

Monsanto

FROM (NAME & LOCATION)

G. Chesnut

DATE July 19, 1983

cc: H. Conrad
R. Hammann
M. Leidy

SUBJECT June Safety Meeting

REFERENCE

TO : Ken Bretz

PLAINTIFF'S EXHIBIT

MON-1349

The subject of the June Safety Meeting was "Fire, Entry, and Special Permit Procedures".

Attached are copies of the material used.


G. Chesnut

Attended:

Heer
Lessa
Thomas
Lingenfelter
Lemons
Boggess
Nelson
Tovrea
Scott
White
Holcomb
Prendergast
Beal

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Monsanto

FROM (NAME & LOCATION) R.T. Hammann, LP&S, Texas City O-22 Ext. 3234

DATE : May 20, 1983 CC.

SUBJECT : FIRE, ENTRY, & SPECIAL PERMIT PROCEDURE, P-0117--REVISION

REFERENCE :

TO : HOLDERS OF PROCEDURE BULLETIN MANUALS

The attached Procedure Bulletin, P-0117, Fire, Entry, & Special Permit Procedure, has been extensively revised. The changes have been underlined and are indicated by a triangle on the left hand side of the page.

Major changes are:

- Addition of the maintenance leadman/craftsman to the permit signing procedure.
- No downward delegation of authority for signing special permits.
- Better definition of authority required for vessel entry under adverse conditions.
- Requirements for lighting systems and stringing lines into vessels.
- Revisions to the permit (new permits can be ordered from Stores, MCC #950625).

Additional copies of this bulletin may be obtained by contacting Joyce Bond, MISD, Ext. 3918.


R. T. Hammann

Attachment

RTH/es



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PROCEDURE BULLETIN—TEXAS CITY PLANT P-0117

FIRE, ENTRY, AND SPECIAL PERMIT PROCEDURE

I. PURPOSE

The purpose of this bulletin is to define work requiring a Fire, Entry or Special Permit and to define the requirements and procedure for issuing such permits.

II. SCOPE

This Fire, Entry, and Special Permit procedure applies to all work performed in the plant which might provide a source of ignition, require the entry into a closed vessel, or be of an especially hazardous nature.

III. POLICY

Work requiring Fire, Entry, or Special Permits should be done only if no alternate, safer means of accomplishing the same end result is available. Each request for a permit should be examined critically to determine if the same work can be done without the use of spark producing methods or without having a man enter the vessel. Only if no other method exists, or the alternate method is wholly impractical, should a permit to employ these more hazardous procedures be issued.

IV. RESPONSIBILITY

- △ A. The "Operations Foreman" is defined as the individual who supervises the personnel performing the operating functions in the various areas, including material handling and control laboratory. The Maintenance Foreman in charge of yards and grounds is considered the Operations Foreman for yards, grounds, and roadways. For Process Technology and Research, the authorized personnel are listed in Process Technology Bulletin No. 9.

△ The Operations Foreman 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 fire and entry permit work. He may call the Loss Prevention and Safety Department for assistance and to perform vapor tests. He lists on the permit any special precautions that must be taken in order to make the job safe. He makes a detailed check of the preparation for the work. He initiates and signs the permit. When there are co-signers of the permit, the "owner" initiates the permit and obtains the signature of the appropriate chief operator and operations foreman as co-signers.

△ For all piping work in the racks, outside of battery limits of operating areas, it is the primary responsibility of the operations foreman who "owns" and uses the piping to obtain

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the necessary co-signatures from those departments who are adjacent to the area of work. Unless some other specific agreement has been established, a pipeline connecting two or more departments within the plant is "owned" by the department which puts material into the line.

For clarification:

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1. Utility lines outside of battery limits (including battery limits block valve), are owned by the Power Department. Utilities are defined here as steam, filtered water, potable water, utility air, breathing air, condensate, nitrogen, and natural gas.
 2. Plant sewers, outside of battery limits, are the responsibility of Environmental Control.
 3. Lines directly associated with product loading and unloading (work adjacent to docks, tank car racks, and truck racks) are the responsibility of Material Handling, unless specific agreements have been established with the manufacturing area.

Supervisors responsible for pipe rack work are to be aware of potential hazards created by the presence of material in other lines in the rack and keep other departments informed as appropriate of work to be done. Factors to be considered include, but are not necessarily limited to:

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- deletion*
1. The presence and proximity of:
 - a. Lines containing chlorine, HCN, ACY, LN, and other superhazardous materials (per Procedure Bulletin P-0138) because of potential hazards if a line is damaged by permit work.
 - b. Acetic acid and phthalic anhydride lines because of potential damage to tracing as well as personnel hazard.
 - c. Acetylene and oxygen lines because of flammability or potential to support combustion.
 - d. Breathing air header because of personnel consequences if header is damaged.
 2. The nature of work to be done (i.e., use of a gas torch vs. use of non-sparking tools).

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FIRE, ENTRY, AND SPECIAL PERMIT PROCEDURE

- △ 3. Potential hazards created by need to use heavy equipment (booms, cranes, etc.) for handling lines, especially potential for contacting high voltage lines (see P-0118 for permit requirements when moving heavy equipment).

△ In the case of new plant construction a "Future Owner Representative" will be responsible for initiating or signing under "Operations Foreman". It is to the advantage of supervision to establish one or more experienced personnel as necessary to serve as "Future Owner's Representative" before out-of-battery limit pipe rack construction begins. It will be the responsibility of Engineering Services and/or CED to establish and obtain agreement for "Ownership" on a project where definition is unclear.

Some special cases will arise where fire, special, or entry permit work is to be done in out-of-battery unit pipe racks or sewers and there is either none or poorly defined ownership. In these cases, the owner will be (1) the owner, as defined in the above paragraphs, or (2) the physical books owner.

Production supervision or night supervisors may extend permits into the next shift (2nd or 3rd) and sign for the superintendent if the job is in progress on an original permit.

- △ B. The "Chief Operator" (shift engineer or chief pumper gauger) is responsible for the execution of the operations foreman's instructions and for following established procedures for making the job safe from an operations standpoint. He must check conditions and sign all fire and entry permits in his operating area to signify that the required precautions have been taken and that he is aware of the work being done.

△ Under exceptional circumstances, the authority for the function of the chief operator may be delegated in writing by the manufacturing superintendent (or equivalent) to an operator. The specific job and duration for this authority must be specified in the memo.

- △ All C. The "Maintenance Leadman/Craftsman" or contractor equivalent is responsible for checking the job site, ensuring proper execution of the permit provisions and reporting any unusual conditions apparently unrecognized at the time the permit is issued. He signs all fire and entry permits to signify that he has checked, understands, and agrees with the work conditions specified and will assure compliance of those people working for or with him.

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- △ D. The "Maintenance Foreman" (area, zone, or 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 the permit. He signs the permit indicating acceptance of the work with the listed precautions. During off-hours, the maintenance shift foreman may act for the maintenance area, zone, or craft foreman, 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 foreman is responsible for the work performed by contract maintenance personnel.

If, during the period of the permit, it is necessary to change personnel doing the work, the maintenance supervisor is responsible for the instruction of the new crew for the safe performance of the job and for obtaining a new permit if necessary. When the job is completed, the maintenance foreman is responsible for the inspection of the work done and for seeing that the permit is returned to the chief operator.

△ 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 foremen directly involved. He will sign all permits in the space normally reserved for the maintenance foreman indicating his acceptance of the permit. He will maintain sufficient field contact with the work to assure that the permit precautions are being followed.

- △ E. The Loss Prevention & Safety Department shall provide an inspector who, upon request by the operations or maintenance foreman, will make all vapor tests and any inspections requested to assist the operations and maintenance foremen in making the job safer. He will make recommendations as appropriate to ensure job safety. The inspector will indicate on the permit the type of tests made, the time and results of such tests and affix his signature. Interpretation of the test results and hazard involved, if any, will be discussed with the foreman requesting the test; but because conditions may change during the period of the permit, only the initial test results will show on the permit.

- △ F. The "Manufacturing Superintendent/Supervisor" has specific responsibility only on special permits. He will question the need to do special permit work versus handling the job with normal fire or entry permit procedures. If a special permit is needed, he will ascertain that prescribed preparations when taken are adequate for the safe performance of

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FIRE, ENTRY, AND SPECIAL PERMIT PROCEDURE

the work and that the special hazards of the work are understood by field supervision. He will sign the permit or authorize the night supervisor to sign for him after discussing the work to be done. On special permits in the off-battery racks, when he is the "owner" of the pipe, no co-signers at this level are necessary. (For Process Technology and Research see PT Bulletin No. 9.) If the Manufacturing Superintendent is unavailable, another Manufacturing Superintendent or General Superintendent for that area will be responsible for Special permits. When the General Superintendent is absent the person specified in writing to take his place can sign Special permits. IN NO CASES WILL THE SUPERINTENDENT AUTHORITY BE DELEGATED DOWNWARD.

- G. The "Radiological Safety Officer" has specific responsibility for work involving radioactive materials. Any work involving a source of radioactivity requires his detailed check of the proposed work and work environment. If permits are also required, he will be an additional signator to the permit indicating his approval of the work procedures. Radioactive sources are designated by a yellow sign with a red radiation symbol.
- H. The "Night Supervisor" represents all supervision absent from the plant (except the Radiological Safety Officer) and may act in the capacity of operating and maintenance foremen during off-hours. He may act in the capacity of the Loss Prevention & Safety Department during off-hours and may act in the capacity of manufacturing superintendent on special permits. In so doing any of the above, he accepts the responsibility normally belonging to those for whom he is acting.

The carrying-out of the above responsibilities is signified by the signatures required on the various types of permits according to the following table:

	<u>Fire Permit</u>	<u>Entry Permit</u>	<u>Special Permit</u>
Chief Operator	yes	yes	yes
Operations Foreman	yes	yes	yes
Maintenance Leadman/Craftsman	yes	yes	yes
Maintenance Foreman	yes	yes	yes
Manufacturing Supt./Supv.	no	no	yes
Night Supervisor	As specified above		
Loss Prevention & Safety Inspector	As specified above		
Radiological Safety Officer	As specified above		

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FIRE, ENTRY, AND SPECIAL PERMIT PROCEDURE

V. PROCEDURE

△ The permits, listed below and covered by this bulletin, will be issued to the craft performing the work and shall cover a specific job to be done. Permits are only valid for one shift unless an "extension" is written (see Section V, D) or prior written approval is obtained from the manufacturing and LP&S superintendents.

A. A Fire Permit is required for all work in the plant that might provide a source of ignition. Exceptions to this are:

1. In main shops building. This exception does not apply to work to be done on a closed vessel or contaminated equipment, but permits required on specific equipment after the first day may be initiated and checked by shop personnel only.
2. In certain designated "open areas" as provided in Bulletin P-0119.
3. Use of soldering iron in main control houses.

△ B. An Entry Permit is required before any person may enter a closed vessel or an open vessel or excavation deeper than five feet. Exceptions to Entry Permit requirements are:

1. Operating personnel performing their normal operating duties in pump pits, on floating roof tanks, in tower skirts, or within other open vessels.
2. Personnel entering the No. 1 Pump House open salt water pump pits.
3. Maintenance personnel performing routine maintenance such as lubricating pumps, tightening packing, etc., in pump pits or within other open vessels.
4. Fire wall enclosures.
5. Tank diked areas.

△ A "closed vessel" is defined as any piece of equipment which must be entered through a manhole or constricted opening.

△ C. A Special Permit is required for especially hazardous work. This hazardous work will normally involve fire or entry permit type work, but is not limited to such work. The following are the general classes of work requiring such a permit:

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1. Welding or burning to be done on the outside shell of, or inside of a closed vessel.

2. Fire permit work on piping or any container that is not decontaminated, not depressured, or not isolated by blinds or disconnections.



3. Welding, burning, or breaking into a flare header while the flare is in service.

4. Entry of vessels which cannot be done without making exceptions of certain precautions as stated in the section entitled "Precautions", later in this bulletin (page 7).



Deletion

D. The fire and entry permit form (MT-15, Revised) will be used. The permit form is of a snap-out type providing two copies of the permit. The form shall be filled out in its entirety and signed. The original (top sheet) shall be kept by the chief operator so that he will know of all the permit work in progress. The carbon copy (bottom sheet) shall be attached by operating personnel to the equipment or in the immediate vicinity of the work to be performed. It shall remain there until the permit expires, or is cancelled, or until the job is completed. After the work is completed, the permit shall be returned to the chief operator by the leadman or maintenance foreman. The permit is invalidated by changes in conditions, or expiration of permit time period. New permits, marked "extension" must then be issued and attached to original permit for continuation of work on the same day (8:00 a.m. to 8:00 a.m.). For continuation on a subsequent work day, an entirely new permit is required.



When the fire and spill alarm sounds, all permits are automatically cancelled in the emergency zone (the group of units designated by the first number of the fire alarm code). Cancellation of permits and work stoppage in other zones rests with the department supervision of the respective departments. Cancelled permits may be reissued by the countersignature of the operations foreman or chief operator. Non-permit work outside the emergency zone will continue unless specifically stopped by operations supervision or chief operator.



E. Precautions

No procedure can be written which would cover all precautions necessary to make every job safe, but the following paragraphs are intended to guide supervision in determining what preparations are necessary:

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FIRE, ENTRY, AND SPECIAL PERMIT PROCEDURE

1. Sewers are a constant fire hazard even though the source of ignition is well removed. Methods for protecting sewers from ignition are:
 - a. Sealing with tar paper and sand.
 - b. Purging with a generous flow of steam.
2. Suitable precautionary protection should be provided in some cases; extra fire protection equipment, wetted tarps, fire watch, etc. The permit should state these precautions.
3. All piping which has contained flammables or which might have become hazardous through contamination with flammables or oxygen, must be isolated and decontaminated before a permit is issued. Otherwise, a Special Permit is required. "Isolation" means:
 - a. Blinding (with gaskets inserted on each side of the blinds and flanges tightened again) or disconnecting completely from all other lines or equipment. (Exception--connected controlled source of inert purge with wedged blind to permit bleed.) Blinds must have tell-tails (these tell-tails will be painted iridescent orange) protruding from the flanges for positive identification. Care should be taken when checking isolation that the tell-tail is on a blind and not an orifice plate. For work on the vessel, the blinds should be installed in the flange nearest the vessel. Any gauge glass or float chamber on the vessel must be removed, blinded, or proven to be decontaminated. When lines are disconnected or removed; plug, cap, or blind flange the process end of the broken line.
 - b. Where blinding or disconnection is not feasible, double-block valves with a bleeder in between may be used. The block valves must be padlocked closed and the bleeder valve must be padlocked open. Because "isolation" is not certain, a Special Permit is required.
 - c. Where most positive methods of isolation are either impossible or unreasonably expensive, test plugs are allowed on a Special Permit. Positive means of preventing pressure build-up behind plug is required.

"Decontamination means removing the flammables or other hazardous materials until there is no reasonable possibility of fire, explosion, or health hazard. Depending

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△ on the circumstances, decontamination may require steaming, flushing, purging with inert gas, or other methods. This decontamination should be verified by vapor testing or lab analysis. Special attention should be given to attachments such as sight glasses, instrument connections, etc., where contaminants can be trapped. When unusual methods of decontamination are required, consultation with the Loss Prevention & Safety Department is recommended. All piping should be considered contaminated; even process water, steam, inert gas, or air lines.

4. Welding and burning on steel attached to piping and vessels requires no special isolation or decontamination, provided that no close work is involved which might cause excessive heating of the surface of the piping or vessel. If such heating might occur, the job shall be treated as though the cutting or welding were done on the piping or vessel itself.
5. No Entry Permit shall be issued until the "Closed Vessel" has been isolated and decontaminated. Any moving internal parts in the vessel must be locked out or fixed mechanically as part of the preparation for the permit. A hole man must be stationed outside the opening of any vessel in which men are working. A person will not be permitted to enter a vessel containing potentially lethal toxic gas concentrations or an atmosphere containing less than 19.5% oxygen without the express consent of the Superintendent of Manufacturing. A person will not be permitted to enter a vessel which contains an explosive mixture or less than 16% oxygen without the express consent of the Plant Manager. The only exception to these is an emergency for rescue of stricken personnel when proper protective equipment is worn.

△ Decontamination does not necessarily eliminate the need for special protective equipment such as: breathing air masks, respirators, cover goggles, life lines, or other equipment which is considered necessary for the safe performance of the job by the operating foreman.

- △
6. A fire permit must be issued before any tank, tower, or other vessel containing flammable material is pumped out by means of portable equipment. The portable equipment must be grounded and bonded to the permanent vessel. If a new ground connection is required (because of location, a ground for the portable equipment may not exist), it is recommended that the ground and bonding wire be not less than #2 insulated stranded copper conductor, the

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clamps used be heavy bronze "C" clamp type, and the ground rod be 3/4" copperweld, eight feet long and driven in the ground at least six feet.

7. Permits issued for work in "Closed Vessels" must guard against contamination of air in vessel from materials used in the work, or depletion of air in vessel by torch flames by providing adequate ventilation. Cutting or burning torch gas hoses must not be left in the vessels when work is stopped because of the danger of leaks.

8. "Hot Taps" are permissible only as a last resort in case of emergency or when the expense of isolation and decontamination is unreasonable and then only with a Special Permit. "Hot Taps" are not permitted under any circumstances when the vessel or line contains chlorine, oxygen (of higher purity than air), compressed air, breathing air, or hydrogen.

"Cadwelding" creates exposures similar to those created by hot tapping. The use of cadweld on pipelines and vessels containing flammable or toxic materials shall be governed by the same restraints exercised for "hot taps". Where it is necessary to use cadwelding for attachment of leads, a cadweld kit no larger than No. 15 may be used. Larger kits may cause thermal shock failures.

9. Vessels, pumps, piping, fittings, etc., brought into the shop must be decontaminated and tagged, indicating the service of the equipment, before leaving the operating area, or special provisions for decontamination must be made.

10. All work involving sandblasting of process piping and equipment in the plant requires a regular fire permit initiated by the "owner" of the equipment to be sandblasted, and signed by "owners" of adjacent equipment. A Special Permit will be required for superhazardous materials (HCN, ACY, LN, Chlorine, etc.), acetylene, and oxygen services.

Although it is best to depressure and, in some instances, decontaminate the equipment, this is not always practical, so the "owner" should ascertain the thickness and external condition of the metal of the equipment to appraise the hazard of the work to be done and the consequences of a failure. The permit does not make the job safe--this is accomplished only by the efforts of the individuals preparing and performing the work. It should be noted that sand can damage mechanical equipment and adjacent areas may be more exposed to the sand than the "owner's" area.

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FIRE, ENTRY, AND SPECIAL PERMIT PROCEDURE

△ All

11. Lighting in vessels--The only approved temporary lighting system for use inside vessels is a 12 volt system. A 110 volt system with ground fault current interrupt can be used in special cases for operating equipment or providing adequate lighting. This must be approved by manufacturing and maintenance superintendents. A "Special" entry permit is required.

△ All

12. All lines (breathing air, welding leads, etc.) required for personnel during vessel entry should be run into the vessel through an opening not used for vessel entry. Stringing lines through the manway should be done only on an exception basis. When this is done precautions should be taken to protect the lines from damage and not block ready access or egress of personnel.

Reviewed by:

Plant Manager's Safety Board
Loss Prevention & Safety

Revised by:

R. T. Hammann

Approved:

G. A. Danner

Approved:

G. L. Tromblee
G. L. Tromblee, Plant Manager

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FIRE AND ENTRY PERMIT

Monsanto
TEXAS CITY, TEXAS

RETURN TO CHIEF OPERATOR

RETURN TO CHIEF OPERATOR

Issued to: _____ Location: _____

Work to be done: _____

Circle equipment to be used: _____ Date and Time _____
 Gas Torch _____ Welding _____ Date: _____
 Grinder _____ Impact Wrench _____ Time Start: _____
 Air Drill _____ Sandblasting _____ Time Finish: _____

Other _____ Not Applicable Yes No
☐ ☐ ☐

1. Have all connections been blanked off or broken out?
 If not list special provisions _____

2. Has equipment been flushed with inert gas? ☐ ☐ ☐

3. Has equipment been flushed with water? ☐ ☐ ☐

4. Has equipment been thoroughly steamed? ☐ ☐ ☐

5. Is equipment free and clean of all flammables? ☐ ☐ ☐

6. Air blower connected, grounded and set to pull air into vessel. ☐ ☐ ☐

7. Sewer purged with steam or opening sealed. ☐ ☐ ☐

8. Have electrical circuits and moving machinery been locked out? ☐ ☐ ☐

9. Have radioactive sources been locked out? ☐ ☐ ☐

10. Have all surrounding conditions been inspected and are they such as to permit doing the work safely? ☐ ☐ ☐

11. List any other special precautions and protective equipment. _____

12. Vapor Test	Flammable	O ₂	HCN	AN	Others
Results	_____	_____	_____	_____	_____
Time	_____	_____	_____	_____	_____
By	_____	_____	_____	_____	_____

VESSEL ENTRY

FIRE PERMIT

Operating Foreman _____ Operating Foreman _____

Chief Operator _____ Chief Operator _____

FOR SPECIAL PERMITS: Superintendent _____

Accepted by Maintenance Leadman _____

Accepted by Maintenance Foreman _____

MT-15 (REV 12-82) IN CASE OF FIRE OR SPILL, PERMIT IS VOID WHEN FIRST CODE NUMBER IS MCC 950625 STOP WORK AND REPORT TO INSTRUCTION POINT. ☐

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FIRE AND ENTRY PERMIT PROCEDURE

(Bulletin P-0117 Condensed)

Please refer to Procedure Bulletin P-0117 for further clarification. No procedure, especially a condensation such as this, can be written to cover all cases. The proper use of this permit depends on the judgment of the people signing the permit and performing the work.

This permit shall be securely fastened to the piece of equipment being worked on, or if this is impractical, at a point immediately adjacent thereto and shall be clearly visible at all times while the work is in progress.

DEFINITIONS:

Fire Permits are required for all work in the plant that might provide a source of ignition. Exceptions: Main Shops (unless work is to be done on closed or contaminated vessels) and "Open Areas."

Entry Permits are required before any person may enter a closed vessel or an open vessel deeper than five feet (dike wall enclosures excepted). Exceptions: Operating personnel performing normal operating duties and maintenance personnel performing routine maintenance, such as lubrication, etc., on equipment.

Special Permits are required for especially hazardous work such as welding or burning on or in closed vessels, or on piping which has not been decontaminated, depressured, or isolated with blinds or disconnections.

Responsibilities: Operations foreman is directly responsible for the safe condition of work; he initiates and issues the permit. Chief operator is responsible for executing the precautions and preparations to make the job safe. Maintenance leadman is responsible for checking the job site and assuring work conditions are followed by his people. Maintenance foreman is responsible for the safety of the men performing the work, their instructions, and precautions. Safety inspector is responsible for making vapor tests and aids in the inspection of the work. Superintendents must approve Special Permits and indicate their agreement to the preparations for the work. Night supervisors, who represent all supervision except Radiological Safety Officer when that supervision is absent from the plant, may act in the capacity of operating foreman, maintenance foreman, and the safety department during off-hours. They may also act in the capacity of manufacturing superintendent during off-hours but only for continuation of a job started and checked within the same working day (8 A.M. to 8 A.M.).

Limitations: In case of fire and spill alarm, all permits are automatically cancelled in the group of units designated by the first number of the alarm code. Cancellation of permits and work stoppage in other areas rests with the department supervision of the respective departments. Cancelled permits can be reissued by counter-signature by operations foreman or chief operator. Permits are valid only for the time indicated and can be extended by reissuing the permit, marking "Extension," and attaching to original permit. For continuation of a job on a subsequent work day, an entirely new permit is required.

NO JOB IS COMPLETE UNTIL AREA HAS BEEN CLEANED.

Please return the permit to the operating foreman or chief operator when job has been completed.