not required.

Affected Employee(s) are responsible for:

- Being aware of this Program.
- Being able to recognize a lock and locking device and understand that the locking devices may not be defeated in any way.
- Understanding that they are not afforded protection from hazardous energy and they are responsible for following Safe Work Practices.

EMPLOYEE TRAINING

Training on the requirements of the Tampa Electric Company Energy Supply HEC Program may be obtained in various methods. The ability to recognize lockout devices and understand why they have been applied is essential. Personnel who have not been given this essential information shall not be permitted to perform work in any role(s) specified in the responsibilities section of this program.

HEC Training - Training is required for any TEC Energy Supply employee who will be working under the protection of controlled hazardous energy. Equivalently, the department appropriate Tampa Electric Company Safety and Security Orientation is required for any Contractor employee or TEC employee of departments other than Energy Supply. This training shall include:

- The purpose and use of the Hazardous Energy Control Program
- The responsibilities and requirements of all participants in the Hazardous Energy Control program.
- The recognition of hazardous energy sources
- The type and magnitude of the energy present or available in the workplace
- The methods and means necessary for energy isolation and control (Locks)
- The prohibitions to attempt to remove locks.

Upon successful completion, a record of Energy Supply employee training including the person's name and date of training shall be maintained in a centralized recordkeeping system. It is the responsibility of departments external to Energy Supply, as well as Contractors to maintain records for their respective employees.
Retraining shall be provided whenever there is a change in job assignments, machines, equipment, or processes that present a new hazard or whenever there is a change in the Hazardous Energy Control program.

Annual Refreshers shall be provided through the annual Energy Supply Safety training for Energy Supply employees. Non-Energy Supply employees and Contractors shall receive a Refresher via the annually required department appropriate Tampa Electric Company Safety & Security Orientation.

Energy Supply personnel who accept Switching Orders from the System Operator will be trained in their plant specific Switching Order requirements. Personnel who have not been trained and designated may not receive Switching Orders from the System Operator.

EMPLOYEE TRAINING SUMMARY

Target Audience – Tampa Electric Company, Energy Supply employees. Contractors will receive the department appropriate Tampa Electric Company Safety & Security Orientation.

Frequency – Initial training shall be provided to employees prior to the assignment of tasks requiring the control of hazardous energy as outlined in this program.

Methods – Training shall be accomplished through PowerPoint presentation and/or video, or other training materials determined adequate by the Safety Department.

Documentation – All Energy Supply employee training will be documented electronically in the Cority database. Classroom training will require the attendees to sign a roster and that information will later be transferred into the electronic Cority database. When Computer Based Training is used, the training may be documented in the separate CBT program database or transferred into the Cority database, where practical.

For Tampa Electric Company, Energy Supply Contractors, Tampa Electric Company maintains the right to audit all records associated with completion of the orientation. In the event of an incident these records will be reviewed as a part of the investigation process.

HEC APPLICATION AND REMOVAL

Prior to performing servicing and/or maintenance on any system or equipment under the jurisdiction of Tampa Electric Company, Energy Supply Department, all elements of the HEC Program must be satisfied. Only approved locks, lockout devices and associated hardware and identification means identified in Appendix C shall be used for the equipment locks and primary lockboxes in the control of hazardous energy. At Tampa Electric Company Energy Supply Facilities, locks that are orange in color may only be used for hazardous energy control.

Job Preparation

The HEC Supervisor, or designee, receives the HEC request (written, as required).

The HEC Supervisor and at least one of the Technical Lead(s), Engineering Lead(s), and/or Job Lead(s) will jointly determine the scope of HEC requirements to include: isolation points, positioning of equipment, flushing/purging requirements, or other applicable job scope notes/requirements.

The HEC Procedure shall be in writing. The original copy of the HEC Procedure will be created by the HEC Supervisor and stamped in red “ORIGINAL”. This original will be retained with the Primary Lock Box.

The Primary Lock Box number will be written on all danger identification tags that are attached to the equipment lock and lockout devices related to this job.

The Primary Lock Box will be located in the area designated by the HEC Supervisor.

Prior to the application of a HEC Procedure, the HEC Supervisor, or their designee, shall verbally notify all affected personnel.

The HEC Supervisor directs Operations or confirms with Operations to ensure that the equipment/system is shutdown according to standard operating procedure and/or any specific requirements of the specific HEC Procedure listed in the “Actions Taken Prior to Isolation and/or Notes” section are completed.

The HEC Supervisor will provide the written HEC Procedure to the HEC Approver to validate the scope of work matches the boundary points identified for hazardous energy control. HEC Approver generates documents for HEC Procedure, including printing danger identification tags.

The HEC Supervisor will supply the appropriate number of equipment locks for energy isolation. The HEC Supervisor should store non-key retaining equipment lock sets unlocked and opened for ease of implementing lock distribution.

Under the direction of the HEC Supervisor, the HEC Operator shall isolate specific hazards of equipment/system utilizing the specific HEC Procedure. All energy isolating devices that are

needed to control the energy to the equipment/system shall be physically located and operated in such a manner as to isolate the equipment/system from energy sources as outlined in the HEC Procedure.

Only the HEC Operator(s), under the authority of the HEC Supervisor, utilizing equipment/system specific procedures may apply lockout devices to equipment/system energy isolating devices.

The HEC Operator shall assure equipment/system is shut down and any shut-down requirements of the specific HEC Procedure listed in the "Actions Taken Prior to Isolation and/or Notes" section are completed.

Application of Locks and Danger Identification Tags

An equipment lock (and if needed a lockout device) must be affixed to EACH energy isolating device by the HEC Operator as described in the HEC Procedure in the following manner:

1. The HEC Operator(s) will perform hazardous energy control with a set of equipment locks.

    a. Non-key retaining locks are the preferred lock for equipment, as the keys do not have to be (and should not be) carried into the field during energy isolation. The locks will be opened before going into the field and the key(s) to those locks will be placed in the Primary Lock Box under the control of the HEC Supervisor. If for any reason, a key is lost, the HEC Supervisor must be notified immediately so that the 'lost equipment lock key' section of this program can be implemented.

    b. Where non-conductive locks are required, a key retaining lock may be used. In those instances, the HEC Operator(s) is/are responsible for the key(s). If for any reason, a key is lost, the HEC Supervisor must be notified immediately so that the 'lost equipment lock key' section of this program can be implemented.

2. Equipment locks will be securely affixed to each energy isolating device so that they cannot be inadvertently or accidentally detached.

3. During application of the equipment locks the HEC Operator shall perform, or cause to be performed, verification of zero hazardous energy according to the equipment/system specific HEC Procedures. Refer to the **Verification of Zero Hazardous Energy** section of this program for details.

4. Equipment locks and lockout devices shall be attached in such a manner as to clearly indicate that the operation or movement of the energy isolating devices is prohibited.

5. Where there is no point at which an equipment lock may be fastened, additional hardware (lockout devices) will be utilized to eliminate the likelihood of inadvertent energization, such as "clamshells", chains, and/or switch covers.

6. Equipment locks and lockout devices shall not be bypassed, ignored, or otherwise defeated.

7. In addition to the equipment lock and lockout device, a Danger Identification Tag shall be attached to the lock onto the shackle. The Danger Identification Tag shall contain the following mandatory information:

    a. The corresponding Primary Lock Box number

    b. The assigned Danger Identification Tag Number

    c. A brief description of the energy isolation device to which the equipment lock and lockout device is being attached.

    d. Signature, initials and date / time the HEC Operator applies the equipment lock to the energy isolation device.

    e. Signature, initials and date / time the zero-energy check is performed

8. The following additional information may be included on the Danger Identification Tag as optional:

    a. HEC Procedure number, which is an identifier to the database of procedures

    b. The Location of the energy isolation device

    c. The isolation method of the energy isolation device

9. The HEC Operator(s) shall return all equipment lock keys utilized during the energy isolation and lock application process to the HEC Supervisor. The HEC Supervisor shall ensure that all keys used during this process have been accounted for before placing those keys in the Primary Lock Box and locking the Primary Lock Box with a HEC Supervisor lock. Of note, confirmation cannot be completed unless all keys are accounted for and locked in the Primary Lock Box.

10. Lost equipment lock key:

    a. If any keys are not accounted for, the locks associated with the missing key(s) shall be removed, taken out of service, and new differently keyed locks shall be reapplied.

    b. If the missing key(s) are found, the lock(s) or lockset(s) may be returned to service.

Verification of Zero Hazardous Energy

Application of the equipment lock(s) on the energy isolation device indicates that the HEC Operator(s) have performed (or caused to be performed) verification of zero hazardous energy as described in the specific HEC Procedure. Verification may include steps such as checking the equipment/system by use of test instruments when appropriate and visually inspecting to verify that potentially hazardous energy isolation has been accomplished.

Discovery of Incomplete Isolation

During verification, if the HEC Operator discovers that the system is not able to be isolated completely, the HEC Operator must notify the HEC Supervisor to implement the following steps.

1. The HEC Supervisor will determine new isolation points to effectively isolate the system. The HEC Supervisor shall contact the Job Lead(s) regarding the new isolation points.

2. If isolation cannot be effectively completed, the HEC Supervisor shall assemble a team of personnel to include at least the following: the HEC Supervisor, the HEC Operator(s), the Job Lead(s), the Job Lead's supervisor(s) (whether Contractor or TEC), and a Technical Lead to determine how the work will be made safe by employing safety-related work practices that are consistent with the nature and extent of the associated hazards such as: Line Breaking, Electrical Safe Work Practices, Hot Tapping, etc.

3. If the work cannot be made safe, repairs may only be made when the system in question is completely shut down.

4. Any corrections in the HEC Procedure that need to be made permanently shall be identified and submitted to the appropriate HEC Supervisor for the procedure to be updated in the master HEC template file.

Other Potential Findings

Application of equipment locks to energy isolating devices designates that all potentially hazardous stored or residual energy is relieved, disconnected, restrained, and otherwise rendered safe.

If an equipment lock is inadvertently or incorrectly applied, the HEC Supervisor shall personally unlock the equipment lock. The HEC Operator will remove the equipment lock and apply it on the correct energy isolation device.

If the system is not able to be isolated completely, the HEC Supervisor must be notified to implement the **Discovery of Incomplete Isolation** steps.

Upon application of the equipment locks, lockout devices and danger identification tags, the HEC Operator(s) will report back to the HEC Supervisor that HEC is completed.

Isolation Confirmation

At any time during the process of Energy Isolation, the HEC Supervisor may contact the Isolation Confirmation Team to begin confirmation of the appropriate application of the lockout devices according to the written HEC Procedure. A HEC Operator may not perform confirmation for the equipment locks that he/she hangs. Anyone who might assist the HEC Operator in performing verification can be part of the Isolation Confirmation Team. Confirmation may be performed concurrently with equipment locks being hung on energy isolation devices as long as the keys to these equipment locks are in the Primary Lock Box. To ensure integrity of the confirmation, it cannot be considered completed unless all keys are accounted for and locked in the Primary Lock Box. Where non-conductive key retaining locks are used, the Confirmation Team must include a step to ensure that lock(s) are locked on the correct Energy Isolation Devices once the key(s) from these locks have been placed in the Primary Lock Box.

The Isolation Confirmation Team shall visually inspect all Energy Isolation Devices listed on the written HEC Procedure To the extent possible, visual confirmation of isolation includes checking that the locked energy isolating device is in the proper position per the specific HEC Procedure. No attempt shall be made to start or operate the equipment at this time.

Upon completion of confirmation, the Isolation Confirmation Team lock and hasp is applied to the Primary Lock Box. Additionally, each member shall print and sign their names in the notes section or the designated section of the original copy of the HEC Procedure and notify the HEC Supervisor.

Upon application of the Isolation Confirmation Team lock, the HEC Supervisor shall remove their lock from the Primary Lock Box. The key to the Isolation Confirmation Team lock remains under the control of the HEC Supervisor, with transfer of the key from shift-to-shift. This lock shall remain on the Primary Lock Box for the duration of all work activities.
The HEC Supervisor shall notify the Job Lead that HEC is completed.
The Job Lead shall apply a personal lock to the Primary Lock Box, walk down the isolation, confirming with the HEC Supervisor that work scope and control of hazardous energy match, then work may begin.

Commencing Work

Prior to hanging a personal lock on the Primary Lock Box, the Job Lead shall communicate with the HEC Supervisor to ensure that the scope of work and scope of hazardous energy control match. The Job Lead(s) shall then apply their singularly keyed personal lock with personal identification to the Primary Lock Box, thereby attesting they will walk down all isolation points and then confirm with the HEC Supervisor that the work scope matches the boundary.

If a group/crew lockbox is not required, the Job Lead shall maintain possession and control of their key.

If a group/crew lockbox is required, the Job Lead will place their Primary Lock Box lock key into the group/crew lockbox. The Job Lead will then apply a second singularly keyed personal lock to the group/crew lockbox. This lock is the first lock on the group/crew lockbox and the last lock off the group/crew lockbox. Only one Primary Lock Box shall be associated with each group/crew lockbox. Group/crew lockboxes shall not be combined.

All members of the group/crew requiring protection from hazardous energy shall place their personal lock on the group/crew lockbox.

The Job Lead will maintain possession and control of their personal lock key for the group/crew lockbox.

This group/crew lock box is an extension of the Primary Lock Box providing a means of individual protection for all Authorized Employees. Where a Job Lead and a group/crew lock box is available, personnel should hang their personal lock on the group/crew lock box rather than the Primary Lock Box.

The Job Lead will be responsible to label the group/crew lock box with the identifying information and will be responsible to place a copy of the HEC Procedure and any subsequent changes with the group/crew lock box.

Each person who is performing work must be represented by their own personal lock. Prior to the start of work, each Authorized Employee shall affix a singularly keyed personal lock with a personal identification tag to the group/crew lock box corresponding to the HEC scope required for control of hazardous energy for the work being performed. The group/crew lock box will contain the key belonging to the Job Lead's personal lock which has been applied to the corresponding Primary Lock Box. Prior to hanging a lock on the group/crew lock box, the individual shall communicate with the Job Lead to ensure that the scope of work and scope of hazardous energy control match.

The key to the Authorized Employee's personal lock shall be kept in their possession at all times while the lock is applied to the lock box.

At no time shall the key to the personal lock be accessible for use by any other individual.

The application of an individual's personal lock on a Primary Lock Box or a group/crew lock box represents that the Authorized Employee:

1. understands the purpose and use of the Tampa Electric Company Energy Supply HEC Program.

2. recognizes the hazardous energy sources, type and magnitude of energy, and the methods and means necessary for energy isolation and control of these energy sources.

3. understands the means of verification and the purpose of the specific Procedure being used.

4. has received a Pre-Job Briefing.

If at any point during the work activity the system is found to not be completely isolated, the Authorized Employee(s) shall immediately stop all work and notify the Job Lead. The Job Lead will notify the HEC Supervisor so that the **Discovery of Incomplete Isolation** steps can be implemented.

At the end of each work shift, the Authorized Employees personally remove their personal lock and identification tag from the group/crew lock box, if required by the generating facility policy.

At the end of each shift, the Job Lead's personal lock shall remain in place on the group / crew lock box. As a result, the Job Lead's personal lock shall remain on the Primary Lock Box.

The Job Lead shall not remove their personal lock from the Primary Lock Box, unless:

1. Another Job Lead places their personal lock onto the Primary Lock Box for the same work scope(s), or

2. The work scope is complete, all applicable tools have been removed, all applicable guards have been replaced, the applicable group/crew lock boxes have been cleared, and their work scope does not prevent the equipment from being restored into service.

Removal of Equipment Locking Devices

When all personal locks have been removed from the Primary Lock Box, this signals to Operations that equipment is ready to be restored to operational service. The HEC Supervisor may remove the Isolation Confirmation Team lock from the Primary Lock Box. As soon as this lock is removed, Job Lead locks can no longer be applied to the Primary Lock Box, as removal of the Isolation Confirmation Team lock is notification that equipment is being returned to operational service.

Unless otherwise indicated on the HEC Procedure, removal of locks will be in the reverse sequence from how they were applied.

The equipment lock keys can then be removed from the Primary Lock Box and the HEC Operator directed by the HEC Supervisor to restore the system to service. The HEC Supervisor may unlock the equipment locks or give the keys to a HEC Operator to unlock the equipment locks.

The HEC Operator shall perform a visual inspection for operational readiness of the equipment while removing the equipment locks and any lockout devices from the energy isolating device. For each equipment lock and lockout device removed, the HEC Operator will sign their name on the Danger Identification Tag in the space provided. The HEC Operator will also be placing the energy isolation devices in the operational/start-up position. The HEC Operator will not be able to see inside of equipment or ensure that bolts are tightened. It is the responsibility of the Job Lead to ensure that the equipment is operationally intact.

The HEC Operator shall verbally notify the HEC Supervisor that all equipment locks and lockout devices have been removed and equipment/system is ready for use.

COMMITTEE A HEC DEVICE

In the event that an employee leaves the site without removing their personal lock from the lockbox and work must proceed, the following actions shall be implemented.

The HEC Supervisor must first verify that the employee or contractor whose personal lock remains on the lock box is not at the facility.

All reasonable efforts to contact the employee or contractor shall be made in order for that person to remove their personal lock. This shall include notification of their supervisor. If the person is able to be contacted, they should report back to the plant to remove their personal lockout device.

If contact is not made, prior to removal of the personal lock, the HEC Supervisor shall initiate and ensure completion of the Committee Form Appendix B, by performing the following:

1. Obtain written consent from the facility Superintendent of Plant Operations or Supervisor (Solar); and

2. Obtain written consent from the Supervisor or Manager (Solar) (at facilities where supervisors do not exist a competent representative of the craft performing work on the equipment/system will be identified); and

3. Notify the duty person/Manager or Senior Manager (Solar).

If a personal lock belongs to a contractor, a competent representative of that organization must be contacted for coordination and approval.

The immediate supervisor of the employee shall be informed of the personal lock removal and will inform and review the incident with the employee when that employee returns to work.

After completion, the Committee Form must be routed to the generating facility Director and to the facility Safety Professional.

SPECIAL SITUATIONS

Expanded Isolation Boundary

Under certain circumstances, an active HEC may require an expanded scope, and subsequently, an expanded isolation boundary. Notification regarding any revised work scope, and therefore, an expanded isolation boundary, will be provided to the HEC Supervisor for communication to Job Lead(s).

When additional isolation can be effectively completed through an active HEC Procedure, the HEC Supervisor shall direct the HEC Operator(s) to perform the required isolation and verification of zero hazardous energy. This shall be accomplished by removing any personal locks from the Primary Lock Box and signing off the active HEC Procedure.

The HEC Operator shall then:

If unlocked equipment locks are still available from the originally used lock set, those locks may be used on the additional energy isolation device(s), or

If there are no unlocked equipment locks available from the originally used lock set, another set of keyed-alike equipment locks will be used. The key to the different set of equipment locks will be dropped in the Primary Lock Box.

The Isolation Confirmation Team shall then execute their Responsibilities to confirm isolation and de-energization of the machine or equipment has been accomplished.

The HEC Supervisor shall verbally notify the Job Lead(s) when additional isolation has been accomplished. The Job Lead shall apply a personal lock to the Primary Lock Box, walk down the expanded isolation boundary and ensure it matches the scope of work. Personal locks shall then be applied to lock boxes and workers shall sign on to the applicable HEC Procedure.

Meggering

Meggering may not require the physical removal of equipment locks and lockout devices, but all persons not directly associated with the testing shall be kept away from the test activities by suitable barriers, barricades, or warnings.

When removal of equipment locks and lockout devices is required it shall be done in accordance with the Hazardous Energy Control Program.

Refer to the Safe Work Practices for further meggering safety requirements.

Testing or Positioning of Machines

In situations where locked energy isolating device(s) need to be operated for testing or positioning of the equipment/system the following sequence shall apply:

1. The work area shall be inspected to ensure that non-essential items have been removed and that machine or equipment components are operationally intact.

2. Work will be discontinued and all Authorized Employees shall be notified of the intended changes. Authorized Employees shall be required to remove their personal locks.

3. The HEC Supervisor will direct the HEC Operator to remove only the designated equipment locks. An Isolation Confirmation Team shall escort the HEC Operator during this process to ensure that only the designated equipment locks are removed.

4. The Danger Isolation Tag(s) associated with the removed lock(s) will be attached to the original copy of the HEC Procedure at the Primary Lock Box. The Isolation Confirmation Team will sign a statement indicating the Danger Isolation Tag number(s) of the lock(s) that were removed. Additionally, a note will be written on the original copy of the HEC Procedure at the line item indicating the reason why the equipment lock(s) are not in place on the specified energy isolation device(s).

5. Proceed with testing and/or positioning.

6. Following the Test, an assessment by the Job Lead(s) and the HEC Supervisor shall determine:

    a. If protection is provided by the remaining locked energy isolation devices, then work may continue only after their personal locks are reapplied and the modifications to the HEC Procedure indicated in writing on the original copy of the HEC Procedure.

    b. If protection can be provided through the isolation and locking of new energy isolating devices then work may continue only after the new equipment locks and lockout devices are placed, an Isolation Confirmation Team has performed a visual confirmation of the newly established energy isolation points, and personal locks reapplied. Modifications to the HEC Procedure shall be indicated in writing on the original copy of the HEC Procedure.

    c. Where protection is not afforded by the remaining energy isolation devices then work may not continue until protection is restored.

If equipment is re-locked after testing/positioning, the HEC Supervisor shall direct the HEC Operator(s) to perform required isolation and verification following the steps outlined in the **Application of Locks and Danger Identification Tags** section. The HEC Supervisor will print new Danger Identification Tags for use on new or re-locked energy sources when the locks are reapplied. The previous Danger ID Tags will not be reissued and will be retained.

An Isolation Confirmation Team shall be assembled to confirm the re-locked isolated energy sources. This confirmation will be documented on the original copy of the HEC Procedure by each team member signing their name next to a notation description of which Danger Identification Tag numbers they confirmed. The Isolation Confirmation Team may also choose to confirm the entire boundary.

Simplified Lockout

Prior to implementing Simplified Lockout the HEC Supervisor must be contacted for approval. The HEC Supervisor may determine that Simplified Lockout is not appropriate and instead implement standard lockout procedures.

When energy isolation can be completed for equipment or a system with six (6) or less energy isolation devices, the work activity can be completed before the Authorized Employee's shift ends, and there are six (6) or less personnel involved in the work activity requiring Hazardous Energy Control, the HEC isolation can be considered a Simplified Lockout. If work is not completed within the Authorized Employee's shift, simplified lockout shall no longer be utilized. Contact the HEC Supervisor to establish a standard lockout procedure.

A Simplified Lockout allows for the Authorized Employee to place their personal lock(s) directly on the energy isolation device(s). A hasp shall be utilized on each of the energy isolation device(s) so that up to six individuals can place their personal locks on each energy isolation device. The Authorized Employee may be a contractor. When contractor personnel are involved in a Simplified Lockout, they may not operate the energy isolation device(s).

In a Simplified Lockout, a written procedure designating the energy isolation devices is required. Where an approved written procedure is available, the HEC Operator and Authorized Employee may be the same individual. Where an approved written procedure is not available, there must be at least two people involved in the roles of HEC Supervisor, HEC Operator, and Authorized Employee and a written procedure must be generated. It is the responsibility of the individual(s) involved to ensure that they understand when their role changes during the procedure and that they follow the requirements of their various role(s), as appropriate.

In a Simplified Lockout, it is still the responsibility of the HEC Supervisor to ensure that the appropriate Affected Employees and Plant Operations Personnel are notified prior to shut down and energy isolation. Because of the nature of a simplified lockout, a confirmation team is not required.

It is the responsibility of the Authorized Employee to maintain the key or keys to their personal lock(s). Authorized Employees may not share personal locks or keys. Each Authorized Employee must be protected by a personal lock on each energy isolation device. Operations shall determine if it is necessary, in order to ensure proper equipment positioning for start-up, to place Operations' equipment lock(s) on the energy isolation device(s). The HEC Operator would ensure that the key(s) to the Operations' equipment lock(s) are under the control of the HEC Supervisor.

In a Simplified Lockout, it is the responsibility of the last Authorized Employee before he/she removes their personal lock(s) to notify the HEC Supervisor when work is completed and the equipment can be returned to service. The HEC Supervisor and Authorized Employee will coordinate involvement of the HEC Operator (or when appropriate, the Authorized Employee becomes the HEC Operator). It is the responsibility of the HEC Supervisor to notify the appropriate Affected Employees and Plant Operations Personnel prior to removal of the last lock(s) from each of the energy isolation devices(s). It is the responsibility of the Authorized Employee in the role of the HEC Operator who removes the last personal lock (or the Operation's lock, when applied) from each energy isolation device to ensure that each of the energy isolation device(s) are in the appropriate operations/start-up position.

Physical Removal of Isolation Equipment/Devices that are Locked

In situations where an energy isolating device with a lockout device must be removed for maintenance, the following provisions shall be made:

Electrical Isolation Device

If an electrical isolation device must be removed that has a lockout device affixed to it:

- Additional lockout shall be performed to isolate the device safely prior to removal. Examples: cubicle door, other energy isolation device, etc.
- An independent isolation of the bus is to be performed. Pre-existing lockout devices attached to electrical isolation devices or cubicle doors are not required to be moved.
- Work will be discontinued, and all Affected Employees and Authorized Employees shall be notified of the intended changes so that their personal locks can be removed from the lock out devices.
- The Job Lead(s) and the HEC Supervisor shall determine if the remaining isolation points of the HEC Procedure provide protection for the scope(s) of work being performed.

  1. If protection is provided, then work may continue only after their personal locks are reapplied and the modifications to the HEC Procedure indicated in writing.
  2. If protection can be provided through the isolation and locking of new energy isolating devices then work may continue only after the new lockout devices are placed, an Isolation Confirmation Team has performed a visual confirmation of the newly established energy isolation points, and personal locks reapplied. Modifications to the HEC Procedure shall be indicated in the HEC Procedure.
  3. Where protection is not afforded, work may not continue until protection is restored.
  4. After 1, 2, and 3 are complete, the HEC Supervisor will direct the HEC Operator to remove only the designated equipment locks. An Isolation Confirmation Team shall escort the HEC Operator during this process to ensure that only the designated equipment locks are removed.
  5. The Danger Isolation Tag(s) associated with the removed lock(s) will be attached to the original copy of the HEC Procedure at the Primary Lock Box. The Isolation Confirmation Team will sign a statement indicating the Danger Isolation Tag number(s) of the lock(s) that were removed. Additionally, a note will be written on the original copy of the HEC Procedure at the line item indicating the reason why the equipment locks(s) are not in place on the specified energy isolation device(s).

     - The electrical isolation device can then be removed from the cubicle.

If equipment is re-locked after replacement, the HEC Supervisor shall direct the HEC Operator(s) to perform required isolation and verification following the steps outlined in the **Application of Locks and Danger Identification Tags** section. The associated Danger Isolation Tags will be detached from the original copy of the HEC Procedure. The HEC supervisor will print new Danger Identification Tags to be used when the equipment locks are reapplied. The previous Danger ID Tags will not be reissued and will be retained.

1. If unlocked equipment locks are still available from the originally used equipment lock set, those locks may be used on the energy isolation device(s), or

2. If there are no unlocked equipment locks available from the originally used lock set, another set of keyed-alike equipment locks will be used. The key to the different set of equipment locks will be dropped in the Primary Lock Box.

    - An Isolation Confirmation Team shall be assembled to confirm the re-locked isolated energy sources. This confirmation will be documented on the original copy of the HEC Procedure with each team member signing on the HEC Procedure that they have performed confirmation.

Valves

If a valve must be removed that has an equipment lock affixed to it:

- Additional energy isolation and locking shall be performed to isolate the device and system safely prior to removal.

- Work will be discontinued and all Affected Employees and Authorized Employees shall be notified of the intended changes. Authorized Employees shall be required to remove their personal lock(s).

- The Job Lead(s) and the HEC Supervisor shall determine if the remaining isolation points of the HEC Procedure provide protection for the scope(s) of work being performed.

    1. If protection is provided, then work may continue only after their personal lock(s) are reapplied and the modifications to the HEC Procedure indicated in writing.

    2. If protection can be provided through the isolation and locking of new energy isolating devices then work may continue only after the new lockout devices are placed, an Isolation Confirmation Team has performed a visual confirmation of the newly established energy isolation points, and personal locks reapplied. Modifications to the HEC Procedure shall be indicated in the HEC Procedure.

    3. Where protection is not afforded work may not continue until protection is restored.

4. After 1, 2, and 3 are complete, the HEC Supervisor will direct the HEC Operator to remove only the designated equipment locks. An Isolation Confirmation Team shall escort the HEC Operator during this process to ensure that only the designated equipment locks are removed.

5. The Danger Isolation Tag(s) associated with the removed equipment lock(s) will be attached to the original copy of the HEC Procedure at the Primary Lock Box. The Isolation Confirmation Team will sign a statement indicating the Danger Isolation Tag number(s) of the equipment lock(s) that were removed. Additionally, a note will be written on the original copy of the HEC Procedure at the line item indicating the reason why the equipment lock(s) are not in place on the specified energy isolation device(s).

    - Proceed with the removal of the valve(s).

If equipment is re-locked after replacement, the HEC Supervisor shall direct the HEC Operator(s) to perform required isolation and verification following the steps outlined in the **Application of Locks and Danger Identification Tags** section. The associated Danger Isolation Tags will be detached from the original copy of the HEC Procedure. The HEC supervisor will print new Danger Identification Tags to be used when the equipment locks are reapplied. The previous Danger ID Tags will not be reissued and will be retained.

1. If unlocked equipment locks are still available from the originally used lock set, those locks may be used on the additional energy isolation device(s), or

2. If there are no unlocked equipment locks available from the originally used lock set, another set of keyed-alike equipment locks will be used. The key to the different set of equipment locks will be dropped in the Primary Lock Box.

    - An Isolation Confirmation Team shall be assembled to confirm the re-locked isolated energy sources. This confirmation will be documented on the original copy of the HEC

Procedure with each team member signing on the HEC Procedure that they have performed confirmation.

Troubleshooting & Minor Servicing

When troubleshooting or performing routine/repetitive minor servicing of energized equipment/systems during servicing/repairs, safety-related work practices such as Electrical Safe Work Practices or Line Breaking Procedures shall be employed. The specific safety-related work practices shall be consistent with the nature and extent of the associated hazards.

Cord and Plug Equipment

Locking shall not be required for work on cord and plug connected electric equipment provided the exposure to the hazards of unexpected energization or start up of the equipment are controlled by the unplugging of the equipment and by the plug being under the exclusive control of the person performing the servicing or maintenance.

CONSTRUCTION & START-UP

The division of responsibility for Hazardous Energy Control between the Energy Supply Generating Plant and construction projects under the responsibility of Energy Supply will jointly be determined and defined by Plant Management and Project Management at the start of construction. When the project equipment/systems become integrated with existing plant equipment the Plant HEC Supervisor will have Hazardous Energy Control authority and responsibility for these equipment/systems. Where the project equipment/systems are not integrated the Project Manager will assign Hazardous Energy Control authority and responsibility for these equipment/systems.

During construction, HEC will be accomplished through the use of a Hazardous Energy Control Program that complies with the General Industry Lockout/Tagout requirements of OSHA.

Contractor HEC Programs may not be used until reviewed by the Project Team to include, at a minimum, individuals from Construction, Start-up, and Safety.

During start-up, HEC will be accomplished through the use of the Energy Supply HEC Program to include the use of all lockout/tagout devices and written HEC Procedures. Any reference in this program to Plant Management applies equally to Start-up Manager or Construction Manager, where applicable.

The Start-up Manager, or designee, and Plant Operations Manager/Superintendent, or designee, shall maintain an on-going dialogue throughout the project to ensure that all hazardous energy relating to the project has been assigned the appropriate HEC authority and responsibility.

The Start-up Manager may utilize green and blue project turnover tags to designate boundaries of ownership of equipment. Hazardous energy control will not be accomplished by the use of the turnover tags. Where inadvertent energizing of equipment with green or blue tags applied may cause harm or injury the Energy Supply lockout/tagout devices shall be used.

The turnover tags shall not be removed without written permission of the Start-up Manager, as appropriate, even if the equipment/system is under the authority and responsibility of the Plant HEC Supervisor for Hazardous Energy Control purposes.

HEC Procedures shall be updated and maintained throughout the construction and start-up process to ensure that as new equipment/systems are added they have been incorporated into the appropriate HEC Procedures.

COORDINATION BETWEEN ENERGY SUPPLY AND ELECTRIC DELIVERY

In Electric Delivery (ED), Clearance is the authorization by the Energy System Operator (ESO) to perform work within a designated zone. The authorization is granted only after all sources of hazardous energy have been isolated from all known feed points and the isolation devices have been switched and tagged. When the Energy Supply (ES) department requests Clearance on a circuit or piece of equipment that is under the jurisdiction of the ED department, the switching and tagging shall be done under the orders of the ESO and shall comply with OSHA Standard 1910.269 paragraphs (l), (m), and others that may be applicable. In most cases, both ED clearance and ES Hazardous Energy Control are required from two separate Isolation Supervisors. The ESO is the Isolation Supervisor for the ED equipment and the facility Control Center Operator (CCO) or HEC Supervisor is the Isolation Supervisor for the ES equipment. After the unit isolation is complete in the generating facility, the CCO/HEC Supervisor shall apply a confirmation lock (gold hasp) to the unit lock box and notify the ESO.

If the HEC Procedure indicates “YES” under the section “Palm River (PR) Switching Required?” then anyone working under the protection of the HEC Procedure must also work under the protection of the ED Clearance. Before hanging a personal lock on the Primary Lock Box, the individual must contact the ESO to receive High Side Clearance (and Low Side Clearance in some Solar and Energy Storage cases), utilizing the appropriate Unit Isolation Instructions to Obtain Clearance. To readily notify personnel, the CCO/HEC Supervisor shall hang a note on the Primary Lock Box indicating that locking onto the box will also require calling the ESO for Clearance.

If the work continues into their next work shift, the individual does not need to release their clearance to the ESO at the end of their shift.

When grounds are applied as part of the isolation procedure, the grounds must be visually confirmed by the appropriate ES representative as named in the Switching Procedure. Upon visual confirmation of the grounds, the ES representative will apply a grounds confirmation lock to the Primary Lock Box. The grounds confirmation lock will be designated by a green hasp and will remain in place on the Primary Lock Box at all times while grounds are applied. The key to this lock will be maintained with the confirmation lock key.
Tampa Electric Company ES personnel who accept Clearance from the ED ESO will be re-trained annually as part of the HEC Program Refresher Training. Contractor(s) who need to receive Clearance from the ED ESO will receive orientation by an Energy Supply safety staff or training staff representative who will then add the Contractor’s name(s) to the list of qualified individuals. The ES safety or training staff updates the qualified individuals list of ES Contractors. The Contractor orientation is valid for 3 years.

When the ESO requests the isolation of a circuit or piece of equipment that is under the jurisdiction of the Energy Supply department, the isolation shall be done under the orders of the CCO/HEC Supervisor in accordance with Energy Supply’s HEC Program.

HEC PROCEDURAL INSPECTIONS

HEC Procedures will be stored in controlled files at each facility. Each of the facility's active HEC Procedures should be inspected to identify and correct any deviations or inadequacies.

A program has been established which ensures regular procedural inspections of the Hazardous Energy Control Procedures. The inspections are conducted under the administration of the facility Safety Professional by an authorized employee who is not currently protected by or acting as a HEC Operator for that Procedure. For the avoidance of doubt, HEC standards or templates stored in any database are not considered a HEC Procedure. HEC Procedures that will be inspected are HECs that are currently active, or those that have been issued within the last year.

The inspection may be conducted in as near-real-time as practical. To the extent possible, after the application of locks and tags, and the verification of zero hazardous energy, an authorized employee will confirm:

- The equipment/system specific HEC Procedure is adequate for the scope of work.
- The personnel involved in the inspection, and the date.
- Whether the procedural steps are being followed.
- A review between the inspector and each authorized employee of that person's responsibility under the HEC Procedure.
- Identification and corrective action taken on any deviations or inadequacies of the procedure to provide adequate protection.
- All other provisions of 1910.269(d) have been satisfied, including scope, purpose, responsibility, authorization, rules and techniques to be applied, procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy, procedural steps for the placement, removal, and transfer of lockout devices, and requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices.

The inspection will be documented by a stamp on the hard copy of the Procedure with the printed name and signature of the inspector, along with the date. Otherwise:

The HEC Procedure Periodic Inspection Form (Appendix E) will be utilized and kept on the Station's SharePoint site.

The facility Safety Professional will review and sign-off on the required inspections recorded on the HEC Procedure Periodic Inspection Form, Appendix E.

CONTRACTOR COMPLIANCE PROCEDURES

Application
This section applies to contractors that are working under the jurisdiction of HEC that is controlled by Plant Operations.

General
Contractors are required to abide by all applicable OSHA Control of Hazardous Energy Standards as well as Tampa Electric Company Energy Supply HEC requirements.

Tampa Electric Company Energy Supply shall inform the contractor of the applicable hazardous energy sources, the type and magnitude of energy available, and the means and methods necessary for energy isolation and control. This information is provided in writing on every HEC Procedure. Additionally, the facility HEC Supervisor can provide additional information upon request.

In instances where Tampa Electric Company and contract personnel may encounter each other's lockout/tagout devices, Tampa Electric Company and contractors shall exchange information regarding the HEC Program to be used by each employer's workers. Each employer shall ensure that their personnel understand and comply with restrictions and prohibitions of the energy control program being used.

Coordination
The contractor shall monitor and be solely responsible for the compliance of their employee(s).

The contractor shall provide their employees all necessary lockout/tagout training and equipment (devices) necessary for compliance with this Hazardous Energy Control Program.

EQUIPMENT REQUIREMENTS

All new equipment must be able to accept a lockout device. All existing equipment must be adapted as necessary to accept a lockout device.

REVISION RECORD			
Revision No.	**Revision Date**	**Revised By**	**Description of Change**
1	3/3/2021	HEC Committee	1. Isolation Confirmation Team to include Authorized Employee and to confirm isolation and deenergization have been accomplished 2. Clarification for Verification of Zero Hazardous Energy 3. Revised Expanded Isolation Boundary to ensure all personal locks are removed and authorized employees are signed off before boundary changes occur 4. Option provided to inspect HEC Procedure in near real-time and included that all provisions of paragraph 1910.269(d) are followed 5. Added HEC Approver to Glossary and Responsibility sections. Added step in Job Preparation section for HEC Approver to validate the work scope is covered by the HEC. 6. Added language to Job Lead Responsibility to walk down the isolation and verify the work scope matches prior to work being performed. Added step in Isolation Confirmation section on page 13 for Job Lead to walk down the isolation. Added new language to Commencing Work on page 13 for the Job Lead to walk down the isolation before hanging their personal lock. Added similar step in Expanded Isolation Boundary section on page 17. 7. Added language on the sequence of lock removal in Removal of Equipment Locking Devices section on page 15 8. Added Appendix F – HEC Workflow 9. Expanded definition of Hazardous Energy in the Glossary and referenced the ES Line Breaking Procedure 10. Added clarity to Periodic Inspection where database stored files are not considered Procedures. Only active HECs and those used within the previous year are considered Procedures. 11. In Testing or Positioning of Machines section, clarified language regarding the timing of removal and reapplication of personal locks 12. Language added to Responsibility section describing requirements for electronic signatures when software is used 13. Added Appendix G – Roles, Responsibilities & Qualifications. Added Appendix H – NiSoft Quick Guide 14. Changed training database from Medgate to Cority 15. Revised ES/ED Coordination section including adding the gold confirmation hasp and updating training process 16. Clarified language for the Job Lead's handling of personal locks and keys when a group/crew lockbox is required 17. Added language requiring contractors to receive enhanced orientation on this Program in order to perform duties of a Job Lead
2	12/15/21	HEC Committee	1. Added language in Commencing Work section to ensure that group/crew (satellite) boxes shall not be combined
3	1/1/2023	HEC Committee	1. Added cover page 2. Added language to include solar & energy storage 3. Added requirement of Job Lead to apply personal lock prior to walk down followed by confirmation with HEC Supervisor that work scope matches isolation boundary 4. Only one Primary Lock Box shall be associated with each group/crew lockbox

APPENDIX A – GLOSSARY

Affected Employee – A person whose job requires them to operate or use a machine or equipment on which servicing or maintenance is being performed under HEC or whose job requires them to work in an area in which such servicing or maintenance is being performed. Affected Employees may be TEC employees or Contractors.

Authorized Employee – A person who locks out or tags out machines or equipment in order to perform servicing or maintenance. An Affected Employee becomes an Authorized Employee when that person's duties include performing servicing or maintenance covered under this Program. Authorized Employees who perform work shall apply their personal lock to the group/crew lock box for protection from hazardous energy. Prior to being designated as an Authorized Employee these personnel must successfully complete the Tampa Electric Company Energy Supply HEC Training or the department appropriate Tampa Electric Company Safety and Security Orientation. Authorized Employees may be TEC employees or Contractors.

Blue Turnover Tag – Plant Operations with the assistance of Start-up places blue tags on components and at system boundaries to signify transfer of system/components to Plant Operations. The blue tag is used solely to indicate transfer to Plant Operations and is typically placed at system mechanical and electrical boundaries and on key system components within the system turnover boundary. No work may be performed by any craft on equipment identified with a blue tag without written authorization.

Confirmation – The process by which the Isolation Confirmation Team visually inspects lockout devices described by a HEC Procedure. Confirmation may only take place after the Isolation Confirmation Team has been notified by the HEC Supervisor.

Competent Person – One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are hazardous or dangerous to personnel and who has authorization to take prompt corrective measures to eliminate them.

Danger Identification Tag – An identification tag applied with a lockout device to provide the following information:

- The corresponding Primary Lock Box number.
- The assigned Danger Identification Tag Number on the written HEC Procedure.
- A brief description of the energy isolation device to which the lockout device is being attached.
- The HEC Operator will sign their name and the date / time that they hung the lockout device.
- The HEC Operator will sign their name and the date / time that they removed the lockout device.

Energy Isolating Device – A physical device that prevents the transmission or release of energy, including: manually operated circuit breakers, disconnect switches, line valves, blocks, and any similar device with a visible indication of the position (on/off or open/closed) of the device. Push buttons, selector switches, and other control circuit type devices are not energy isolating devices.

Equipment Lock – A device that holds an energy isolating device in the energy control position and prevents energizing a machine or equipment. Locks are applied with danger identification tags.

Green Turnover Tag – Start-up with the assistance of Plant Operations places green tags on components and at system boundaries to signify transfer of system/components to Start-up. The green tag is used solely to indicate transfer to Start-up and is typically placed at system mechanical and electrical boundaries and on key system components within the system turnover boundary. No work may be performed by any craft on equipment identified with a green tag without written authorization from Start-up.

Group/Crew Lock (Satellite) Box – Box to which authorized employees may apply their identifiable personal lock to afford themselves individual protection from hazardous energy while performing servicing/maintenance activities.

Hazardous Energy or Hazardous Energy Source – Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, potential, or other energy source that may pose a hazard to individuals, including the unexpected release of energy. Examples of systems or circumstances that DO NOT require Hazardous Energy Control are electrical energy sources less than 50v, instrument air less than 30 psi, water systems less than 100 psi, 125 degrees F and with a pH between 5 and 9 and routine O&M tasks such as connecting / disconnecting hoses and gas cylinders. Customary Job Safety Analysis should be considered before determining HEC is not required, including potential energy magnitudes. Reference Tampa Electric Energy Supply Line Breaking Procedure for more information.

HEC Approver – Energy Supply Authorized Employee who receives a written Procedure from the HEC Supervisor and ensures the scope of work matches the scope of the identified boundary points for hazardous energy control.

HEC Operator – Energy Supply qualified person responsible for the initial physical isolation and application of the danger lock out devices to the energy isolation devices per the Hazardous Energy Control (HEC) Procedure. Prior to being designated a HEC Operator the employee must be trained on the TEC Energy Supply HEC Program.

HEC Supervisor – Energy Supply employee with the overall responsibility and jurisdiction for the Hazardous Energy Control of equipment/systems. The person under whose orders Hazardous Energy Control is performed. Prior to being designated a HEC Supervisor the employee must be trained on the TEC Energy Supply HEC Program.

Job Lead – A person or supervisor who exercises guidance for a group or crew of Authorized Employees, and coordinates with the HEC Supervisor to ensure adherence with Energy Supply's HEC Program. A Job Lead may be a Tampa Electric Company (TEC) employee or an approved Contractor. Contractors may only be approved as Job Leads after receiving enhanced orientation on this Energy Supply HEC Program and the specific responsibilities as a Job Lead.

Lockout Device – A prominent warning device with a means of attachment which can be securely fastened to an energy-isolating device in accordance with an established procedure to indicate that the energy isolating device and the equipment being controlled shall not be operated until the lockout device is properly removed.

Personal Lock – A device assigned to an individual that controls HEC isolation either by being affixed directly to equipment isolating devices, Primary Lock Box(s) or group crew lock box(s). These locks shall be marked to clearly identify the controlling individual.

Primary Lock Box – This box contains the key(s) to the locks on the energy isolating devices. The Primary Lock Box is maintained in the proximity of the HEC Supervisor's office. This is the lockbox from which associated group/crew Lock boxes are derived.

Qualified Person – A person who is specially qualified to do a specific job because of education, training, and/or experience.

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

Tag – An openly displayed card, ticket, plastic marker, etc. securely attached to something as a label to give information, warning, or instruction. Accident prevention tags have standard signal words, symbols, and colors to convey a danger, warning, caution, or information.

Verification or Verify – Terms may be used interchangeably. An affirmation of the certainty that a system/equipment has been properly locked out and all energy sources have been controlled. To determine or test the accuracy of a state or condition utilizing a visual determination, a physical examination, and/or inspection.

APPENDIX B – HAZARDOUS ENERGY CONTROL COMMITTEE FORM SAMPLE

Energy Supply Department

Hazardous Energy Control Committee Form

Company of Employee whose lock is being committed: _____

Hazardous Energy Control Supervisor: _____

Date: _____ Time: _____

_____

(Identify the box to which the Lockout Device was attached)

_____

(Reason for Removing Lockout Device)

Name Indicated on Lockout Device: _____

How was this person notified that the lock was committed? _____

Authorized employee whose name was listed on Lockout device must be informed of lock removal prior to resuming work at the facility.

Has equipment been checked by a competent representative of the craft doing the work to verify equipment and energy sources are in useable condition? **YES** ☐

Has supervisor of "Name on Lockout Device" been notified? **YES** ☐ **NO** ☐

Signed: _____

HEC Supervisor

The following three notifications must be made prior to removal of HEC Lockout Devices:

1.) Signed: _____

Superintendent of Plant Operations or Supervisor (Solar)

2.) Signed: _____

Supervisor, Manager (Solar) or Competent Representative of Craft (Polk)

3.) Signed: _____

Manager/Duty Person/Senior Manager (Solar) OR Person that provided notification to Manager/Duty Person

Notification was provided - On site ☐ **OR Via Telephone** ☐

Note: If Manager/Duty Person/Senior Manager is on site, they should sign. If Manager/Duty Person/Senior Manager is off site, the person that provided the notification should print the Manager/Duty Person/Senior Manager's name and print their own initials.

REQUIRED SIGNATURES

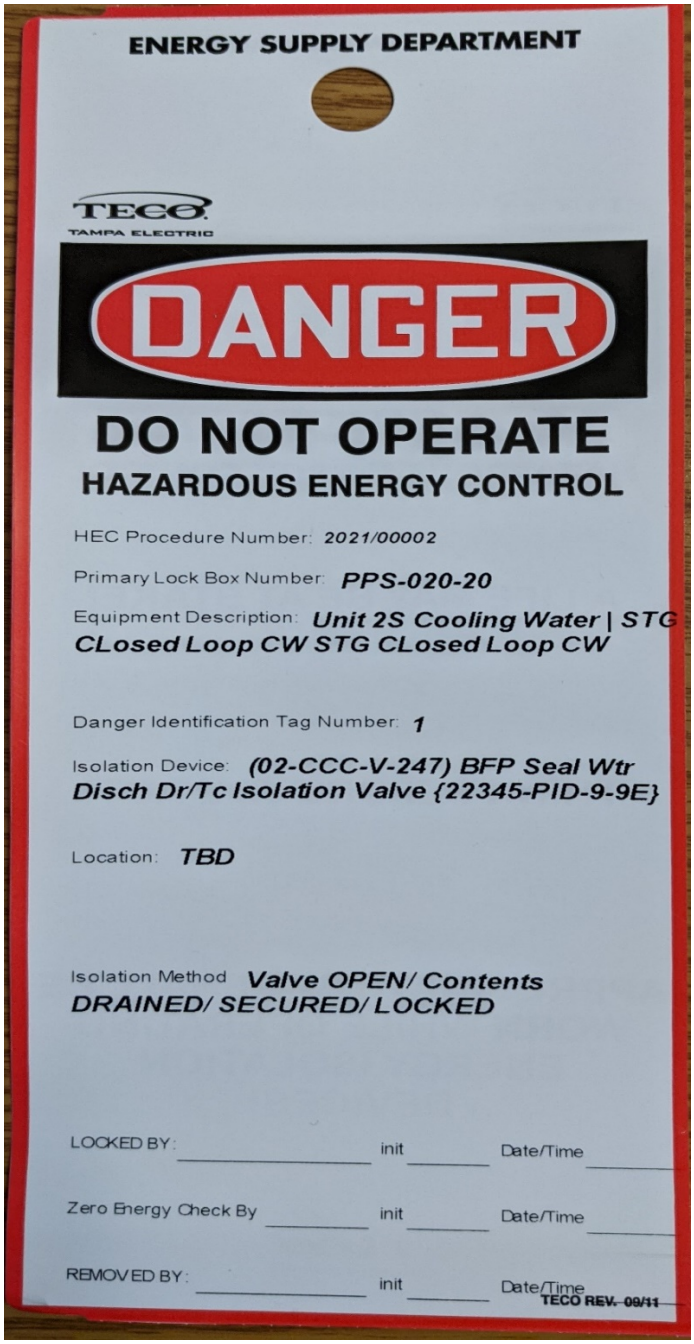
_____	_____	_____
(Signature of Authorized Employee's Supervisor/Equivalent)	**(Date)**	**(Time)**
_____	_____	_____
(Signature of Authorized Employee)	**(Date)**	**(Time)**
_____	_____	_____
(Signature of Facility Director)	**(Date)**	**(Time)**

Route Completed Form to the Facility Director and the Facility Safety Professional.
This record is to be maintained for 1 year.

APPENDIX C – LOCKOUT DEVICE REQUIREMENTS AND ORDERING INFORMATION

Equipment Lock	Keyed the same Non-Key Retaining Color – **Orange**	
	Non-Conductive Keyed the same Key Retaining Color – **Orange**	
Personal Lock	Keyed Differently Key Retaining Color – **Orange** Master lock #406 ORG TSN: 201-5782	
Isolation Confirmation Team Hasp	Master Lock #427 YLW Color – **Yellow** TSN: 2015784 C006F07	
Grounds Confirmation Lock Hasp	Master Lock #427 GRN Color – Green TSN: 2111491 (023) H011C12	
6-Lock Hasp	Aluminum: Master Lock 417 TSN: 201-5783	
	Plastic or Nylon, manufacturer varies TSN: 201-5786	
Lock Boxes (Examples)	Master Lock Box #498A TSN: 206-5309	
	Master Lock Wall Unit #503 RED TSN: 201-5785	

APPENDIX D – SAMPLE DANGER INDENTIFICATION TAG



APPENDIX E – PERIODIC INSPECTION FORM

Facility: _____ Area: _____ Date: _____

Equipment/System: _____ Inspector: _____

Authorized Employees: _____

Are all energy sources locked out? Yes__ No__

Are all Authorized Employees protected from all energy sources by a personal lockout device? Yes__ No__

Was equipment verified as having been locked out effectively? Yes__ No__

Are locks & devices available that are designated for lockout use only? Yes__ No__

Do locks identify the person applying the lockout device? Yes__ No__

Do the Authorized and Affected Employees understand their responsibilities under the Hazardous Energy Control Program? Yes__ No__

Are they following the specific Hazardous Energy Control Procedure? Yes__ No__

Identification of any deviations or inadequacies of the procedure to provide protection equivalent to lockout?

_____

_____

Corrective actions taken: _____

_____

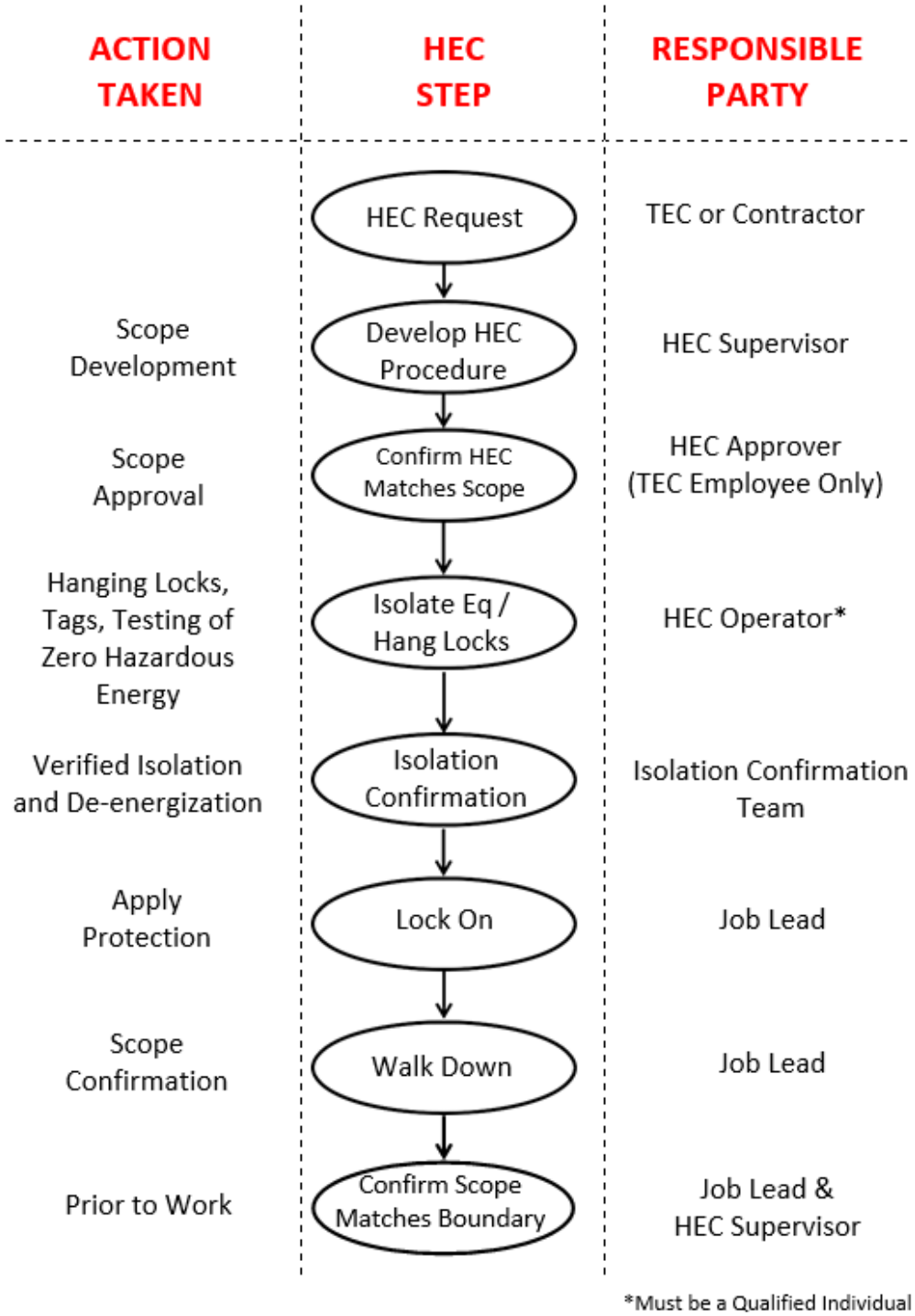
Inspected by:_____ Date: _____

Reviewed by: _____Date:_____
(Facility Safety Professional)

cc: Facility Safety Professional, HEC Supervisor

APPENDIX F – HEC WORKFLOW

HEC WORKFLOW



*Must be a Qualified Individual

APPENDIX G – ROLES, RESPONSIBILITIES & QUALIFICATIONS

Big Bend

Title or Position	Role in HEC	Qualification
Superintendent of Plant Operations (SPO)	HEC Supervisor, HEC Approver, HEC Operator, Confirmation Team	Training & Demonstration, Test
Operations Specialist	HEC Supervisor, HEC Approver, Confirmation Team	Training & Demonstration, Test
Senior Operator / Control Center Operator	HEC Supervisor, HEC Approver, HEC Operator, Confirmation Team	Training & Demonstration, Test, Approval and sign-off by SPO
Plant Operator	HEC Operator, Confirmation Team	Training & Demonstration, Test, Completed Step 1 of Progression Training and approval and sign-off by SPO
Authorized Employee	Job Lead, Confirmation Team	Training & Demonstration, Test

Bayside

Title or Position	Role in HEC	Qualification
SPO / Operations Specialist	HEC Supervisor, HEC Approver, HEC Operator, Confirmation Team	Training & Demonstration, Test
Combined Cycle Specialist	HEC Supervisor, HEC Approver, HEC Operator, Confirmation Team	Training & Demonstration, Test, Complete Step 2 of Progression Training and approval and sign off by SPO
Authorized Employee	Job Lead, Confirmation Team	Training & Demonstration, Test

Polk

Title or Position	**Role in HEC**	**Qualification**
Superintendent of Plant Operations (SPO)	HEC Supervisor, HEC Approver, HEC Operator, Confirmation Team	Training & Demonstration, Test
IGCC Process Specialist	HEC Supervisor, HEC Approver, HEC Operator, Confirmation Team	Training & Demonstration, Test, Approval and sign-off by SPO
IGCC Process Specialist	HEC Operator, Confirmation Team	Training & Demonstration, Test, At least 6 months in role
Authorized Employee	Job Lead, Confirmation Team	Training & Demonstration, Test

Solar & Energy Storage

Title or Position	Role in HEC	Qualification
Supervisor, Generation	Confirmation Team	Training & Demonstration, Test
Solar Technician III Solar Technician II	HEC Supervisor, HEC Approver, HEC Operator, Confirmation Team	Training & Demonstration, Test, HEC Supervisor at Solar Technician II, Step 4 or higher.
Authorized Employee	Job Lead, Confirmation Team	Training & Demonstration, Test

APPENDIX H – NISOFT QUICK GUIDE

Tampa Electric
Quick Guide
eclipse II

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Revision History

Date	Version	Description	Author
09/11/2011	1.0	Initial quick guide	Jeffrey Wright
11/2/2020	2.0	Aligning with written Program revision	TECO HEC Committee

Table of Contents

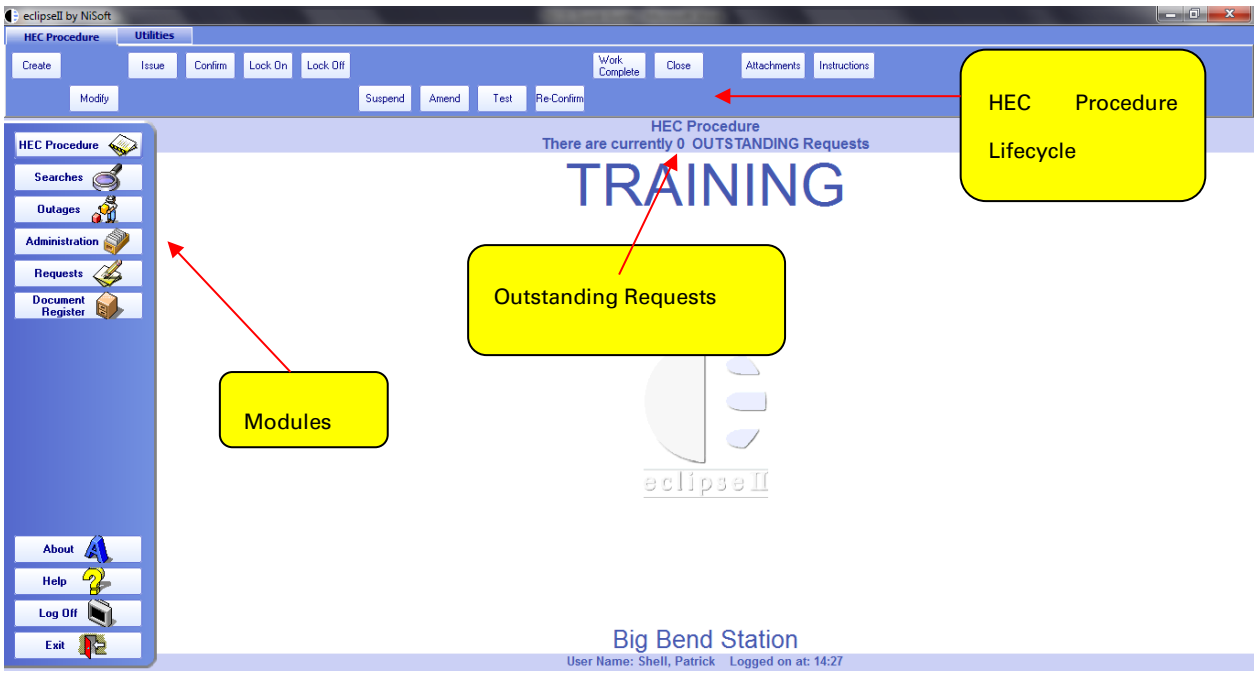
This document is intended to provide an outline of how to use **eclipse** to Create, Modify, Issue, Amend, Re-Confirm, Work Complete and Close HEC Procedures for Tampa Electric Company.

Logging In

When you start **eclipse** users will see a log on screen, where they will enter their username and password.

The Main Menu

After successfully logging in you will be presented with the following screen which is the **eclipse** main menu:



By default the HEC Procedure Form lifecycle will be displayed on top of the main screen.

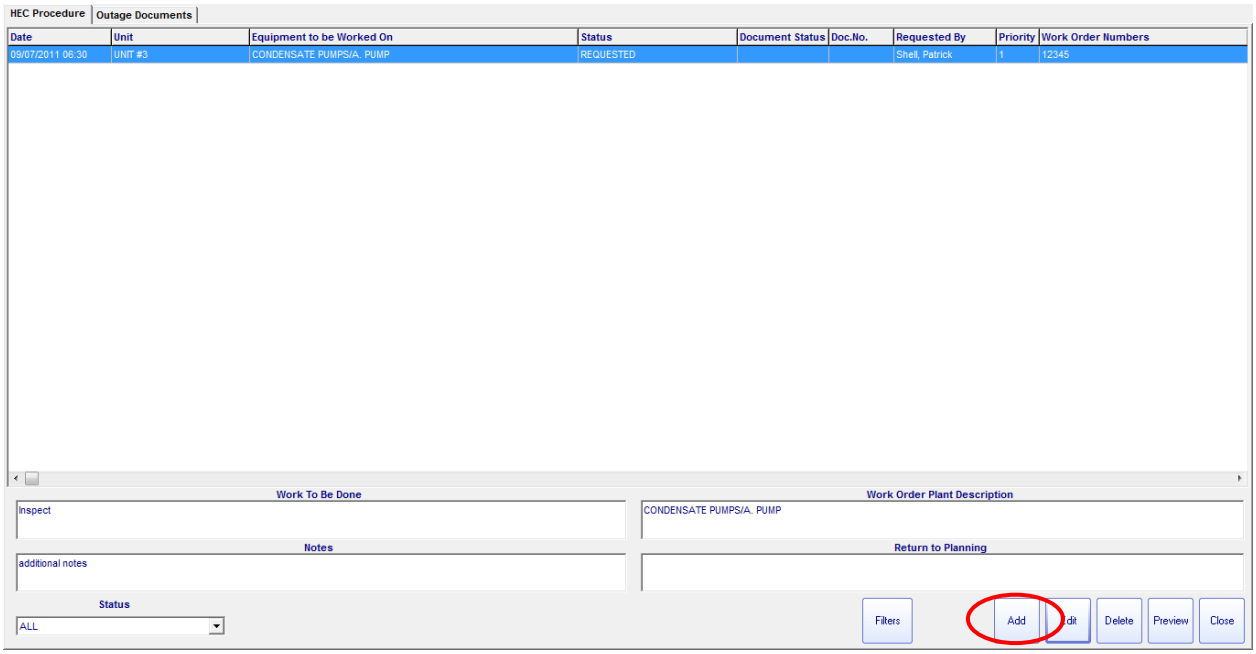
There are two tabs along the top of the screen: HEC Procedure Form and Utilities.

The screen shot above shows the HEC Procedure Form tab as currently selected. The buttons on this tab relate to the 'lifecycle' of the HEC Procedure.

HEC Procedure Lifecycle

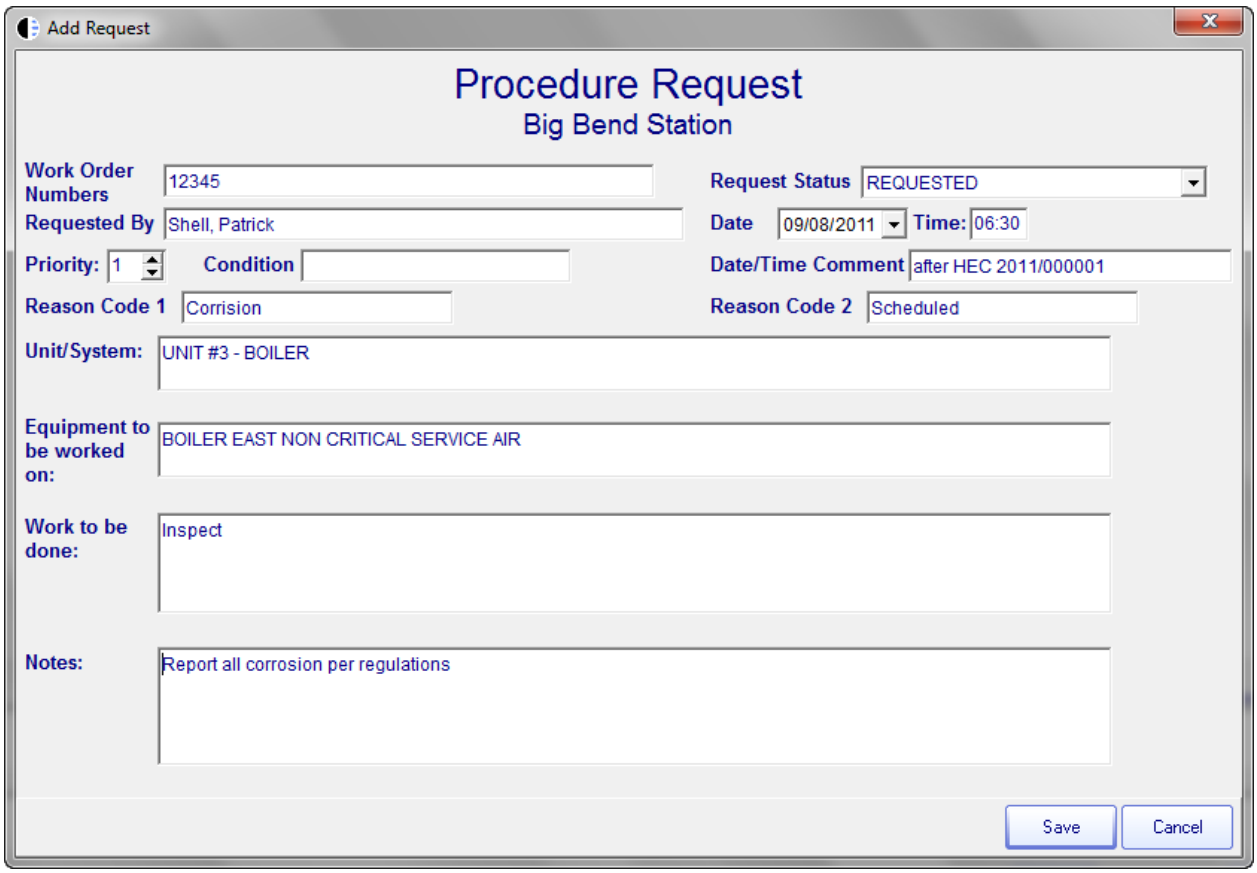
Requests screen

Certain employees may only have the ability to make a request for a new HEC Procedure. These employees will start at the Requests screen from the Main Menu.
Requests can either start a new HEC Procedure, be held pending more information by the requestor, sent back pending clarification, or be denied.



To enter a request for a HEC Procedure, click on the Add button.

A hand cursor icon will display when you hover your mouse over data fields that need to be completed on the HEC Procedure. These will normally have a drop-down box appear when double-clicking on the field.



Enter the Work Order, Date, Time, Date/Time Comments, Priority, Status (if other than REQUESTED), Reason Code 1, Reason Code 2, Requested By, Unit/System, Equipment to be worked on, Work to be done and any additional Notes. Click Save to send the request to the Create status on the HEC Procedure screen.

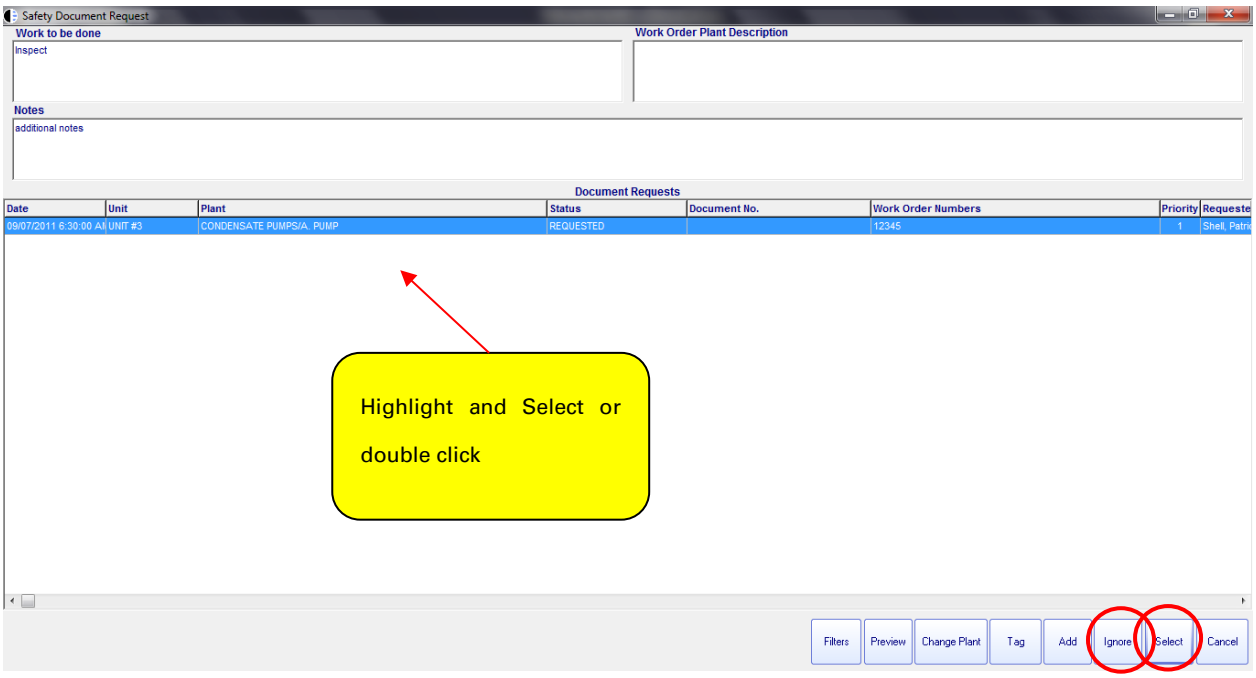
Create

Create a HEC Procedure from a user Request

To create a new HEC Procedure, return to the Main Menu and click the ‘Create’ button.

The HEC Procedure Request window will then open up on screen, listing all pending requests if there are any.

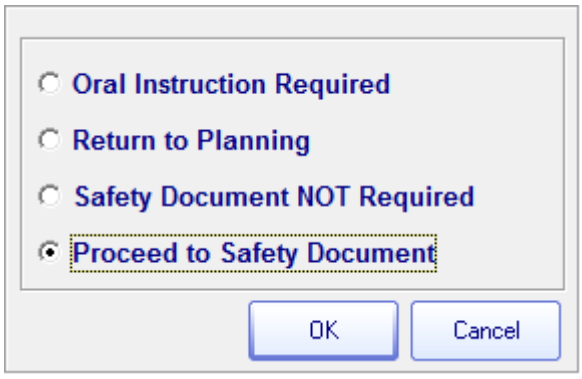
To choose a pending HEC Procedure request, double click on the request or highlight the request then click the ‘Select’ button.



(To create a HEC Procedure not originating from the Request page, you may choose the Ignore button. See 1.2.2).

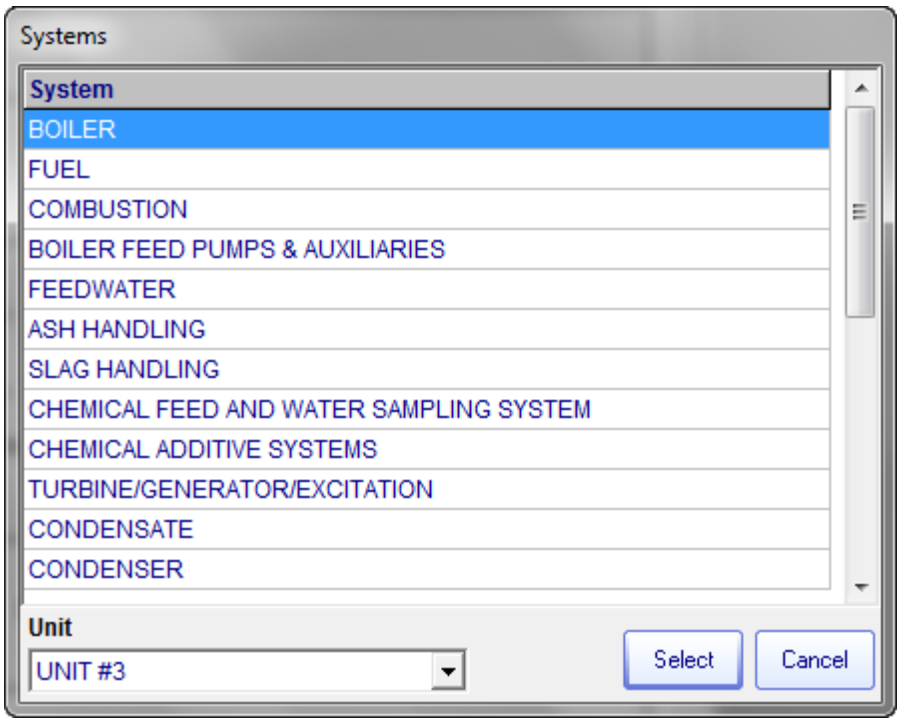
After selecting the request, a window will display with four selection buttons:

Oral Instruction Required
Updates request status to indicate that oral instruction is required.
Return to Planning
Use this option if the request is missing information or requires updates.
Safety Document NOT Required
Indicates that a HEC Procedure is not required to perform the work detailed in the request.
Proceed to Safety Document
This is the system default choice and will take you into the HEC Procedure creation window.

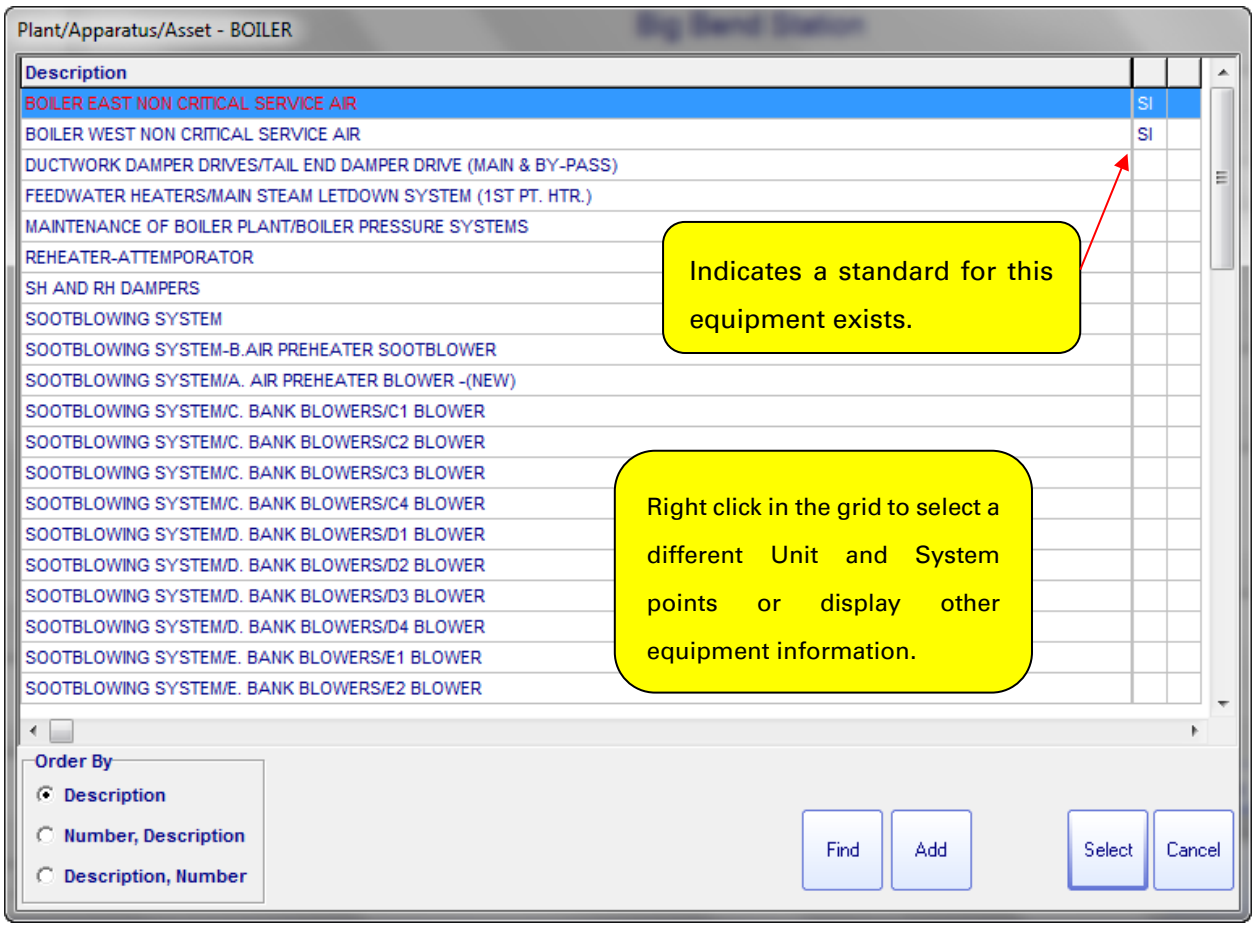


Create a HEC Procedure if no user Request exists (using the Ignore button)

If no requests exist in the system, click on Ignore. The user will be prompted to select the Unit (Operating Areas) and the Systems (Equipment Areas).

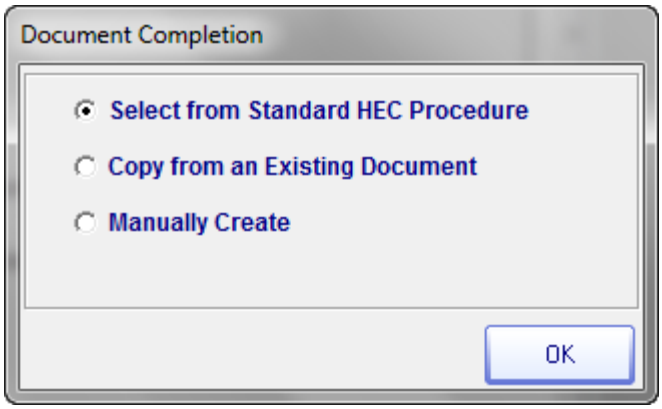


Once the System is selected, then a list of equipment found in that system will populate.



Double click the Equipment to be worked on as the point of work.

HEC Procedure Completion



Select From Standard HEC Procedure
This button allows the creation of a HEC Procedure from a verified Standard HEC Procedure in eclipse.
Copy An Existing Document:
This button enables a user to copy data from a HEC Procedure that has been created in the past.

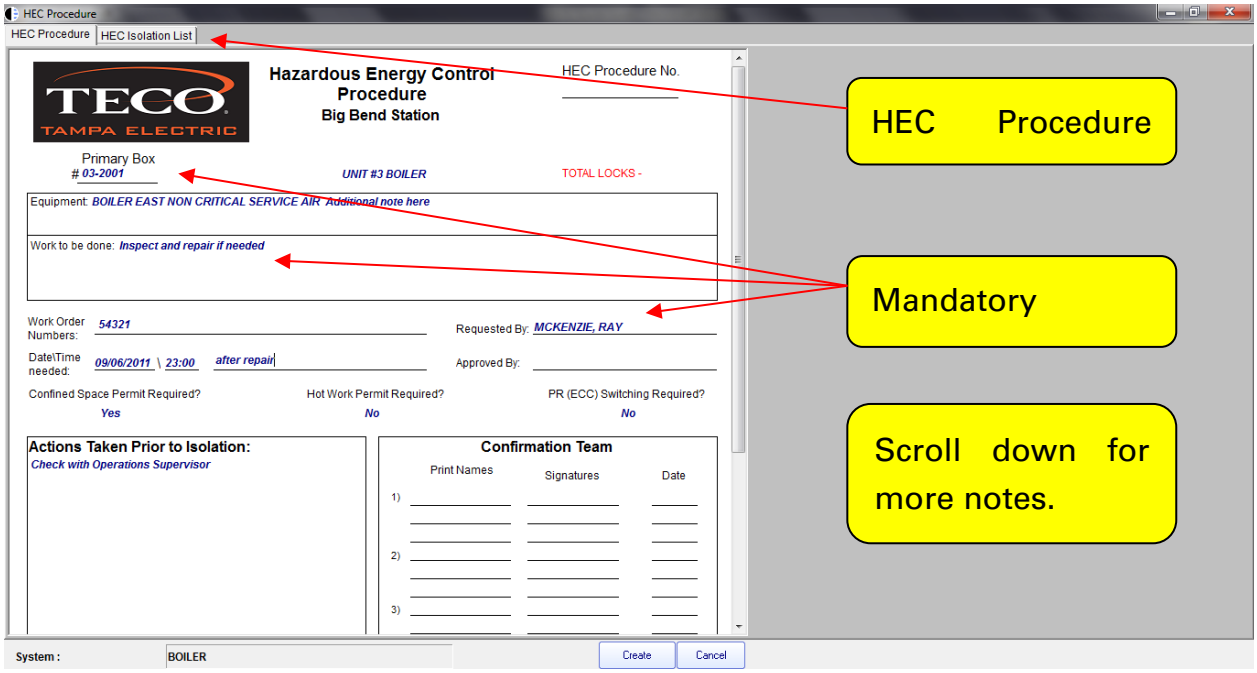
Manually Create

Choose this option to create a HEC Procedure manually.

HEC Procedure tab

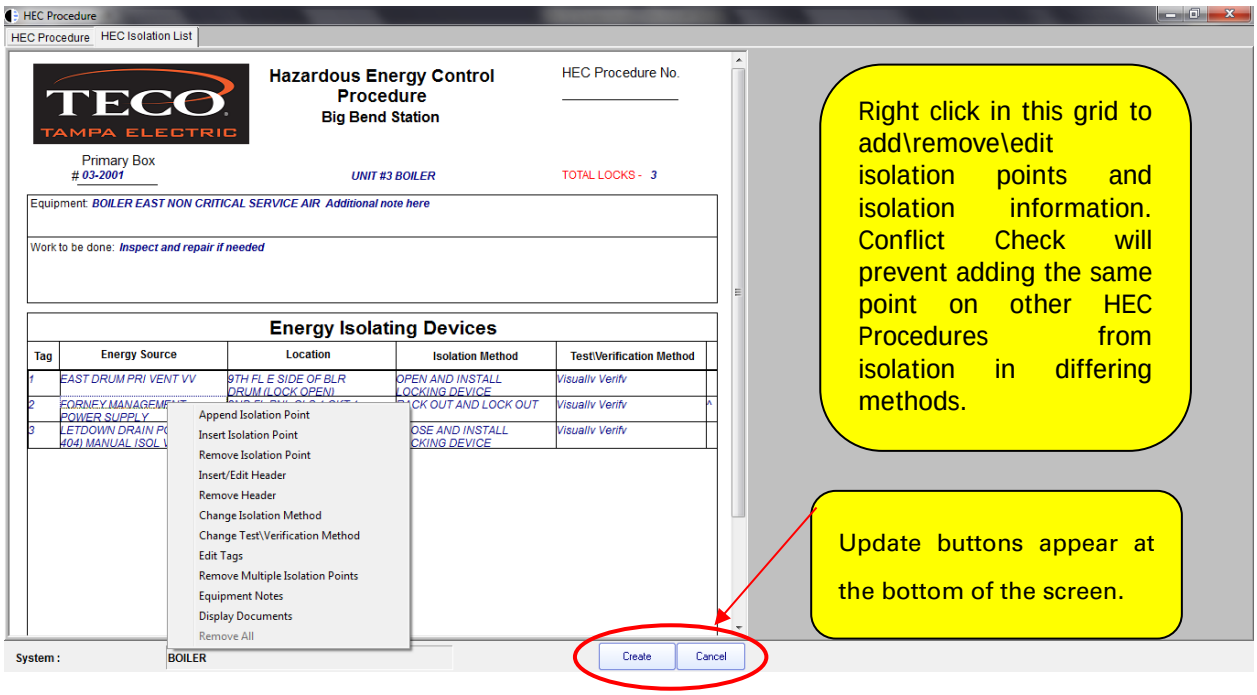
After selecting “Manually Create” the HEC Procedure will display on screen.

A hand cursor icon will display when you hover your mouse over data fields that need to be completed on the HEC Procedure. Double click on the field to open a pick-list of data commonly used to populate the fields. Users can also type directly into the text field.



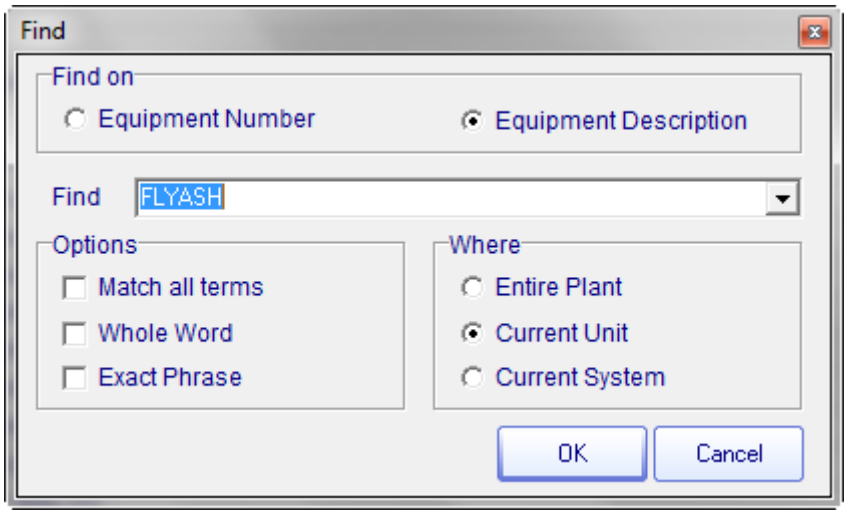
HEC isolation List tab

Once all the important information is entered on the HEC Procedure Form, define all of the Isolation Points required to make the equipment safe to work on by clicking on the HEC Isolation List tab.

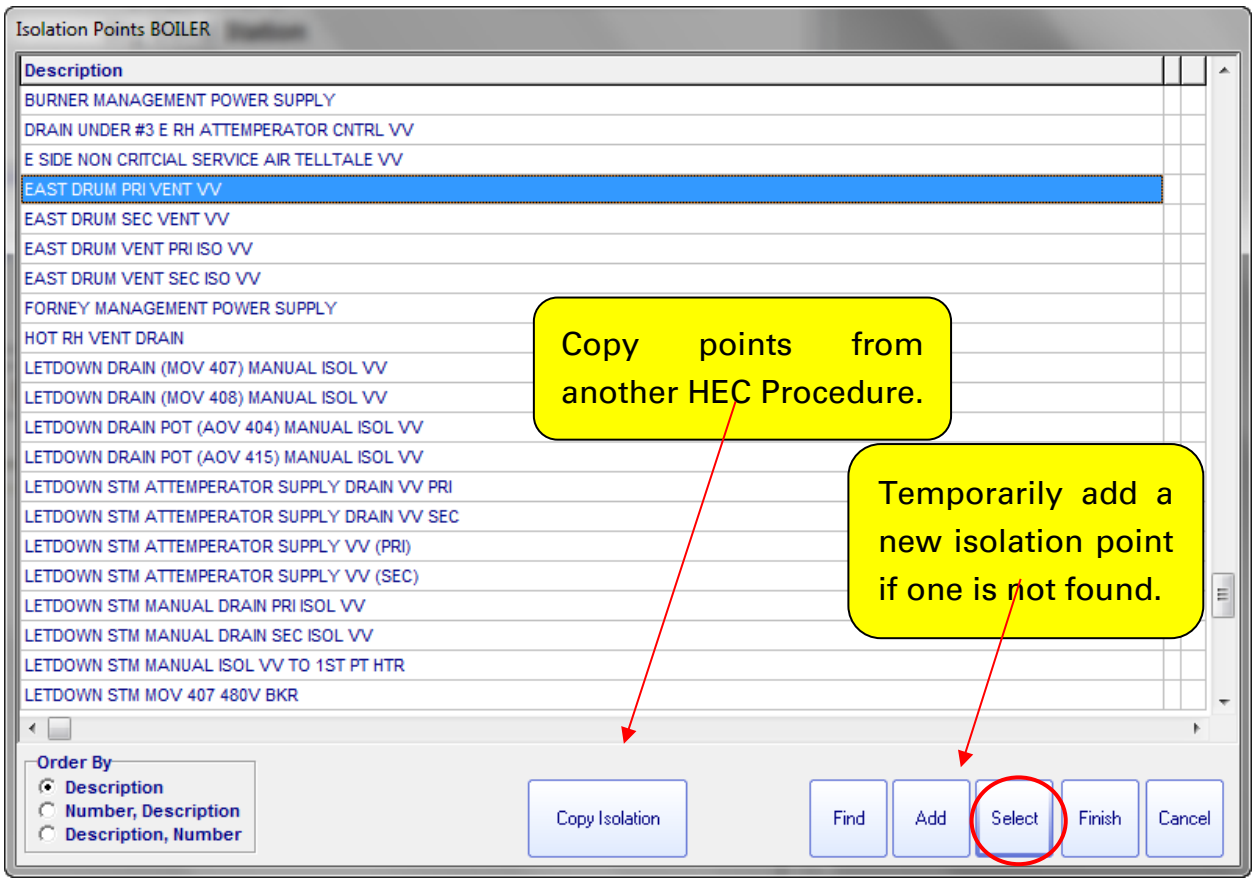


Hover the mouse under the headings (hand cursor icon will appear) and then double-click to display a pick-list of isolation points. The isolation points list will sort by number and then description by default. Click on the header to change the sort order from ascending to descending.

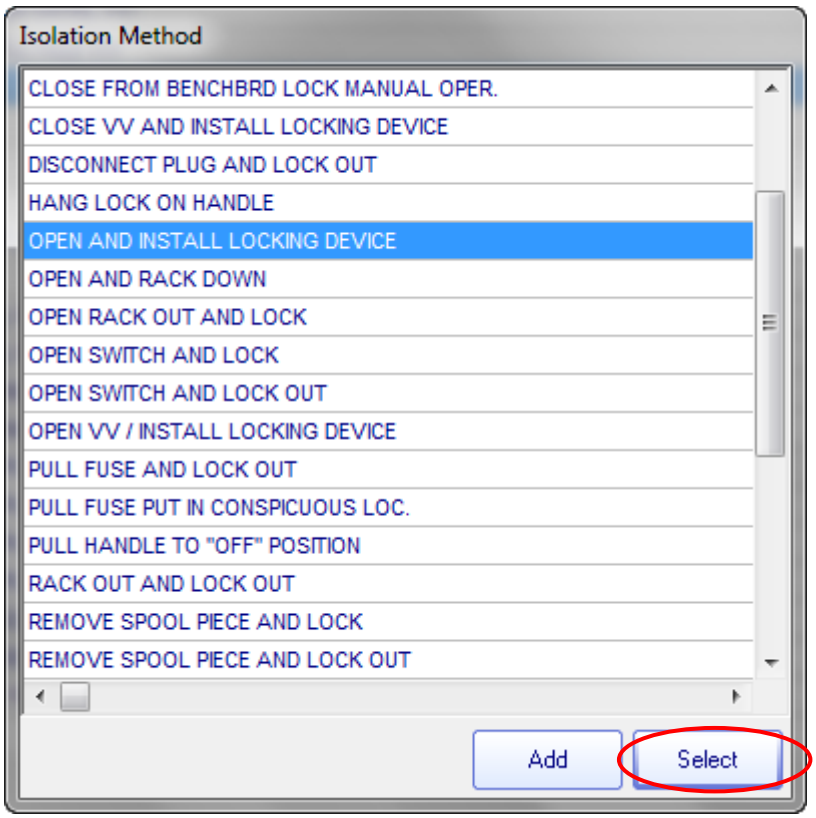
Click the Find button to quickly search by Equipment Number or Equipment Description.

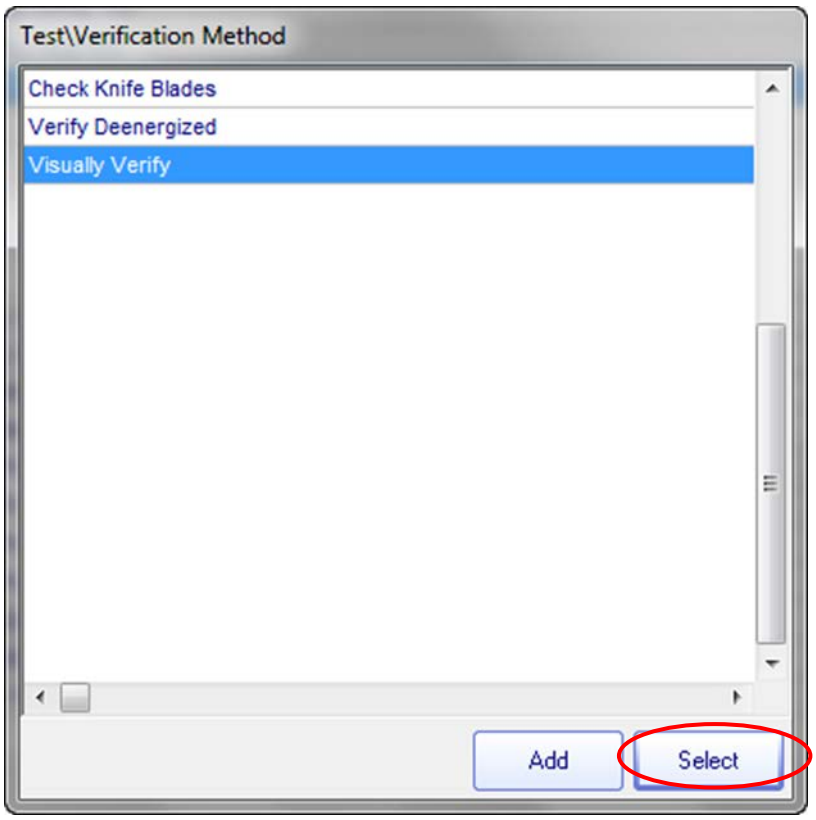


Double click the isolation points to add them to the HEC Isolation List or highlight the point and click Select.

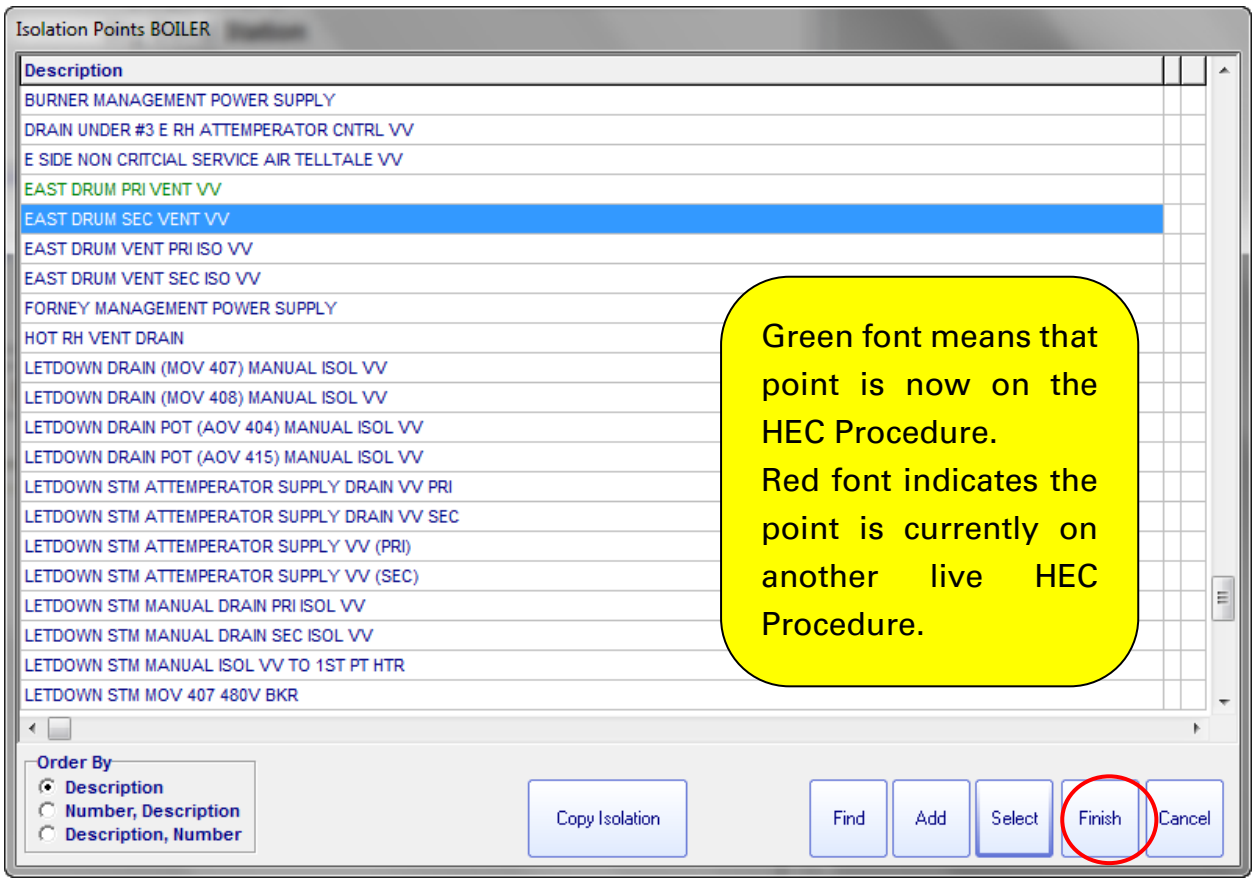


After selecting the isolation point, a pick-list window will display listing all Isolation Methods. Double-click or highlight and click Select to pick the correct Isolation Method. Another window will prompt the selection of the Test/Verification Method.

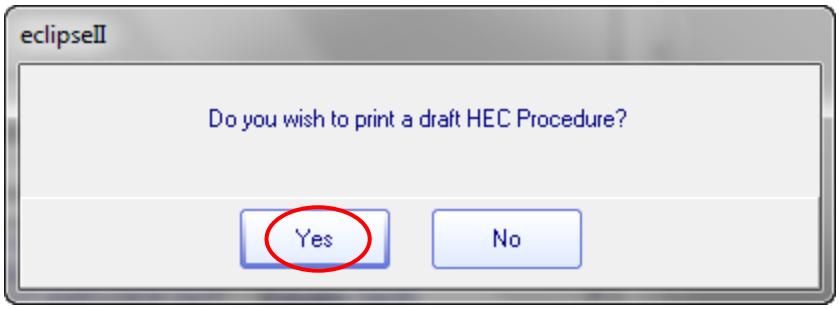

Isolation Method
CLOSE FROM BENCHBRD LOCK MANUAL OPER.
CLOSE VV AND INSTALL LOCKING DEVICE
DISCONNECT PLUG AND LOCK OUT
HANG LOCK ON HANDLE
OPEN AND INSTALL LOCKING DEVICE
OPEN AND RACK DOWN
OPEN RACK OUT AND LOCK
OPEN SWITCH AND LOCK
OPEN SWITCH AND LOCK OUT
OPEN VV / INSTALL LOCKING DEVICE
PULL FUSE AND LOCK OUT
PULL FUSE PUT IN CONSPICUOUS LOC.
PULL HANDLE TO "OFF" POSITION
RACK OUT AND LOCK OUT
REMOVE SPOOL PIECE AND LOCK
REMOVE SPOOL PIECE AND LOCK OUT
Add
Select



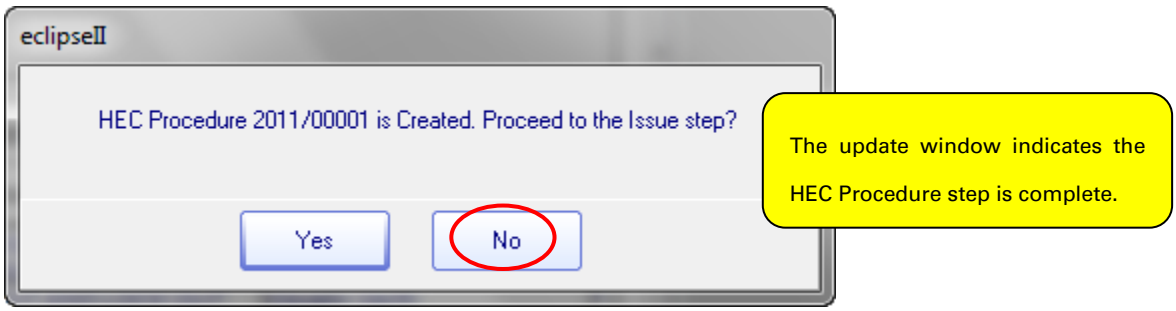
When you are done selecting the Isolation Points then click the Finish button to return to the clearance.



Once all the necessary information on the HEC Procedure is complete, click the ‘Create’ button at the bottom of the screen.



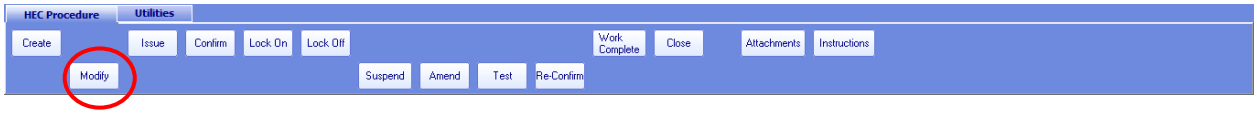
To print a draft, select Yes.



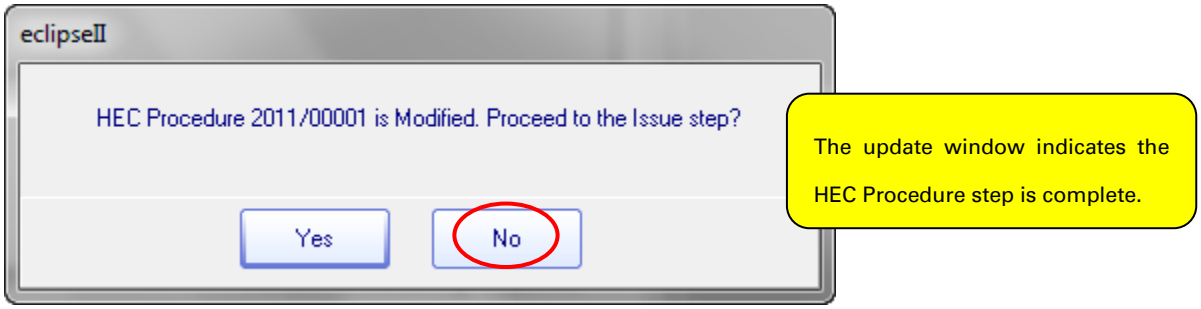
Eclipse will ask to proceed to the next step – Issue. Click No to get back the the Main Menu. The person who Issues the HEC Procedure must be different from the person that Created the HEC Procedure.

Modify

It is possible to change any HEC Procedure that has been saved in **eclipse** but that has not yet been given Issue.



Click 'Modify' and select the HEC Procedure you would like to change before printing tags and forms. The HEC Procedure and all details entered at the Create stage can be modified. Remember to double click with the cursor. Right click on isolation points to reveal a list of change options. When all necessary changes have been made, select the Modify button at the bottom of the screen. This will save all changes to the database and either proceed to Issue or to return to the main menu.

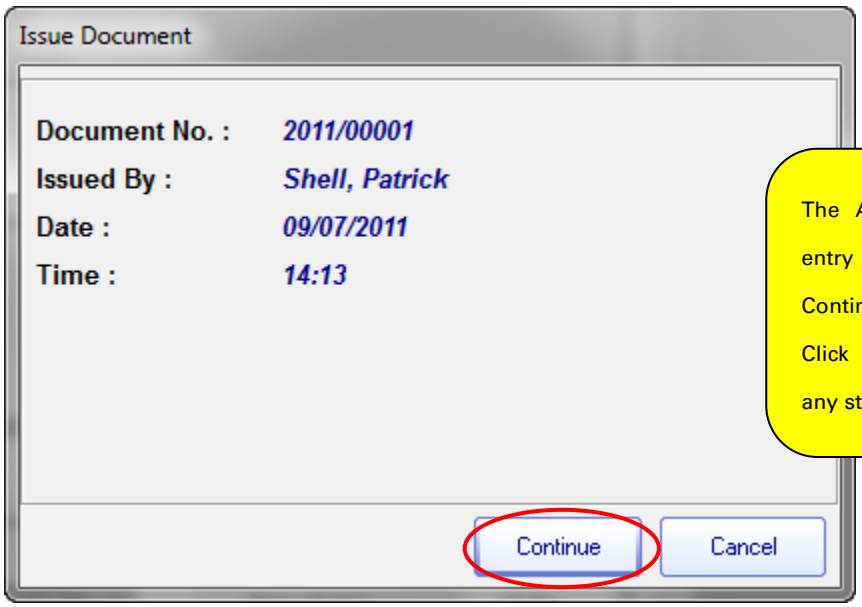


Eclipse will ask to proceed to the next step – Issue. Click No to get back the the Main Menu. The person who Issues the HEC Procedure must be different from the person that Created the HEC Procedure.

Issue

Users can click on Issue and select the HEC Procedure from the pick list.

Click on the Issue button at the bottom of the screen or make any changes and click on the Update button. Any isolation points in conflict will show red. To resolve the conflict, right click to change an isolation method, or Close an existing HEC Procedure to release the isolation point.



The Audit window displays the entry into the audit trail. Clicking Continue will commit the changes. Click on the Personnel button at any stage to view the audit trail.

At this stage the HEC Isolation List and the tags will print. Any changes to the HEC Procedure will now need to be done at the Amend stage.

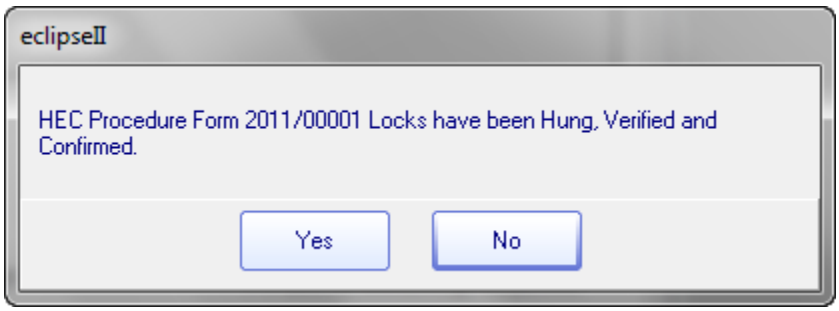
The update window indicates the HEC Procedure step is complete.

The HEC Procedure, HEC Isolation List and tags will print.

Confirm

After the tags are printed, they can be hung and confirmed.

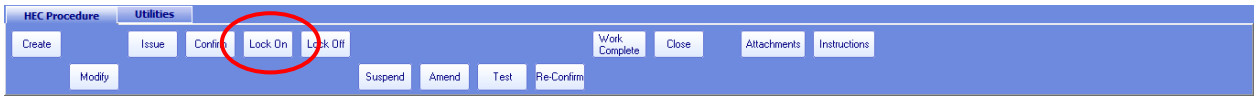
Click on the Confirm button and select the HEC Procedure. Click on the Confirm at the bottom of the screen.



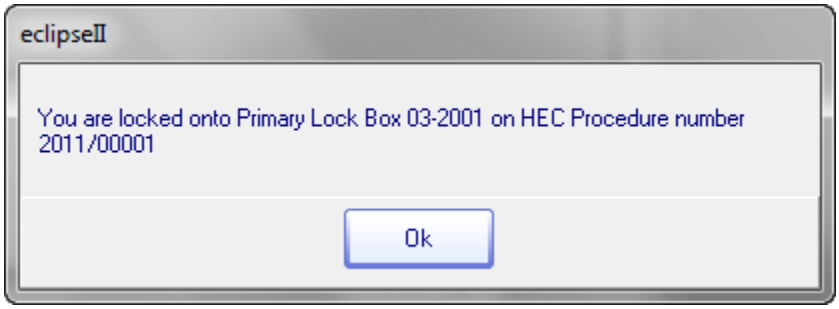
Click OK and Continue on the update and audit windows.

Lock On

Employees and contractors sign on to HEC Procedures to begin work.



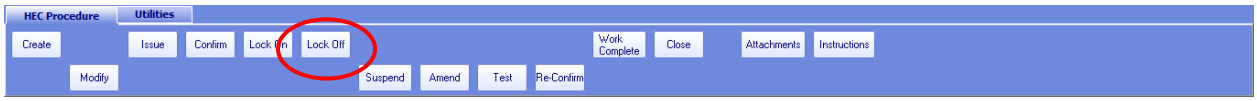
Click on the Lock On button and select the HEC Procedure. Click on the Lock On at the bottom of the screen.



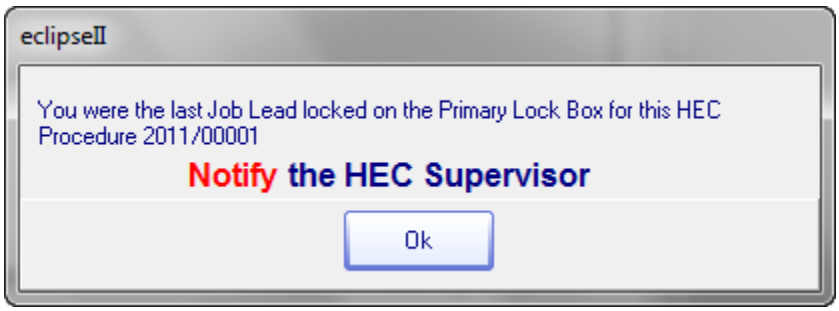
Click OK on the update window.

Lock Off

After work completion, all employees and contractors will lock off. When a HEC Procedure has no one assigned, it will be ready to Suspend, Amend or Work Complete.



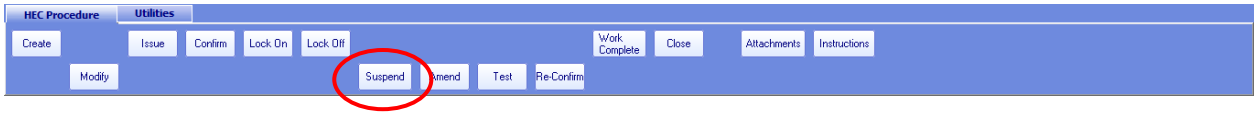
The user will see only those HEC Procedures which he or she is currently Locked On. Click on the Lock Off button at the bottom of the screen.



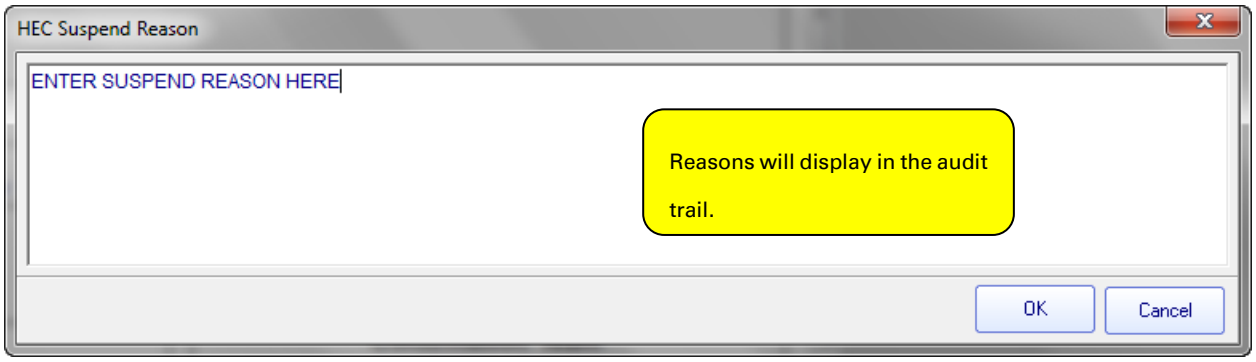
If a user is the last to Lock Off a HEC Procedure, he or she must notify the HEC Supervisor.
Click OK on the update window.

Suspend

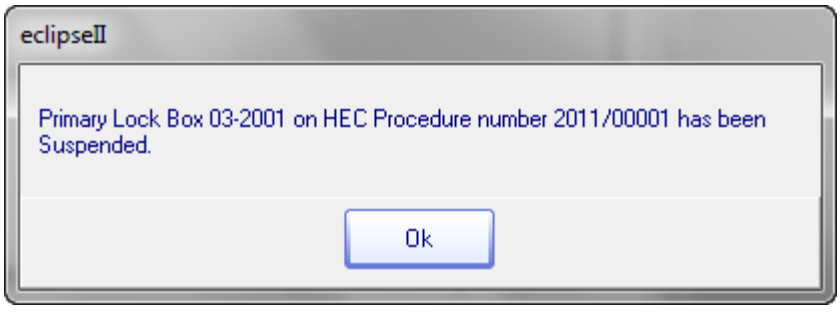
HEC Procedures can be suspended to allow changes only after all have locked off.



Click on the Suspend button, select the HEC Procedure from the grid and click on the Suspend button at the bottom of the screen.



Click Continue on the audit window, enter a suspension reason, and OK on the update window.



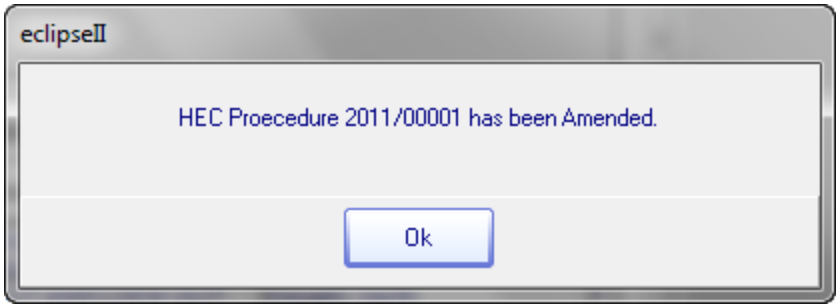
Suspend documents will print.

Amend

Changes to printed HEC Procedures are done in the Amend screen. NOTE: No changes to isolation points shall be made unless the HEC is Suspended.

Select the HEC Procedure in the Amend window by double-clicking on the HEC Procedure. You can also highlight the HEC Procedure and then click the 'Select' button. The Amend screen enables updates to certain fields on the HEC Procedure. Users will be able to change certain fields but should NOT add\remove\edit isolations to the Isolation List, unless the HEC is Suspended. Note that key data fields such as the Equipment field will be read-only. Make changes and click on the Amend button at the bottom of the screen.

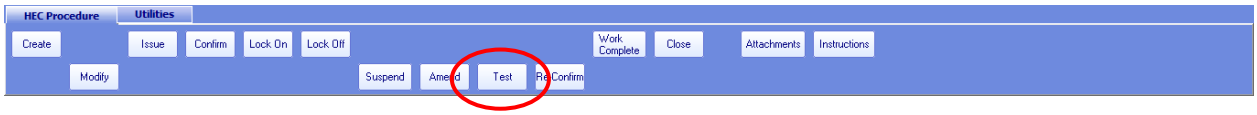
Enter an Amend reason, click Continue and OK on the audit and update windows.



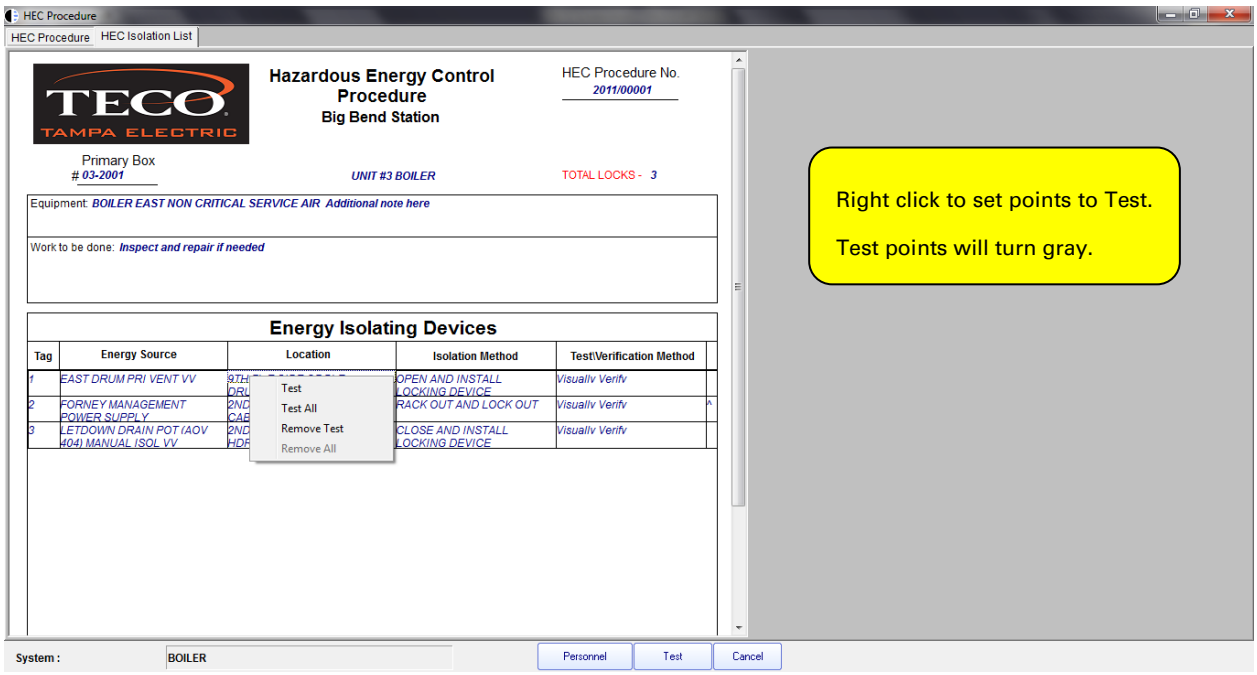
Amend documents will print.

Test

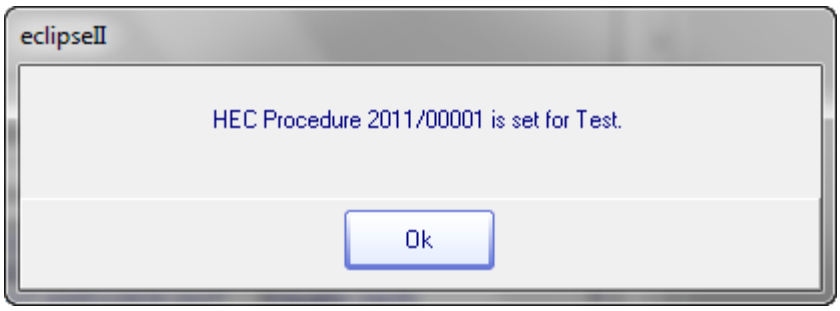
Certain work requires testing.



Click on the Test button, select the HEC Procedure from the grid. Set points to Test and click on the Test button at the bottom of the screen.



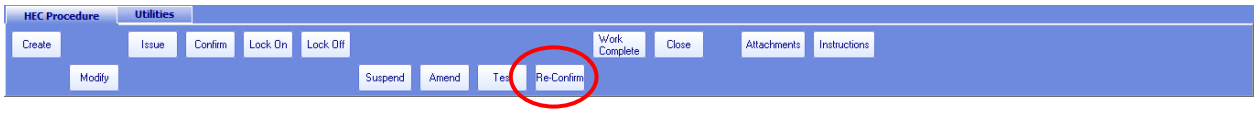
Enter a Test reason, click Continue and click OK on the audit and update windows.



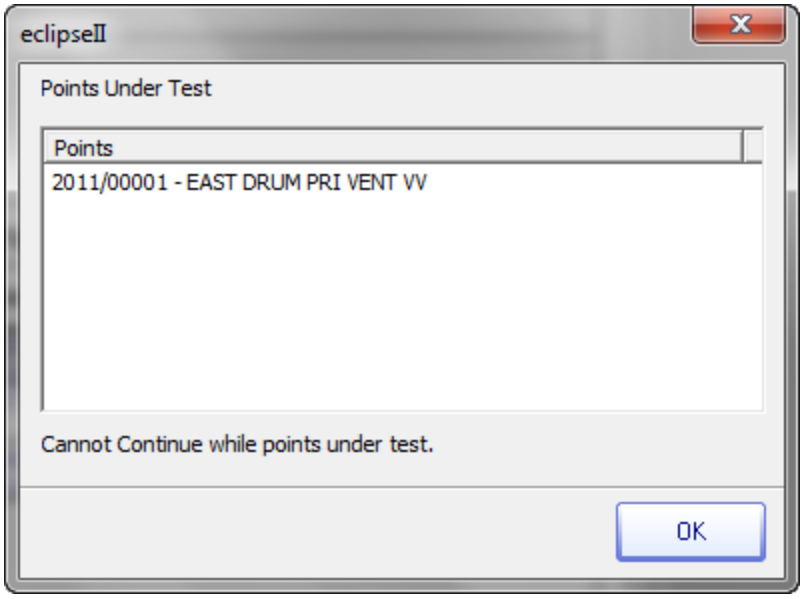
Test documents will print.

Re-Confirm

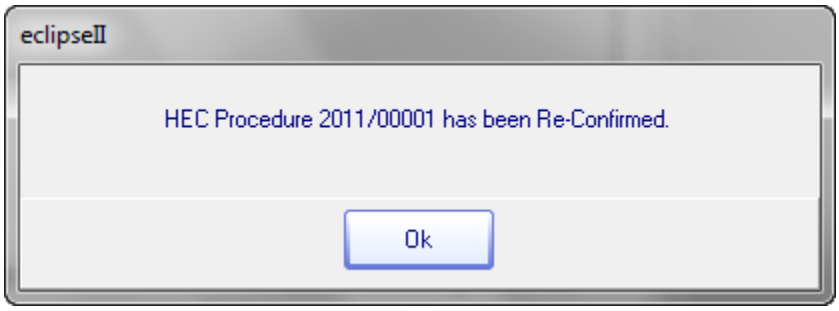
After a HEC Procedure is suspended or amended, it must be re-confirmed for work.



Click on the Re-Confirm button and select the HEC Procedure from the grid. Click on the Re-Confirm button at the bottom of the page.



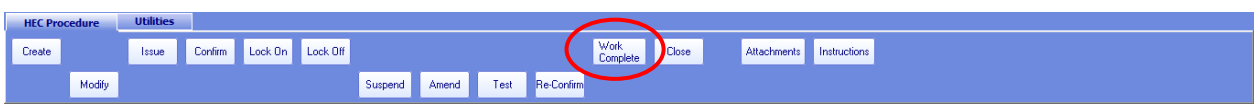
Any points still under Test will prevent the HEC Procedure from Re-Confirming.



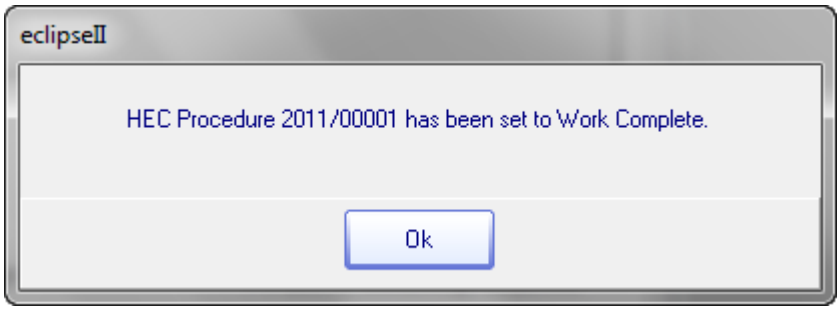
Click Continue and OK on the audit and update windows to Re-Confirm.

Work Complete

Once work is completed, update the HEC Procedure on the Work Complete screen.



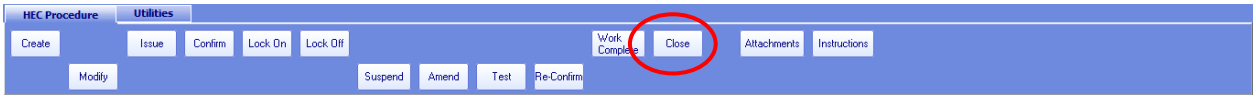
Click on the Work Complete button and select the HEC Procedure from the grid. Click on the Work Complete button at the bottom of the page.



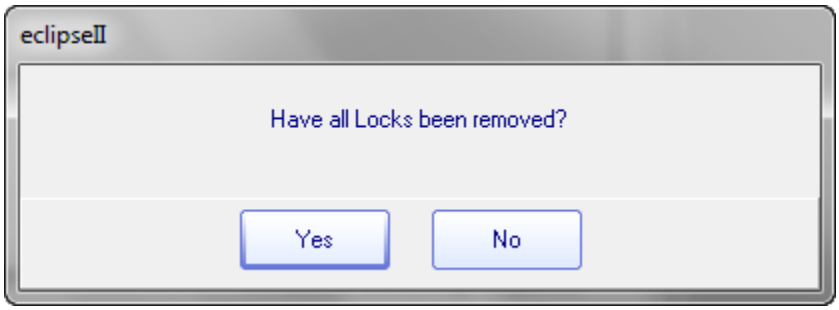
Click Continue and OK on the audit and update windows to set the HEC Procedure to Work Complete.

Close

The final step of the HEC Procedure lifecycle is to release the equipment, which releases all the data locks on the isolation points and saves the HEC Procedure to the **eclipse** database where it is available to reference for safety audit purposes.

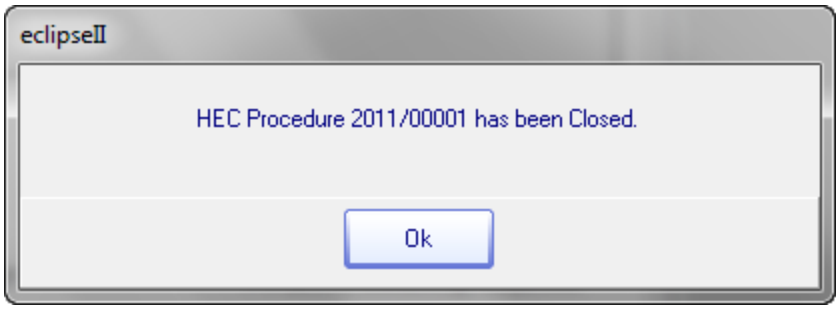


Click on the Close button and select the HEC Procedure from the grid. Click on the Close button at the bottom of the page.



If all locks have been removed, click Yes.

Enter a closure reason and click OK. Click Continue and click OK on the audit and update windows to close the HEC Procedure.



The HEC Procedure is now complete and Closed and can be viewed in the Document Register.