



Control of Hazardous Energy Policy

Health and Safety FCX-HS04 | Release Date 8/5/2019

POTENTIAL FATAL RISKS

Uncontrolled Release of Energy

CRITICAL CONTROLS

Blocking for Maintenance Work
 Guards, Barriers and Barricades
 Energy Isolation/LOTOTO
 Pipe Management
 Hose Coupling Locking Systems
 Pipe/Hose/Equip. Mechanical Integrity
 Relief Valves
 Tensioned Lines Management
 Tire Management

POTENTIAL ENERGY SOURCES

| | |
|---------------|-----------------|
| Atmospheric | Chemical |
| Electrical | Electromagnetic |
| Gravitational | Hydraulic |
| Kinetic | Mechanical |
| Pneumatic | Residual |
| Stored | Thermal |

FORMS AND SUPPLEMENTS

LOTOTO Technical Supplement
 ECC Form
 Energized Work Permit
 Non-Routine Lock Removal form

TRAINING REQUIREMENTS

Initial
 Annual Refresher
 Task training to written procedures
 New equipment/processes
 Remedial as necessary

POLICY

OVERVIEW

Identify and isolate, eliminate or control all potential sources of energy when there is the possibility of exposure while performing work (i.e. inspection, installation, calibration, maintenance, etc.). Verify that controls are effective. This policy applies to all employees and contractors on FCX operating sites.

ACTIONS TO STAY SAFE

1. Plan the activity to be performed
2. Identify the potential sources of hazardous energy
3. Eliminate, isolate or control each source
4. Dissipate residual energy
5. Verify controls are effective and tryout

Follow hazardous energy control procedures for each piece of equipment, system or process. Procedures must include steps for verification of control.

Stop the job when scope of work changes or controls are ineffective.

Isolate at the source whenever possible, or use other methods to ensure zero energy (i.e. double block/bleed, blind, air gap, blocking, etc.).

Plan:

- Understand the full scope of the work and all tasks associated.
- Identify all personnel roles and responsibilities, tools, hazards, isolation points, isolation devices, prior to starting work.
- Consult SOPs or JSAs prior to performing work.

Identify Sources:

- Use most recent drawings, prints, etc. for identifying sources of hazardous energy.
- Ensure lines/breakers/valves etc. are properly labeled/identified; contact responsible parties or consult relevant documentation.

Eliminate, Isolate and Control:

- Verify that the correct isolation points are isolated for each type of hazardous energy identified.
- Use appropriate devices for the source.
- Follow the de-energization procedures for the specific task or equipment for de-energization

Dissipate Residual Energy:

- When zero energy cannot be accomplished, install controls to reduce or eliminate exposure to the energy source. Complete Energized Work Permit.

Verify Controls and Tryout:

- Ensure zero energy and attempt to restart the equipment.
- Do not confuse process interlocks with energy isolation or use for tryout.
- ECC or Authorized Individual and Project Manager or delegate must visually confirm non-routine energy isolation prior to performing work in the absence of SOPs.

Energized Work (Commissioning, Testing, Calibrating, Troubleshooting, etc.)

- Hazardous energy control procedures may not apply, but complete a documented safety analysis/risk assessment.
- Understand the process for start-up and potential for exposure to self and others.
- Develop a communication plan for these activities.
- Evaluate new controls and verify existing controls.
- When guards and barriers are removed (or interlocks bypassed) for troubleshooting/testing and calibration, other controls must be in place to prevent exposure.
- When work is performed on energized equipment, follow specific documented guidelines and procedures.
- When other bypass devices are installed, and equipment is energized while performing work, follow specific documented guidelines and procedures for installation, use and removal of bypass devices.
- Conduct pre-operational inspections prior to start up.
- When testing or positioning machines or equipment:
 - Clear the area of unnecessary personnel, tools and materials
 - Install flagging or barricading, reference FCX-HS19
 - Remove energy control devices as specified in procedures
 - Energize and proceed with testing or positioning
- Prior to performing additional maintenance, de-energize, isolate from potential sources and reapply energy control devices

ENERGIZED WORK PERMIT

- When possible exposure to hazardous energy exists, but the equipment must remain energized to perform work, complete an Energized Work Permit.
- For routine work, where an SOP exists, the Energized Work Permit is valid for one year, and should be kept with the SOP as a part of the record. The SOP must be reviewed prior to performing the work.
- Electrical troubleshooting and testing is excluded from the permit requirements, reference the Electrical Safety Policy TS for Energized Electrical Work.
- If there is no Superintendent on site, the delegate may authorize the work in his/her place.

Shift Change

- Procedures for shift change must be documented.
- Ensure integrity of isolation devices prior to turn-over.
- Use ECC procedures if necessary.
- Remove personal locks and tags if work is complete and equipment is in a safe condition.

Access and Verification

- If an Authorized Individual joins after verification of isolation has taken place, they must contact the other Authorized Individuals or ECC (if used) to confirm equipment is isolated and has been verified/tested.
- All Authorized Individuals retain the right to verify isolation by clearing the area and attempting to start the equipment.
- When access to isolation devices is limited (e.g. inside a restricted area), Authorized Individuals will be escorted by a Qualified Individual, or the ECC process will be used.

Non-Routine/Emergency Work

- During emergency work and when an SOP is not available, planning for energy control must include:
 - an inventory of identified hazardous energy sources,
 - determination of isolation/control devices,
 - assignment of responsible persons, including Qualified Individuals and ECC if necessary,
 - field verification of the application of the control devices.
- Document this information and evidence of the verification. *Documentation may be a JSA if there is not existing documentation in place.*