

SAFETY PROCEDURE MANUAL

SP-018

MONSANTO COMPANY

CHOCOLATE BAYOU PLANT

MACHINERY AND ELECTRICAL LOCKOUT

PLAINTIFF'S
EXHIBIT

tabbies
MON-278

PURPOSE

To define the procedure necessary to prevent personnel injury because of inadvertent operation of electrical/mechanical machinery while inspection or repair work is in progress.

POLICY

All machinery shall be shutdown and locked in the "Off" position by the owning department prior to turn over for inspection or repair work. This "first lock" is the primary "first-line-of-defense" while work is in progress. This lock is to remain in place until all work is complete.

Each individual group performing work upon the machinery must also lock out the equipment. This lock is the "second-line-of-defense" and is primarily for the protection of the inspection or repair group. Both lockouts must be positive and shall prevent operation of the machinery. Symbolic lockouts will not be considered as an adherence to this policy, i.e., car seals, tags, tape, etc.

Should the case arise where normal lockout is not possible because of system or equipment design, the machinery shall be isolated by such means as necessary to positively prevent operation (blinds, electrical disconnect, valve removal, etc.)

This policy defines the minimum requirement for personnel and equipment safety and may be enlarged upon by request of any individual having doubts as to the integrity of the secured machinery.

DEFINITIONS

"MACHINERY" as used in this procedure means any mechanical device subject to being controlled through or powered by remote energy sources such as, but not necessarily exclusive to, steam and electricity.

"GROUP" as used herein shall be considered as a collection of those individuals performing a common task of inspection or repair. By way of example, these may be insulators, fitters, Mechanical Maintenance, I&E Maintenance, Production, etc.

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MACHINERY AND ELECTRICAL LOCKOUT (Cont'd)

RESPONSIBILITIES

1. The "Owning Department" is responsible for preventing accidental operation or energization of equipment during repair work, through effective use and enforcement of this lockout procedure.
2. The person performing inspection or repair work is responsible for "protecting himself" by verifying that the "owning department" has correctly locked out the equipment to be repaired. He shall then apply his personal lock as the second-line-of-defense.
3. The Maintenance Department is responsible for instructing contractors in the use of the lockout procedure and enforcing its implementation.
4. Each "owning department" will provide an adequate number of locks, coded to identify the department. The "lockout" locks will all be coded alike within the same department and key control will be the responsibility of the owning department.
5. The Maintenance Department will provide each technician (or contractor) a lock, individually keyed for each lock. Maintenance supervision will have a sub-master key to fit all lockout locks. This sub-master will be used only in strict accordance with this procedure.

BASIC LOCKOUT PROCEDURE

The basic lockout procedure can be defined as having five discrete steps.

- STEP 1 - The "owning department" will prepare the "machinery" for repair work and apply their department lock at the points designed to prevent "machinery" operation.
- STEP 2 - The "group" or individual performing repair work will verify Step 1, above, and then apply his individual lock on top of the owning department's lock.
- STEP 3 - Representatives from the owning department and the group performing the repair work will then jointly test the lockout by attempting to start or energize the "machinery" or open the valve, whichever is appropriate.

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MONSANTO COMPANY

CHOCOLATE BAYOU PLANT

MACHINERY AND ELECTRICAL LOCKOUT (Cont'd)

- STEP 4 - The "group" or individual performing repair work will personally retain his key until his job is complete or until the end of his work shift. The individual removing this lock is responsible for assuring that all work by his "group" has stopped, before lock removal.
- STEP 5 - Equipment turnover will occur upon completion of all maintenance repair work, at which time Maintenance will notify the owning department that the work is complete. The "owning department" will verify that all work is complete by visual inspection of the "machinery", and then remove the department lock. At this time, the "machinery" is ready for normal check out and startup.

SPECIAL REQUIREMENTS

1. In some instances, equipment or machinery may be capable of moving itself even though all energy sources have been locked out. This is a common occurrence on fan blades which rotate when powered by the wind and can also be a problem with large flywheels or partially disassembled equipment that roll over because of gravity. Maintenance supervision is responsible for identifying the machinery where this potential exists, and communicating the existence of this hazard to the personnel performing the repair work. The group performing the inspection or repair work. The group performing the inspection or repair shall apply any special mechanical stops, blocks, chains, etc., necessary to prevent accidental machinery movement.
2. Special consideration may be necessary for certain vessel entry or repair work done within large compressors or confined fan areas. It should be remembered that this procedure speaks to minimum requirements and any party involved with the repair may request whatever action is reasonably necessary to assure him of his safety while performing the work.
3. Certain systems require special steps to be added to the lockout procedure. These are systems having more than one source of energy, systems having certain types of process interlocks, etc.

In these cases, the owning department is responsible for identifying these special systems, and communicating special lockout requirements. These special requirements may consist of special locking hardware, multiple locking, special test procedure for verifying lockout, etc..

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MACHINERY AND ELECTRICAL LOCKOUT (Cont'd)

4. In special instances where lock removal by the group performing the repair could place the equipment or other groups in jeopardy the immediate supervisor of the group in question may elect to maintain the lockout. When this is done, a danger tag (See Attachment #1) shall be attached to the lock and this tag shall be signed and dated by that supervisor. Removal of this lock shall be done only by the party who installed it, and on off-hours would require the Night Supervisor to call the individual who signed the tag before authorizing lock removal. If the signee cannot be reached, the Night Supervisor will contact appropriate department supervision for assistance.

DEFINITIONS AND INTERPRETATIONS

1. The lockout procedure is intended primarily to prevent injury to personnel working on equipment, and the owning department is not required to lock the equipment until just prior to releasing it to Maintenance for repairs. However, a secondary feature of lockout is to prevent damage to equipment resulting from operating it while it is in disrepair, and owning departments are encouraged to lockout equipment as soon as practical.
2. The lockout procedure is not intended to provide repair job status communications. Each group involved in repair and operation of equipment must maintain normal and complete communication regarding job start, progress, breaks in schedule, need for testing, job completion, etc.
3. At times a lock will be inadvertently left on a piece of equipment after repair work is complete. In these cases the foreman of the group leaving the lock in place will be called to verify job completion, and to remove the lock. Should this occur on off-hours, the Night Supervisor shall make the decision of lock removal and communicate the omission to supervision in the department involved.
4. Although electrical personnel are trained in the technique of working on live electric circuits, wherever possible they should follow the lockout procedure and work energized circuits only as a last resort. However, when trained personnel are working on energized circuits, and following prescribed techniques and safety procedures, it is not considered a violation of the lockout procedure.
5. A lockout may be removed for testing and adjusting equipment, checking motor winding, relays, belt tracking, etc. The Maintenance Foreman and the Production Shift Foreman shall jointly agree to lock removal, and shall communicate to all personnel

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MACHINERY AND ELECTRICAL LOCKOUT (Cont'd)

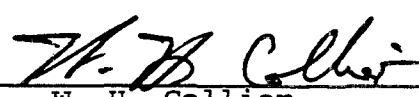
involved, the exact nature, extent, and timing of the testing. All locks will be reinstalled immediately upon completion of tests. Joint testing of the lockout by Production and Maintenance is required after the locks have been reinstalled.

6. Lockout of control pushbutton circuits is not acceptable.
7. Electrical systems of 32 volts and below do not require lockout for protection from electrical shock.

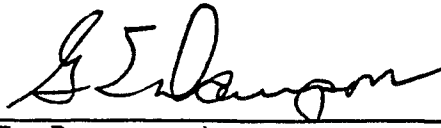
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SAFETY PROCEDURE MANUAL

SP-018

MONSANTO COMPANY

CHOCOLATE BAYOU PLANT

MONSANTO
CHOCOLATE BAYOU

**LOCKOUT
ISOLATION**

**DO NOT REMOVE
THIS TAG**

EQUIPMENT LOCKED OUT:
EQUIPMENT ISOLATED:

Signed _____

Date _____

MCB-089 (REV. 6/73) 1M 6/73 CP

MONSANTO
CHOCOLATE BAYOU

CAUTION

DO NOT OPERATE

ACCIDENTAL OPERATION OF THIS
DEVICE CAN CAUSE INJURY OR
DAMAGE. TAG REMOVAL SHALL
BE BY AUTHORIZED PERSONNEL
ONLY. SEE PLANT PROCEDURES
D0912 and D0923.

PREVENT INJURY

THINK!

MCB-089 (REV. 6/73) 1M 6/73 CP

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ATTACHMENT#1

MACHINERY AND ELECTRICAL LOCKOUT

PURPOSE

To define the procedure necessary to prevent personnel injury and equipment damage because of inadvertent operation of electrical/mechanical machinery while inspection or repair work is in progress.

POLICY

All machinery shall be shutdown and locked in the "Off" position by the owning department prior to turn over for inspection or repair work. This "first lock" is the primary "first-line-of-defense; while work is in progress. This lock is to remain in place until all work is complete.

Each individual group performing work upon the machinery must also lock out the equipment. This lock is the "second-line-of-defense" and is primarily for the protection of the inspection or repair group. Both lock outs must be positive and shall prevent operation of the machinery. Symbolic lock outs will not be considered as an adherence to this policy, i.e., car seals, tags, tape, etc.

Should the case arise where normal lockout is not possible because of system or equipment design, the machinery shall be isolated by such means as necessary to positively prevent operation (blinds, electrical disconnect, valve removal, etc.)

Lighting panels containing molded case breakers in the range of 110 to 240 volts * can only be locked out by placing a specially prepared yellow strip of tape with adhesive backing on the breaker switch in the off position to prevent inadvertent movement. All lighting panel breakers above 240 volts will adhere to the third paragraph. See attachment #1 page 2 of 2.

This policy defines the minimum requirement for personnel and equipment safety and may be enlarged upon by request of any individual having doubts as to the integrity of the secured machinery.

DEFINITIONS

"Machinery" as used in this procedure means any mechanical device subject to being controlled through or powered by remote energy sources such as, but not necessarily exclusive to, steam and electricity.

* "Lighting Panel" as used in this procedure, refer to those lighting panels located in buildings and other non-classified areas which do not have lockout provision.

"Group" as used herein shall be considered as a collection of those individuals performing a common task of inspection or repair. By way of example, these may be insulators, fitters, Mechanical Maintenance, I&E Maintenance, Production, etc.

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* Note Change

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SAFETY PROCEDURE MANUAL

SP- 018

MONSANTO COMPANY

CHOCOLATE BAYOU PLANT

MACHINERY AND ELECTRICAL LOCKOUT (Cont'd)

RESPONSIBILITIES

1. The "Owning Department" is responsible for preventing accidental operation or energization of equipment during repair work, through effective use and enforcement of this lockout procedure.
2. The person performing inspection or repair work is responsible for "protecting himself" by verifying that the "owning department" has correctly locked out the equipment to be repaired. He shall then apply his personal lock as the second-line-of defense.
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- Step 3 - Representatives from the owning department and the group performing the repair work will then jointly test the lockout by attempting to start or energize the "machinery" or open the valve, whichever is appropriate.
- Step 4 - The "group" or individual performing repair work will personally retain his key until his job is complete or until the end of his work shift. The individual removing this lock is responsible for assuring that all work by his "group" has stopped, before lock removal.

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MACHINERY AND ELECTRICAL LOCKOUT (Cont.d)

Step 5 - Equipment turnover will occur upon completion of all maintenance repair work, at which time Maintenance will notify the owning department that the work is complete. The "owning department" will verify that all work is complete by visual inspection of the "machinery", and then remove the department lock. At this time, the "machinery" is ready for normal check out and startup.

SPECIAL REQUIREMENTS

1. In some instances, equipment or machinery may be capable of moving itself even though all energy sources have been locked out. This is a common occurrence on fan blades which rotate when powered by the wind and can also be a problem with large flywheels or partially disassembled equipment that roll over because of gravity. Maintenance supervision is responsible for identifying the machinery where this potential exists, and communicating the existence of this hazard to the personnel performing the repair work. The group performing the inspection or repair shall apply any special mechanical stops, blocks, chains, etc., necessary to prevent accidental machinery movement.
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In these cases, the owning department is responsible for identifying these special systems, and communicating special lockout requirements. These special requirements may consist of special locking hardware, multiple locking, special test procedure for verifying lockout, etc...

4. In special instances where lock removal by the group performing the repair could place the equipment or other groups in jeopardy the immediate supervisor of the group doing the repair may elect to maintain the lockout. When
* this is done, a caution tag (See Attachment #1) shall be attached to the lock and this tag shall be signed and dated by that supervisor. Removal of this lock shall be done only by the party who installed it, and on off-hours would require the Night Supervisor to call the individual who signed the tag before authorizing lock removal. If the signee cannot be reached, the Night Supervisor will contact appropriate department supervision for assistance.

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*Note Change

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MACHINERY AND ELECTRICAL LOCKOUT (Cont'd)

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4. Although electrical personnel are trained in the technique of working on live electric circuits, where ever possible they should follow the lockout procedure and work energized circuits only as a last resort. However, when trained personnel are working on energized circuits, and following prescribed techniques and safety procedures, it is not considered a violation of the lock-out procedure.
5. A lockout may be removed for testing and adjusting equipment, checking motor winding, relays, belt tracking, etc. The Maintenance Foreman and the Production Shift Foreman shall jointly agree to lock removal, and shall communicate to all personnel involved, the exact nature, extent, and timing of the testing. All locks will be reinstalled immediately upon completion of tests. Joint testing of the lockout by Production and Maintenance is required after the locks have been reinstalled.
6. Lockout of control pushbutton circuits is not acceptable.
7. Electrical systems of 32 volts and below do not require lockout for protection from electrical shock.

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SAFETY PROCEDURE MANUAL

SP- 018

MONSANTO COMPANY.

CHOCOLATE BAYOU PLANT

MACHINERY AND ELECTRICAL LOCKOUT (Cont.'d)

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MONSANTO
CHOCOLATE BAYOU

LOCKOUT ISOLATION

**DO NOT REMOVE
THIS TAG**

EQUIPMENT LOCKED OUT:
EQUIPMENT ISOLATED:

Signed _____

Date _____

MCB-259 (REV. 5/75) COUNTRY PRINTER

MONSANTO
CHOCOLATE BAYOU

CAUTION

DO NOT OPERATE

ACCIDENTAL OPERATION OF THIS
DEVICE CAN CAUSE INJURY OR
DAMAGE. TAG REMOVAL SHALL
BE BY AUTHORIZED PERSONNEL
ONLY. SEE PLANT PROCEDURES
SP-016 and SP-018.

PREVENT INJURY

THINK!

MCB-259 (REV. 5/75) COUNTRY PRINTER

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PAGE 1 OF 2
ATTACHMENT #1

SAFETY PROCEDURE MANUAL

SP-018

MONSANTO COMPANY

CHOCOLATE BAYOU PLANT

LIGHTING PANEL LOCKOUT TAPE

Red Letters

Yellow Background

ELECTRICAL LOCKOUT

TO BE REMOVED ONLY BY

NAME _____ DATE _____

SEE PLANT PROCEDURES
SP-018 & SP-016
REV. 5/78

Black Letters

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