

PROCEDURE BULLETIN—TEXAS CITY PLANT P-0120

LOCKOUT PROCEDURE

PLAINTIFF'S EXHIBIT

MON-1402

I. PURPOSE

The purpose of this bulletin is to provide and publicize a uniform lockout procedure.

II. POLICY

Lockout devices will be used to avoid the inadvertent operation of piping systems, mechanical equipment and electrical equipment while work is being performed on such equipment.

III. SCOPE

The bulletin defines the responsibilities of personnel involved, the practice to be followed and certain cases requiring lockout. The lockout procedure contained here,

- A. Supplements and does not replace present departmental safety practices for isolation by blinding, disconnecting, etc.
- B. Applies in its entirety only to work where Fire and Entry permits are not required. If the work requires a Fire or Entry permit, the responsibility and procedure of Bulletin P-0117 shall govern in the event of any apparent conflict between the two bulletins.
- C. Cases where lockout is required:

1. Mechanical Equipment (Padlock only)

Mechanical equipment must be locked out with a padlock against accidental or inadvertent movement when such motion could cause injury to personnel or damage to equipment. Both the driving and the driven end should be considered in the search for possible sources of motion. This includes all machinery regardless of the source of power.

2. Piping Systems (Padlock and Car Seals only)

All valves isolating a piping system to be worked on must be locked with a padlock in the proper positions when the operation of said valves is a joint responsibility of two or more departments, or when these valves are under the jurisdiction of any department other than the one having the work performed.

Maintenance locks are not required to lock out valves in a piping system.

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ORIGINAL ISSUE: 7-1-59

REVISED: 2-25-72

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The intent of this bulletin is that all piping systems will be made safe against accidental or inadvertent pressure or contamination before an opening is made in them, when such pressure or contamination could cause injury to personnel or damage to equipment. Because of the complexity of the systems involved, each job is to be considered individually to determine the protection best suited to the case in question. The following paragraphs are intended as a guide in determining what preparations are necessary:

- a. Breaking into lines containing low pressure, ambient range temperatures, relatively non-toxic material, may not require locking devices on the isolating valves.
- b. Breaking into lines containing toxic, hot, cold, flammable, or pressure material requires car seals or locks to assure a safe job, depending on the severity of the hazard.
- c. Breaking into systems containing very toxic, high pressure, or high temperature material requires a double block and bleed which is locked in proper position. If a double block and bleed cannot be used, the job should be considered special and referred to the Manufacturing Superintendent for review. When jobs occur frequently, a procedure for isolating the system safely may be approved by the Manufacturing Superintendent, thereby eliminating his review of this job on each individual occurrence.

3. Electrical Circuits (Padlocks only)

All primary and secondary AC and DC circuits must be locked out with a padlock to prevent accidental or inadvertent energizing of the circuit when such energizing could cause injury to personnel or damage to equipment. (See section VI. Exceptions.)

4. Electrical Instrument Devices

Procedure for these devices is contained in Addendum A of this bulletin.

IV. RESPONSIBILITIES

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The "Operations Supervisor" is defined as the individual who supervises the personnel performing the operating functions in the various areas, including material handling and control labs.

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The general craft foreman is considered the operations supervisor for yards, grounds and roadways. For P.T. and Research the authorized personnel are listed in Process Technology Bulletin No. 13.

The Operations Supervisor is directly responsible for the area involved, for the safe conditions of work in that area, and for arranging the preparation of the equipment for lockout work. He defines any special precautions that must be observed during the course of the work.

The Chief Operator (shift engineer or chief pumper gauger) is responsible for the execution of the operations supervisor's instructions and for following established procedures for making the job safe from an operations standpoint. He is responsible for having the equipment shut down, having the equipment prepared for work, and having the effectiveness of the locks or other means of isolation used tested. He is also responsible for having a second check made of the equipment before restarting (to the extent that such inspection is possible) in order to verify that the equipment is in safe operating condition.

With respect to testing the isolation of electrical systems, the Chief Operator is responsible for testing the isolation sufficiently to show only that the power consumer will not operate.

The Maintenance Supervisor (area or zone and craft foreman for functional crafts) is responsible for the men performing the work. He has the responsibility for carrying out any special precautions specified by operations, calling attention to any hazards not related to the process or which appear to have been overlooked by Operations, and for properly instructing all leadmen involved.

During off-hours, the maintenance shift foreman may act for the maintenance area or zone supervisor and, in doing so, he assumes the responsibility stated above. Outside contractors doing work for Maintenance will comply with the same rules and follow the same procedures as required of Monsanto personnel. The maintenance supervisor is responsible for the work performed by contract maintenance personnel.

The Maintenance Leadman is responsible for the execution of the safety provisions and for reporting any unusual conditions apparently unrecognized at the time the job was started. He is responsible for primary inspection of the work after completion, and before it is returned to the control of the Operating de-

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partment in order to verify that the equipment is in safe operating condition and all maintenance locks of his craft are removed.

If it is necessary to change personnel doing the work, the maintenance leadman is responsible for the instruction of the new crew for the safe performance of the job.

With respect to testing the isolation of electrical systems, the Maintenance Department is responsible for the final test to insure that all electrical shock hazard has been eliminated. This is necessary since only a qualified electrician can perform the necessary tests.

The Monsanto Construction Engineer supervising any project done by outside contractors is responsible for seeing that the work is done in accordance with the specific safety regulations or precautions set forth by the operations supervisors directly involved. He will maintain sufficient field contact with the work to assure that the precautions are being followed.

The Manufacturing Superintendent has specific responsibility only on special jobs. He will be responsible for determining that the special hazards of the work are understood by field supervision, the method is practical, and the prescribed precautions, when taken, are adequate.

The Radiological Safety Officer has specific responsibility for work involving radioactive materials and his detailed check of the proposed work and work environment is required.

The Night Supervisor represents all supervision absent from the plant and may act in the capacity of operations and maintenance supervisors during off-hours. He may act in the capacity of Manufacturing Superintendent on special jobs. In so doing any of the above, he accepts the responsibility normally belonging to those for whom he is acting.

V. LOCKOUT PROCEDURE

Whenever a piece of equipment, or system, is to be isolated, the locks or car seals shall be installed and removed in accordance with the following rules:

- A. At a suitable time during the period of preparing the equipment for work, the chief operator will have an "operations lock" installed on the necessary equipment,

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circuit breakers, and valves (car seals may be used on valves in some cases, See III., C.).

The Operating department will provide any necessary chains or other devices which make the attachment of locks or car seals possible for performing this step. Lockout devices must be capable of accommodating as many locks as there are crafts working on the job. The keys to this "operations lock" should be distributed only to supervision and chief operators of the particular department having the work done. (Maintenance locks are not required to lock out valves on piping systems.)

- B. Prior to beginning work, one mechanic from each craft will see that his lock is installed on all equipment and circuit breakers. The operator will actually place the mechanic's lock on the equipment. The operator will then test the effectiveness of the lockout in the presence of the craftsman or his leadman. Each craftsman is normally issued a lock which is a duplicate of the one provided for his tool box. This lock shall be used for lockout. If additional locks are required, the craftsman must obtain a Request for Lock or Key form from his supervisor, take it to the key and lock control center at the main gate, and pick up the necessary locks. The maintenance area supervisor in each department has been supplied with a number of locks which are to be used in the event the craftsman involved is an employee of a maintenance contractor. In any event, the key to the lock used for lockout is to be retained in the possession of the craftsman. The effectiveness of the lock must be witnessed by the first craftsman to have his lock installed (or his leadman). As long as at least one craft lock remains on, in addition to the operations lock, it will not be necessary to retest as additional locks are added.
- C. In completing a job, the craftsman who installed the lock will advise either his leadman or supervisor, and following an inspection for completeness of the work, will be required to remove same. The last craft to work on the equipment will not remove their locks until the Operating department has been notified of the status of the equipment. This notification should preferably be made by the maintenance supervisor to the operations supervisor, but if these men are unavailable, the craftsman or leadman must notify the chief operator.

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- D. If the Maintenance Department advises that the work is not complete at the end of the shift, the Operating Department will leave their lock in place and will make a note to this effect in their log book. The craftsman will proceed with removal of their locks and the lockout procedure will be repeated before beginning work on a subsequent shift.
- E. When the Maintenance Department advises that the work is complete and the equipment is ready to operate, the Operating department will inspect the equipment and then remove their lock.
- F. Craft locks left on equipment, even if the job is thought to be completed, are not to be removed by anyone other than the man to whom the lock is issued without a thorough investigation. If such removal is necessary, and the craftsman is not available in the plant, the following steps must be taken:
1. If the operating department determines that the job was completed and the lock remains because of an oversight, the chief operator will contact the night supervisor. The chief operator and night supervisor shall make the necessary check to be sure that the lock can be safely removed. If the lock can be removed safely, the night supervisor may remove the lock.
 2. If it cannot be determined whether the job is completed or if it is safe to remove the lock, the maintenance supervisor who was in charge of the work should be contacted for the information. If the supervisor is unable to provide the information necessary, he shall contact the leadman or the craftsman to ascertain why the lock was left on and if the equipment was left in operating condition. If the maintenance supervisor cannot obtain the necessary information, he will come to the plant and make the necessary checks to be sure the lock can safely be removed. He will then inform the night supervisor as to the status and whether the lock may be safely removed.
 3. If the first line maintenance supervisor is not available, then call successively higher levels of maintenance supervision until one is contacted.
 4. When a lock is removed by the night supervisor, it should be tagged with the following information and sent to the Plant Engineer.

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ORIGINAL ISSUE: 7-1-59

REVISED: 2-25-72

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- a. Location from which removed (department number and equipment number).
- b. Person who authorized removal.
- c. Person who removed the lock.
- d. Date and time removed.

VI. EXCEPTIONS

A. Electrical Circuits - Not Exceeding 120 Volts

In the case of electrical circuits which are not equipped with padlocking devices, and when the voltage does not exceed 120 volts, "Labelon" or similar tape may be substituted for padlocking providing the following rules are followed:

1. The switch shall be opened by the Operating department (or a craftsman, if he has been specifically authorized to do so).
2. The craftsman will tape it in the open position. The tape will be furnished by the craftsman who will put his initials and badge number on it.
3. The tape shall be removed by the craftsman upon completion of the work. If the work is not complete at the end of the shift, the tape will be left in place and the Operating department notified as to the status of the job. If the tape is left on after completion of the work, it can only be removed by the procedure specified in Section V., paragraph F.

B. Testing and Adjusting

The locks may be removed for testing and adjusting equipment, or for energizing electric circuits for such things as checking belt tracking, governor setting, etc. It is the responsibility of the maintenance supervisor to see that during this time everyone connected with the job is fully informed of the action being taken and that all other work on the equipment is stopped. The chief operator must determine that such test running does not create a process hazard. If additional work is to be performed, the locks are to be replaced before the additional work is started.

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C. Special Permission

In the event it is necessary to perform work on any piece of equipment, other than testing and adjusting, where the equipment is not, or cannot be locked out, or other wise properly protected, special permission from the Superintendent of Manufacturing must be obtained prior to commencing work. The Superintendent of Manufacturing may delegate this authority at his discretion.

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SC 004319

LAM005529

ORIGINAL ISSUE: 7-1-59

REVISED: 2-25-72

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ADDENDUM A

P-0120

ELECTRICAL INSTRUMENT DEVICES

I. PURPOSE

The Bulletin P-0120, although it provides for lockout of all primary and secondary AC and DC circuits, does not provide specific procedures for preparing instrument devices, particularly of the analytical field type, for servicing.

II. SCOPE

This bulletin addendum covers only the group of electrical devices, analyzers and instruments, into the case or container of which a flammable gas is normally or is likely to be introduced, or where gas may leak into conduit leading to the case.

III. RESPONSIBILITIES

The responsibility for following these procedures lies with the Instrument Department supervision and the Instrumentman responsible for the work.

IV. PROCEDURE

If the device is purged continuously with inert gas or air, the purge rate should be sufficient to maintain a minimum pressure of 0.1 inches of water within the device or provide sufficient rate of flow to prevent container atmosphere reaching lower explosive limit under maximum leakage of flammables. If the device cannot stand a constant purge (such as some infrareds because of thermal sensitivity), then provisions for a purge and vent must be provided so that the case may be purged prior to servicing. Provisions must be made on all purge systems for indicating purge flow (rotameters).

To service instruments that fall into this group, the procedure is as follows:

- A. The atmosphere around the instrument must be checked by the Instrumentman with a portable explosimeter. These explosimeters will be assigned to the Instrument Department which is responsible for maintaining and calibrating the explosimeters.
- B. When possible, without upsetting the instrument stability, the sample and carrier gas streams should be blocked in and the power shut off and locked according to the

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provisions of the Lockout Procedure (P-0120).

- C. In all cases (except as noted in H below), regardless of whether the container is explosion-proof or purged continuously, a purge of not less than 2 cfm should be used and the vented gas from within the instrument checked with an explosimeter prior to removing the case. When the vented gas of the case purge system is non-explosive, the instrument can be opened for air.
- D. If the vented gas remains explosive, then all power must be removed and the sample gas should be shut off. The instrument should be allowed to cool and purged until non-explosive before opening the case.
- E. Immediately after opening the instrument, the sample and carrier gas lines must be checked for leaks using the portable explosimeter. All leaks must be repaired as soon as possible.
- F. A fire permit is required if a soldering iron is to be used.
- G. In order to make certain checks and repairs, it may be necessary to have power on the instrument. Therefore, if the servicing of the instrument requires more than thirty minutes, it is advisable to periodically check the surrounding atmosphere with the explosimeter.
- H. On certain special type instruments housed in explosion-proof cases, the power cannot be discontinued and inert gas or air purge connections are not provided. To work on instruments of this type, the Instrumentman is to remove the bull plug and check the atmosphere within the case with an explosimeter before opening the case. If an explosive mixture exists within the case, arrangements must be made to gas-free the case before opening the instrument container.

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LAM005531

ORIGINAL ISSUE: 3-15-61

REVISED: 9-1-71

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