

BP HUSKY – TOLEDO REFINERY

	Refinery Wide	Procedure No.: SAF 037 – Attachment A
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4000 Volt Lockout Procedure A

For 4000 volt controllers located in the South Process substation:

WARNING

At no time while pump is running should breaker handle be switched to "off" position as this may damage the pump.

- a) Authorized Person shall shut off motor at pump.
- b) Authorized Person and electricians shall verify correct breaker.
- c) Electricians shall verify motor has shut down.
- d) Electricians shall turn permissive switch handle on middle door of cabinet from "on" to "off" position
- e) Electricians shall open middle door on breaker cabinet.
- f) Electricians shall rotate switch backward to open position.
- g) Electricians shall close and latch middle door.
- h) Electricians shall, On upper door, turn handle to open position
- i) Electricians shall open upper door and visually verify disconnect switch is in the open position.
- j) Electricians shall close upper door.
- k) Authorized person shall install Process Group Lock and tag in holes provided.
- l) Electricians shall place electrical craft lock and tag on breaker.
- m) Authorized Person shall verify lockout by pushing START button at motor.

DE-LOTO

- a) Authorized person shall notify electricians after all work is complete and the motor is ready to be placed back into service.
- b) Authorized person shall remove the Process Group Lock from the breaker.
- c) Electricians shall remove the Electrical Craft Lock from the circuit breaker.
- d) Electricians shall, on upper door, turn handle to the closed position.
- e) Electricians shall open middle door, rotate switch towards closed position. Close middle door.
- f) Electricians shall turn permissive switch on middle door to the "on" position.
- g) Electricians shall notify the Authorized person when the circuit breaker is in the proper position and the motor is ready to start.

NOTE: If anything but a normal shutdown of motor, notify foreman so electricians can be notified.

4000 Volt Lockout Procedure B

For 4000 volt controllers located at the South Process, Third and B, Iso II substations, and Water Pump Station:

- a) Authorized Person shall shut off motor at pump.
- b) Authorized person and electricians shall verify correct breaker.
- c) Electricians shall verify motor has shut down.
- d) Electricians shall turn the "Permissive Switch" handle on the cubicle's top door to the "open" or "off" position
- e) Electricians shall open the door covering the operating handle by loosening the four thumb screws.
- f) Electricians shall push the handle in and turn it counter clockwise until "open" shows in the window and then pull handle out.
- g) Electricians shall open bottom door and visual verify contactor has properly been racked off of the bus.
- h) Electricians shall close bottom door.
- i) Authorized person shall install Process Group Lock and tag on breaker
- j) Electricians shall install electrical craft lock and tag on breaker.
- k) Authorized Person shall verify lockout by pushing START button at motor.

DE-LOTO

- a) Authorized person shall notify electricians after all work is complete and the motor is ready to be placed back into service.
- b) Authorized person shall remove the Process Group Lock from the breaker.
- c) Electricians shall remove the Electrical Craft Lock from the circuit breaker.
- d) Electricians shall push in the handle and turn it clockwise until the "closed" shows in the window and then pull out the handle.
- e) Electricians shall turn the "permissive Switch" handle on the cubicle's top door to the "closed" or "on" position.
- f) Electricians shall notify the Authorized person when the circuit breaker is in the proper position and the motor is ready to start.

4000 Volt Lockout Procedure C

South Process Substation and VRDS (to lock motor out for maintenance):

WARNING

At no time while pump is running should breaker handle be switched to "OFF" Position.

- a) Authorized Person shall shut off motor at on/off switch at pump.
- b) Authorized Person and electricians shall verify correct breaker.
- c) Electricians shall verify that the motor has shutdown.
 - If motor is off, go to Step "d".
 - If motor is still on, Electrician shall locate rod with black knob below breaker handle and pull with sudden jerk. Verify motor has shutdown.
- d) Electricians shall place "Permissive Switch" to "O" or "Off" position.
- e) Electricians shall open small access cover on lower right side of panel to expose breaker handle.
- f) Electrician shall push in clip and lower breaker handle to "off position."
- g) Electricians shall open lower door and verify contactor has correctly racked off of the bus.
- h) Electricians shall close lower door.
- i) Authorized person shall install a Process Group Lock and tag on breaker handle.
- j) Electricians shall install Electrical Craft Lock on breaker handle. Close and latch access door.
- k) Authorized Person shall verify lockout by pushing start button at pump.

DE-LOTO

- a) Authorized person shall notify electricians after all work is complete and the motor is ready to be placed back into service.
- b) Authorized person shall remove the Process Group Lock from the breaker.
- c) Electricians shall remove the Electrical Craft Lock from the circuit breaker.
- d) Electricians shall push in clip and raise breaker handle to the "on" position.
- e) Electricians shall place "Permissive Switch" to the "on" or "remote" position.
- f) Electricians shall notify the Authorized person when the circuit breaker is in the proper position and the motor is ready to start.

NOTE: If anything but a normal shutdown of motor, notify foreman so electricians can be notified.

4000 Volt Motor Lockout Procedure D

For 4000 volt Alky I and Alky II compressor starter-breakers located in the Main Switch House:

LOTO For Motor power only, not for motor control circuits

- a) Authorized Person shuts off motor at compressor.
- b) Authorized Person and electricians shall verify correct breaker.
- c) Electricians shall verify motor has shutdown.
- d) Electricians shall turn the permissive switch on the cubicle door to "TRIP" position.
- e) Electricians shall open the cubicle door.
- f) Electricians shall verify circuit breaker is in the open position.
- g) Electricians shall lower (rack out) the circuit breaker.
- h) Authorized person shall hand Process Group Lock and tag to electricians.
- i) Electricians shall install Process Group Lock and tag on circuit breaker racking handle.
- j) Electricians shall install electrical craft lock and tag on circuit breaker racking handle.
- k) Electricians shall close door and place LOTO tag on outside handle of cubicle door.
- l) Authorized Person shall verify lockout by pushing START button at motor.

DE-LOTO

- a) Authorized person shall notify electricians that all work is complete and the motor is ready to be placed back in service.
- b) Authorized Person shall give Process Group Lock key to electricians.
- c) Electricians shall verify that permissive switch on cubicle door is in the "TRIP" position.
- d) Electricians shall remove Process Group Lock and Electrical Craft Lock from the operating lever inside the switchgear cubicle.
- e) Electricians shall raise (rack in) the circuit breaker to the connected position and place the permissive switch in the "normal" position.
- f) Electricians shall notify the Authorized person when the circuit breaker is in the proper position and the motor is ready to START.

4000 Volt Motor Lockout Procedure E

For 4000 volt starter-breakers located in the Main Switch House, Iso II substation, and VRDS substation:

LOTO For Motor power only, not for motor control circuits

- a) Authorized Person shuts off motor at pump/compressor.
- b) Authorized Person and electricians shall verify correct breaker.
- c) Electricians shall verify motor has shutdown.
- d) Electricians shall turn the permissive switch on the cubicle door to "TRIP" position.
- e) Electricians shall open the cubicle door.
- f) Electricians shall verify the circuit breaker is in the open position.
- g) Electricians shall insert elevator motor into switchgear cubicle.
- h) Electricians shall press the arc flash reduction "maintenance settings" pushbutton on the switchgear main breaker.
- i) Electricians shall lower (rack out) the circuit breaker by engaging elevator clutch with motor and placing motor switch to "lower" position.
- j) Electricians shall verify arc flash reduction settings have returned to "Normal Settings" or press the pushbutton again to return to the normal settings.
- k) Authorized person shall hand Process Group Lock and tag to electricians.
- l) Electricians shall install Process Group Lock and tag on circuit breaker racking handle.
- m) Electricians shall install electrical craft lock and tag on circuit breaker racking handle.
- n) Electricians shall close door and place LOTO tag on outside handle of cubicle door.
- o) Authorized Person shall verify lockout by pushing START button at motor.

DE-LOTO

- a) Authorized person shall notify electricians that all work is complete and the motor is ready to be placed back in service.
- b) Authorized Person shall give Process Group Lock key to electricians.
- c) Electricians shall verify that permissive switch on cubicle door is in the "TRIP" position.
- d) Electricians shall remove Process Group Lock and Electrical Craft Lock from the operating lever inside the switchgear cubicle.
- e) Electricians shall verify the circuit breaker is in the open position.
- f) Electricians shall insert elevator motor into switchgear cubicle.
- g) Electricians shall press the arc flash reduction "maintenance settings" pushbutton on the switchgear main breaker.
- h) Electricians shall raise (rack in) the circuit breaker to the connected position by engaging elevator clutch with motor and placing motor switch to "raise" position.
- i) Electricians shall verify arc flash reduction settings have returned to "Normal Settings" or press the pushbutton again to return to the normal settings.
- j) Electricians shall close the cubicle door and place the permissive switch in the "normal" position.
- k) Electricians shall notify the Authorized person when the circuit breaker is in the proper position and the motor is ready to START.

4000 Volt Motor Lockout Procedure F

Water Pump Station -Iso II (to lock motor out for maintenance):

WARNING

At no time while pump is running should breaker handle be switched to "OFF" position.

- a) Authorized Person shall shut off motor at "on/off switch at pump.
- b) Authorized Person and Electricians shall verify correct breaker.
- c) Electricians shall verify motor has shutdown.
- a) Electricians shall place "Permissive Switch" in "off" position.
- b) Electricians shall open small access cover on lower right side of panel to expose breaker handle.
- c) Electricians shall push in clip and lower breaker handle to "off position"
- d) Electricians shall open lower door and verify breaker has corrected racked off of the bus. Electricians shall close door.
- e) Authorized Person shall place Process Group Lock and tag on breaker handle clip.
- f) Electricians shall place electrical craft lock and tag on breaker handle clip.
- g) Electricians shall close and latch access door.
- h) Authorized Person shall verify lockout by pushing START button at motor.

DE-LOTO

- a) Authorized person shall notify electricians after all work is complete and the motor is ready to be placed back into service.
- b) Authorized person shall remove the Process Group Lock from the breaker.
- c) Electricians shall remove the Electrical Craft Lock from the circuit breaker.
- d) Electricians shall push in clip and raise breaker handle to the "on" position.
- e) Electricians shall place "Permissive Switch" to the "on" or "remote" position.
- f) Electricians shall notify the Authorized person when the circuit breaker is in the proper position and the motor is ready to start.

4000 Volt Motor Lockout Procedure G

DHT Substation, East and West Tankfields, FCC, Water Intake, 3rd & B Street Sub, South East Tankfield Sub, and Butane Booster Pump

- a) Authorized Person shall shut off motor at “on/off switch at pump.
- b) Authorized Person and Electricians shall verify correct breaker.
- c) Electricians shall verify motor has shutdown.
- d) If present, Electricians shall place “Permissive Switch” in “off” position.
- a) If equipment is located outdoors, Electricians shall open small access cover on lower right side of panel to expose breaker handle.
- b) Electricians shall push in clip and lower breaker handle to “off position”
- c) Electricians shall open lower door and verify breaker has correctly racked off of the bus. Electricians shall close door.
- d) Authorized Person shall place Process Group Lock and tag on breaker handle clip.
- e) Electricians shall place electrical craft lock and tag on breaker handle clip.
- f) Electricians shall close and latch access door.
- g) Authorized Person shall verify lockout by pushing START button at motor.

NOTE: If anything but a normal shutdown of motor, notify foreman so electricians can be notified.

DE-LOTO

- a) Authorized person shall notify electricians after all work is complete and the motor is ready to be placed back into service.
- b) Authorized person shall remove the Process Group Lock from the breaker.
- c) Electricians shall remove the Electrical Craft Lock from the circuit breaker.
- d) Electricians shall push in clip and raise breaker handle to the “on” position.
- e) If equipment is located outdoors, Electricians shall close access cover over breaker handle.
- f) If present, Electricians shall place “Permissive Switch” to the “on” or “remote” position.
- g) Electricians shall notify the Authorized person when the circuit breaker is in the proper position and the motor is ready to start.

4000 Volt Motor Lockout Procedure H

This style of starter is no longer in use.

4000 Volt Motor Lockout Procedure I

For the DHT Compressors:

LOTO For Motor power only, not for motor control circuits

- a) Authorized person shall shut off motor with STOP pushbutton(s). If motor does not stop, STOP, call electricians.
- b) Authorized person and electricians shall verify correct circuit breaker.
- c) Electricians shall verify the motor has shutdown by the green "open" pilot light and zero amps on the Multilin 269+ relay.
- d) Electricians shall place the permissive switch to the "TRIP" position.
- e) Electricians shall press the arc flash reduction "maintenance settings" pushbutton on the switchgear main breaker.
- f) Electricians shall verify the circuit breaker is open.
- g) Electricians shall move the circuit breaker to the disconnected position (rack out).
- h) Authorized person shall verify that the circuit breaker is in the disconnected position and the permissive switch is in the "TRIP" position.
- i) Authorized person shall give Process Group lock and tag to electricians to install on circuit breaker.
- j) Electricians shall install Process Group Lock and tag on circuit breaker by pressing manual trip button, pulling down racking screw shutter with ring and moving pad lock arm over open shutter.
- k) Electricians shall install Electrical Craft lock and tag on circuit breaker.
- l) Electricians shall open door of auxiliary unit next to breaker.
- m) Electricians shall open horizontal molded case breaker on lower left hand side of cubicle labeled, "DC field breaker"
- n) Electricians shall verify uSPM relay reads, "Check Exciter"
- o) Authorized person shall verify lockout at START button at motor.

DE-LOTO

- a) Authorized Person shall notify electricians after all work is complete and motor is ready to be placed back in service.
- b) Authorized person shall give Process Group Lock key to electricians.
- c) Electricians shall verify the permissive switch is in the "TRIP" position.
- d) Electricians shall open the Auxiliary unit door next to the circuit breaker cubicle.
- e) Electricians shall close the molded case circuit breaker on the lower left hand side of cubicle labeled, "DC Field Breaker"
- f) Electricians shall verify USPM relay reads, "Exciter Ready"
- g) Electricians shall press the arc flash reduction, "Maintenance Settings" pushbutton on the switchgear main breaker.
- h) Electricians shall verify the circuit breaker is open by a green indicating target.
- i) Electricians shall remove the Process Group Lock and Electrical Craft lock from the circuit breaker.
- j) Electricians shall move the circuit breaker to the connected position.
- k) Electricians shall verify arc flash reduction settings have returned to "Normal Settings" or press the pushbutton again to return to the normal settings.
- l) Electricians shall place the permissive switch into the "normal" position.
- m) Electricians shall notify the authorized person when the circuit breaker is in the proper position and motor is ready to start.

4000 Volt Motor Lockout Procedure J

For Coker 3 Compressor and Iso 2 Make Gas Compressor Motors:

LOTO For Motor power only, not for motor control circuits

- a) Authorized person shall shut off motor with STOP pushbutton(s). If motor does not stop, STOP, call electricians.
- b) Authorized person and electricians shall verify correct breaker.
- c) Electricians shall verify the motor has shutdown.
- d) Electricians shall place the permissive switch to the "Trip" position
- e) Electricians shall open the door and verify the circuit breaker is open.
- f) Electricians shall insert elevator motor into switchgear cubicle.
- g) Electricians shall press the arc flash reduction "maintenance settings" pushbutton on the switchgear main breaker.
- h) Electricians shall lower (rack out) the circuit breaker by engaging elevator clutch with motor and placing motor switch to "lower" position.
- i) Electricians shall verify arc flash reduction settings have returned to "Normal Settings" or press the pushbutton again to return to the normal settings.
- j) Authorized person shall verify that the circuit breaker is in the fully lowered position and the permissive switch is in the "Trip" position.
- k) Authorized person shall give Process Group Lock and tag to electricians to install on the circuit breaker operating lever inside the switchgear cubicle.
- l) Electricians shall install Process Group Lock and tag on the operating lever inside the switchgear cubicle. The operating lever should be in its normal vertical position while it is locked out.
- m) Electricians shall install Electrical Craft Lock and tag on the operating lever inside the switchgear cubicle.
- n) Electricians shall close cubicle door and place tag on outside handle.
- o) Authorized person shall verify lockout at START button at motor.

DE-LOTO

- a) Authorized person shall notify electricians that all work is complete and the motor is ready to be placed back in service.
- b) Authorized Person shall give Process Group Lock key to electricians.
- c) Electricians shall verify the permissive switch is in the "TRIP" position.
- d) Electricians shall remove Process Group Lock and Electrical Craft Lock from the operating lever inside the switchgear cubicle.
- e) Electricians shall verify the circuit breaker is in the open position.
- f) Electricians shall insert elevator motor into switchgear cubicle.
- g) Electricians shall press the arc flash reduction, "Maintenance Settings" pushbutton on the switchgear main breaker.
- h) Electricians shall raise (rack in) the circuit breaker to the connected position by engaging elevator clutch with motor and placing motor switch to "raise" position.
- i) Electricians shall verify arc flash reduction settings have returned to "Normal Settings" or press the pushbutton again to return to the normal settings.
- j) Electricians shall close cubicle door and place the permissive switch in the "normal" position.
- k) Electricians shall notify the Authorized person when the circuit breaker is in the proper position and the motor is ready to START.

4000 Volt Motor Lockout Procedure K

For Coker 3 Substation:

LOTO For Motor power only, not for motor control circuits

- a) Authorized person shall shut off motor at pump by placing the HAND-OFF-AUTO switch in the "OFF" position.
- b) Authorized person and electricians shall verify correct breaker.
- c) Electricians shall verify motor is shutdown.
- d) Electricians shall turn the permissive switch on the cubicle door to the "TRIP" position.
- e) Electricians shall push in clip and lower breaker handle to the "OFF" position.
- f) Electricians shall open lower door and visually verify disconnect switch is open.
- g) Electricians shall close lower door.
- h) Authorized person shall install Process Group lock and tag on clip on breaker handle.
- i) Electricians shall install electrical craft lock and tag on clip on breaker handle.
- j) Authorized person shall verify lockout by turning HAND-OFF-AUTO switch to both "HAND" and "AUTO" positions and then return it to the "OFF" position.

DE-LOTO

- a) Authorized person shall notify electricians after all work is complete and the motor is ready to be placed back into service.
- b) Authorized person shall remove the Process Group Lock from the breaker.
- c) Electricians shall remove the Electrical Craft Lock from the circuit breaker.
- d) Electricians shall push in clip and raise breaker handle to the "on" position.
- e) Electricians shall place permissive switch to the "RUN" position.
- f) Electricians shall notify the Authorized person when the circuit breaker is in the proper position and the motor is ready to start.

4000 Volt Motor Lockout Procedure L

For BOC/ H2 Compressor Motor:

LOTO For Motor power only, not for motor control circuits

- a) Authorized person shall shut off motor with STOP pushbutton(s). If motor does not stop, STOP and call electricians.
- b) Authorized person and electricians shall verify correct circuit breaker. Circuit breaker is located in Main Substation, Cubicle 7D.
- c) Electricians/qualified personnel shall verify motor is shutdown by checking motor amps on 8D door ammeters. Motor amps should be zero.
- d) Electricians shall place the 69/Permissive switch in the "Trip" position. The 69/Permissive switch is located on the door of cubicle 7D
- e) Electricians shall verify the circuit breaker is open.
- f) Electricians shall lower (unrack) the circuit breaker to the disconnected position onto the floor.
- g) Authorized person shall give Process Group Lock and tag to electricians to install on the circuit breaker operating lever inside the switchgear cubicle.
- h) Electricians shall install Process Group Lock and tag on the operating lever inside the switchgear cubicle. The operating lever should be in its normal vertical position while it is locked out.
- i) Electricians shall install Electrical Craft Lock and tag on the operating lever inside the switchgear cubicle.
- j) Electricians shall close cubicle door and place tag on outside handle.
- e) Authorized person shall verify lockout by attempting a start of the motor, (depress START button at the motor).

DE-LOTO

- a) Authorized person shall notify electricians that all work is complete and the motor is ready to be placed back in service.
- b) Authorized Person shall give Process Group Lock key to electricians.
- c) Electricians shall verify the permissive switch in the "TRIP" position.
- d) Electricians shall remove Process Group Lock and Electrical Craft Lock from the operating lever inside the switchgear cubicle.
- e) Electricians shall raise (rack in) the circuit breaker to the connected position and place the permissive switch in the "normal" position.
- f) Electricians shall notify the Authorized person when the circuit breaker is in the proper position and the motor is ready to START.