SAFETY & LOSS PREVENTION STANDARD - S-301

SAFE WORK MULTI-PERMIT

Scope: The purpose of this standard is to establish a procedure to assist in the safe completion of any job, which could present some degree of endangerment. This permit is required for (1) maintenance jobs involving breaking into lines and equipment where a hazard exists from exposure to chemicals, electrical shock, and temperature or pressure extremes, (2) excavations (pile driving, jack hammer, backhoe, etc.), (3) hot work, (4) vessel entry, and (5) certain jobs which present a specific hazard such as sandblasting, waterblasting, etc.

When issuing a Safe Work Multi-Permit for a job covered by this standard, Section I, plus Sections II, III, or IV of the Safe Work Multi-Permit form must be completed. A jobsite inspection must be made by a qualified operations representative and the maintenance representative accepting the permit immediately prior to beginning work, and noted on the permit, for jobs covered by Sections II, III, and IV of the permit.

1. Supervisory Responsibility

A. It is the responsibility of the authorizing Dow supervisor, or his designee, to have the equipment and area prepared for the safe completion of the planned job, to have all applicable information entered on the permit form, and to secure the signatures of all co-signers. It is the responsibility of the job maintenance supervisor, or his designee, to assure that the preparations made by the authorizing supervisor are sufficient by checking the equipment and area before work begins, and to follow the safe work practices and precautions outlined on the Safe Work Multi-Permit form.

B. If work is not completed at shift change, the job must be field checked by the oncoming Dow Supervisor, or his designee, and the maintenance representative accepting the permit, and all copies of the permit signed in order to assume responsibility for the job.

C. In the event of a spill or minor upset condition, which causes work interruption or evacuation of the work area, a field check must be made by Dow Supervisor, or his designee, prior to resumption of work.

D. A new Safe Work Multi-Permit must be issued if any of the following conditions exist:

(1) There is a change in the Maintenance Foreman or Maintenance Supervisor who accepted the Safe Work Multi-Permit.

(2) There is a break in the work resulting in the job being cleared of workers so that they could not see or be aware of any significant changes that may occur, and plant supervision determines a new permit is necessary considering the nature and length of the work interruption. Excluded from this requirement are coffee breaks and lunch breaks. However, the safety observer will run a combustible check on the area prior to resuming hot work and/or an oxygen test prior to re-entering a vessel.

(3) If over 16 hours have elapsed since the previous permit was issued.

E. It is the responsibility of the engineer responsible for jobs involving lines (electrical, sewerage, process), which will be buried, to notify plant engineering of the lines location within 72 hours of job completion. Location will consist of the center line +/-6 inches from a known benchmark and elevation grade, both in feet. If engineering prints were issued for lines that were buried, reporting to engineering is not necessary.

2. Breaking Into Lines And Equipment

A. Routine and non-routine jobs:

(1) Each operating unit must establish procedures for breaking into lines and equipment.

(2) Breaking into equipment or lines which may contain toxic, flammable, corrosive, or unknown chemicals will require a permit.

(3) The following items must be given proper consideration prior to breaking into any line or equipment.

a. Red Tag procedures must be followed.

b. The equipment must be isolated, depressured, and cleared of hazardous materials to the extent necessary for safety of the job. Method to drain and dispose of material must be determined before starting.

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(2) All routine line or equipment openings will be covered by a written procedure.

(3) Non-routine line or equipment openings will require a review by supervision to determine if a permit is required. Breaking into equipment or lines which may contain toxic, flammable, corrosive, or unknown chemicals would normally require a permit.

(4) The following items must be given proper consideration prior to breaking into any line or equipment.

a. Red Tag procedures must be followed.

b. The equipment must be isolated, depressured, and cleared of hazardous materials to the extent necessary for safety of the job. Method to drain and dispose of material must be determined before starting.

c. Appropriate protective equipment must be worn to prevent exposure to the hazards of the materials involved. This equipment must be worn at least until the initial break-in, and until it has been determined by visual inspection that no hazard exists.

d. Equipment or line to be opened must be positively identified by person issuing permit. The positive identification must be a tag or visible mark made at the location of each break in the presence of those performing the work.

e. Special procedures must be developed for breaking into vent or flare headers where other relief devices could discharge through the opening.

f. Cold cut as first cut.

g. The potential for arcing must be considered. The use of grounding straps between the two sections of line may be done before cutting or separating them.

B. Sampling

(1) Sampling must be done according to a written procedure, specifying the type and size of the container, the method for getting a representative sample without venting or flushing to the sewer, personal protective equipment, and special precautions.

(2) Sample points must be identified, easily accessible, and preferably at ground level. A safety shower must be nearby. If it is necessary to use a ladder, provisions must be made such that both hands are free for climbing. Routine sampling must not be done from a ladder.

(3) To minimize splashing and drips, sample lines must be sized with consideration for the material sampled, physical characteristics, pressure, and temperature.

(4) Provisions must be made so that samples at temperatures above 50 degrees C, or toxic or corrosive, can be collected without the need for holding the sample container by hand while filling.

(5) The procedure must provide a means of assuring that the sample bottle or cylinder is not overfilled to

avoid over-pressuring of the container by liquid expansion.

(6) The procedure must specify what to do in case of a plugged sample line. (For highly viscous materials, use of a piston-type valve such as a Strahman Ram valve, can prevent plugging the sample line.)

(7) All samples must be clearly labeled. If the sample is to be stored, or sent outside the originating department, it must have a permanent label stating its chemical name, hazards (flammable, toxic, or corrosive), date taken, and the person taking the sample. (Following the sample labeling standard S-209.)

C. Unplugging Lines and Equipment

(1) Plugged piping, exchangers, coils, reactors, storage tanks, and other equipment is a problem that occurs occasionally. When this happens, the equipment has to be unplugged quickly, to prevent further problems for the plant process, and to restore production. The method to be used to unplug a line or piece of equipment must be reviewed. Recurring line unplugging operations will be covered by a written procedure and approved by Dow shift supervisor or designee. The following points must be considered:

a. Since unplugging is a special case of line opening, all guidelines for opening lines must be followed.

b. Plugged hot lines may contain pressurized liquid in the center, and must be opened from the end whenever possible.

c. Consider the use of a shield to deflect any spray.

d. Always rod a line from the side - NEVER the front.

e. Steam should only be used as a last resort.

f. If gas or liquid pressure must be used, make sure that the relief pressure for the rupture discs or safety valves on all equipment is not exceeded. Provisions must be made so that any expelled plug will discharge safely.

g. Avoid attempting to clear by quick opening and closing of valves or other shocking techniques.

D. Personal Protective Equipment

(1) When the job to be done involves a chemical that rapidly attacks the skin, eyes, and respiratory system, the following protective equipment must be considered:

a. Slicker Suit
b. Rubber Boots
c. Rubber Gloves
d. Air Supplied Full-Face Mask

(2) For chemicals that rapidly attack the skin or eyes, but not likely to be inhaled:

a. Slicker Suit
b. Rubber Boots
c. Rubber Gloves
d. Chemical Goggles
e. Face Shield

(3) For chemicals that rapidly attack the respiratory system, and may be irritating to the eyes, but are not hazardous to the skin:

a. Air Supplied Full-Face Mask

(4) Where there is a possibility of residual amounts of flammables in the line, appropriate flash protective gear must be used.

3. Issuing Permits on Right-of-Way

A. Safe Work Multi-Permits issued for work in right-of-ways require the approval of both the owner of the piping, lines, or equipment, and the Utilities Department. The approval of any adjacent block(s) is also required to communicate hazards associated with potential chemical spills. Either the owner or Utilities may issue a Safe Work Multi-Permit for right-of-way work, but the approval of both departments is necessary. Special cases where there is no "equipment owner", the department performing the work is responsible for issuing the permit and obtaining the appropriate approval.

B. The nearest, adjacent operating block must be given the option to supply the Safety Observer. Otherwise, the department doing the work will supply the Safety Observer.

4. Excavations

A Safe Work Multi-Permit is required when performing work consisting of trenching, pile driving, driving of grounding rods or rebar, use of backhoe, or any mechanical equipment to excavate and move dirt or concrete. The following procedures shall be followed:

A. Engineering drawings of underground piping and electrical conduit shall be referred to prior to beginning any excavation work.

NOTE: Electrical conduit should be encased in red concrete to identify it as an underground electrical line. However, this may not be true in every case, and makes it essential to refer to drawings.

B. If personnel are to work in the excavation and it is four (4) feet or deeper, the sides must be sloped and/or shored to prevent a cave-in. For clarification on the need for Vessel Entry Permits on excavations see S-302. However, a Safe Work Multi-Permit is always required for excavations.

C. The excavated dirt and/or concrete must be removed at least three (3) feet back from the edge of the excavation.

D. Personnel working in the excavation must not be exposed to steam, condensate or any corrosive chemical that might spray, drain, drip, or migrate into the excavation.

E. If modifications or additions are made on underground equipment or lines, appropriate changes are to be made on Engineering Drawings, this is the owners responsibility.

F. For excavation work outside of operating blocks within the Division, the Utilities Department will review and co-sign the Safe Work Multi-Permit issued by the plant/department performing the job. Utilities Department will initiate an excavation clearance permit. 24 hours advance notice will be required for a permit, except for emergency work. Consider that the following might be buried -- electric cables, piping, Bell telephone cables, Dow video cables, Dow communications cables.

G. Contact Environmental Services before excavations. Excavated material may require special handling.

5. Special Areas of Responsibility

Some situations exist in the Louisiana Divison where a facility may be used by several departments, but is the responsibility of only one department. Any work being done in that area must be accompanied by a Safe Work Multi-Permit issued by the department doing the work and co-signed by the department responsible for that area. Examples of this arrangement are as follows:

Area	Responsibility of:
Tank Farm, Blocks 5 & 6	Glycol I
Tank Farm, Blocks 110 & 120	Hydrocarbons Distribution
Intake & Return Pumping Sta.	Utilities Dist. System
Fuel Gas Meter Station	Utilities Dist. System
Marine Docks	Pipeline or Equipment Owner

There may be work required in areas that do not have an assigned landlord. In these cases it is the responsibility of the supervisor authorizing the job to issue the Safe Work Multi-Permit after taking the necessary precautions dictated by the work to be done, and checking with the following departments to assure no hazards exist in the area related to the work to be done.

Plant Engineering
Pipeline Department
Utilities Distribution
Operating Plants within 500 feet of the job

6. Hot Work

Refer to Hot Work Standard S-312, and Safety References A-5, C-1, and A-10.

7. Vessel Entry

Refer to Vessel Entry Standard S-302, and Safety Reference C-1.

8. Hot Tap

Refer to Hot Tap Standard S-201, and Safety References C-1 and A-10.

A Safe Work Multi-Permit in addition to a Hot Tap Permit must be completed on all jobs where a hot tap is performed.

9. Transite Roofing

No person shall walk or work on transite roofing, unless the roof is bridged with plywood or scaffold boards.

Reference: Engineering Specifications L37-101, R9-10-68.

SAFE WORK MULTI-PERMIT

Issued By: _____ Dow LOUISIANA DIVISION Rev 11/90 L357-95 Date: _____

Accepted By: _____ Time: From _____ a.m _____ p.m.

Responsibility Transfered To (Name): _____ To _____ a.m. _____ p.m.

Plant Supt. Signature (If Required): _____ Co-Signer Signature _____

Complete Section I on all permits. Completion of Section I ONLY indicates that work is controlled by departmental procedures. Completion of Sections II, III and/or IV require an On-Site Inspection.

SECTION I — GENERAL WORK PERMIT

1. **Work Limited to the Following: (Description & Area/Equipment)** _____

2. **The Following Have Been Reviewed with Job Supervisor:**
   - A. Safety Shower, Eye Wash - Location & Use ☐ Yes ☐ N A.
   - B. Emergency alarms, Evacuation, Assembly Point ☐ Yes
   - C. Procedure for Safe Job Completion ☐ Oral ☐ Written
   - D. Have tools & equip. of outside contractors been inspected ☐ Yes ☐ N A.
   - E. Have all contract/Dow personnel received Safety Orientation ☐ Yes ☐ N.A.
   - F. Additional Permits Required (Lifting, Hot Tap, etc.) ☐ Yes ☐ N.A.
   - G. Scaffolding in Compliance (Ref. E-6) ☐ Yes ☐ N.A.

3. **Special Exposure to Protect Against:** ☐ None
   Chemical (name) _____
   ☐ Flammable ☐ Corrosive ☐ Pressure Extreme ☐ Falls ☐ Heat Stress
   ☐ Toxic ☐ Reactive ☐ Thermal Burn ☐ Electrical ☐ Asbestos
   ☐ Skin Contact ☐ Hot Water/Steam ☐ Noise
   ☐ Inert Atmosphere ☐ Radiation ☐ Other _____

4. **Safety Equipment: (Other than area requirements):** ☐ None
   ☐ Slicker Suit ☐ Chemical Goggles ☐ Canister Mask ☐ Barricades
   ☐ Chemical Suit ☐ Face Shield ☐ Supplied Air ☐ Flash Suits
   ☐ Rubber Boots ☐ Hood ☐ Air Pack
   ☐ Gloves ☐ Safety Harness ☐ Other: _____
   ☐ Hearing Protection ☐ Ground Fault Circuit Interrupter

5. **An On-Site Inspection Conducted. . .** ☐ Yes ☐ N.A. Initials of Inspector _____ (Maint) _____ (Dow)

SECTION II — OPENING LINES OR EQUIPMENT EXCAVATIONS ETC. (See S-301)

Complete this Section and Section I for Opening Lines Equipment/Excavations.

	Yes	N.A.
1. Equipment Drained/Depressured	☐	☐
2 Equipment Purged/Cleaned	☐	☐
3. Fuses Removed/Switches open	☐	☐
4 Lock Required (List on Red Tag Master)	☐	☐
5. Field Switches Tested	☐	☐
6 Red Tags Attached (Refer S-303) (Master #_____)	☐	☐
7. Line Positively Identified/Initialed (Refer S-301)	☐	☐
8. Adjacent Area Safe (If Limited, Describe Below)	☐	☐
9 Area Roped Off	☐	☐
10 Blinds/Block & Bleed in place (List blinds on Red Tag Master)	☐	☐
11. Excavation Safe to perform (Refer S-301)	☐	☐
12 Blue Flag in use on RR Tracks (Refer S-306)	☐	☐

SECTION III — HOT WORK (See S-301 & S-312)

Complete this Section and Sections I and II for Hot Work

	Yes	No
1 Safety Observer (Ref. C-1) (Name) _____	☐	☐
2 Fire Extinguisher Type _____ Size _____	☐	☐
3 Fire Blankets (Location) _____	☐	☐
4. Water Fog (Location) _____	☐	☐
5. Purge (Gas Used) _____	☐	☐
6 Heat Exposure to Gasket, Seals, Liners, (Describe Precautions)	☐	☐
7. Other Work in Area which should be Stopped (Describe Below)	☐	☐
8. Material Present which Emits Vapor when Heated (Describe Below)	☐	☐
9. Pipe stoppers in Use (Refer Safety Ref. # A-6)	☐	☐
10. Equipment Operating or Contains original Contents (If Yes, Written procedures are required & Plant Supt must Co-Sign Permit)	☐	☐
11. Adjacent Areas Safe (If Limited Describe Below)	☐	☐
12. Explosimeter, Oxygen Tests Acceptable	☐	☐
13. Ground lead attached to work	☐	☐

(Describe below specific locations where LEL, O_2 tests are to be conducted & Test Frequency)

SECTION IV — VESSEL ENTRY Excavation (4' or deeper refer to S-301) (See S-301 & S-302)

Complete this Section and Sections I and II for Vessel Entry

	Yes	N.A.
1. Radioactive Devices Shielded and Locked	☐	☐
2. Procedure and Equipment for Rescue on Job Site	☐	☐
3. Ventilation Installed and Grounded	☐	☐
4. Safety Observer Provided (Ref. C-1) (Name) _____	☐	☐
5. Hazardous Material on Walls or Behind Liners Considered	☐	☐
6. LEL, O_2, PPM Acceptable (LEL-0%) (O_2 - 19.5% +) TLV_____, PPM_____, pH_____ (Enter Actual)	☐	☐
7. Vessels blinded (Double Blocks & Bleeds require approval)	☐	☐
8. Is Vessel entry Trailer available	☐	☐
9. Has Security been notified of Rescue Plan	☐	☐

(Describe below specific locations where LEL, O_2 and PPM tests are to be conducted & Frequency)

SPECIAL INSTRUCTIONS PRECAUTIONS LIMITATIONS

Enter Special Instructions, Precautions, Limitations for all Sections (I thru IV)

_____

_____

_____

_____

DO A 055716 CONFIDENTIAL