



CHEMICAL GROUP
CALVERT CITY WORKS
LOCAL POLICY MANUAL

Orig. Issue Date: April 1975

Rev. Date: June 1977

Reference: _____

Section: Safety

Procedure No. _____

Page 1 of 5

Applies to:

All Locations _____
Calvert City _____
City of Ind. _____
Cleveland _____
Elkton _____
Middlesex _____

SUBJECT: SAFE WORK PROCEDURE FOR UNPLUGGING TRANSFER LINES

I. Purpose

This procedure is written in order to avoid personnel injury during the unplugging of plugged lines or equipment.

II. Definitions

- A. A transfer line or a piece of equipment is considered plugged when the normal flow is stopped or restricted.
- B. Unplugging is any action which is carried out for the purpose of removing an obstruction to flow in a line or piece of equipment.

III. Responsibilities

It is the employee's responsibility to carry out such activities in a safe manner as described by this standard.

IV. Safety Equipment

- A. Required for all jobs open to atmosphere
- Hard hat, safety glasses, warning tape, and warning signs.
- B. Required for specific job
1. Face shield/safety goggles - when material is corrosive, acidic, caustic or irritating to skin.
 2. Cartridge type respirator (Willson 1200 Series) - when material in line is hot and contains volatile organic materials (such as alcohols, ketones), permissible cartridges are R 21, or R 25.

AP00051014

 Air Products and Chemicals
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Procedure No. _____

Page 2 of 5

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IV. Safety Equipment (Cont.)

3. Canister type respirator - when material in line is irritating and contains acid or irritating gases such as hydrogen chloride, SO₂, and chlorine, aldehydes, organic acids, formaldehyde, and Merbac 35.
4. Rubber or plastic gloves, aprons or rubber suits, rubber boots - whenever the conditions are such that one could be sprayed or splashed with the chemical contained in the system.

V. General Procedure for Lines Not Open to the Atmosphere

Routine operations and protective equipment are to be consistent with sound safety judgement.

VI. General Procedure for Lines Open to the Atmosphere

After it was determined that for any of the above described reasons a system is plugged and a decision is made that in order to be unplugged the system must be opened up to the atmosphere. The following steps must be taken:

1. The area must be taped off.
2. Warning signs to be displayed.
3. Use protective clothing as specified in "Safety Equipment" section.
4. Always assume that the line IS under pressure. Check pressure in equipment or line to be opened if possible. Loosen flanges in a safe manner. Wear protective equipment.
5. Relieve pressure and make sure drain line is clear. Drain the affected line.

AP00051015

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Procedure No. _____

Page 3 of 5

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VI. General Procedure for Lines Open to the Atmosphere (Cont.)

6. Where the plugged line is connected to a vessel which is under pressure:
 - a. Relieve pressure in the vessel; however, if this is not possible for operational or regulatory reasons, valve off vessel.
 - b. Remove plugged pipe
 - c. Blank off down-stream side of valve on the vessel
 - d. Unplug line in a protected area using the most appropriate method. If a line must be burned out, heat or start burning from end of pipe.
 - e. Replace unplugged line.
7. If plugging occurred in a valve closely mounted on a vessel, and there is material contained in the vessel which cannot be removed, do not open the system.
 - a. Relieve pressure in the vessel
 - b. Relieve pressure in pipeline down-stream from the plugged valve.
 - 1) Connect steam, nitrogen, air or hot water to the line down-stream from the plugged valve and attempt to blow the plug into the vessel. In many cases it is advantageous to play steam externally on the plugged valve. Use the proper hose for the job (red hoses for steam, black for chemicals, and blue or green for air and water). Do not use water or steam for sulfuric acid lines.

AP00051016



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Page 4 of 5

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VI. General Procedure for Lines Open to the Atmosphere (Cont.)

- 2) Throughout this operation if steam, air or nitrogen is used, observe vessel pressure. Abrupt change in vessel pressure indicates unplugging is accomplished.
 - 3) Close and open the unplugged valve to assure free operation, leave CLOSED position.
 - 4) Remove the source of pressure on the down-stream side (air, steam, etc.).
8. If plugging occurred in a pump
- a. Lock out pump electrically using plant electrical Lockout Procedure.
 - b. Relieve pressure.
 - c. Blank off or valve off both lines leading to the pump and drain residual liquids with care at pump connections.
 - d. Clean pump.
 - e. Care must be taken to prevent plugging in the intake and discharge lines due to solidification. If this is a critical point, the lines must be
 - 1) Drained or
 - 2) Externally heated; unless a replacement pump can be placed in service immediately. Lines containing acetylene, peroxides, or other heat sensitive materials should generally not be heated, although sometimes hot water can be used.

AP00051017



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Page 5 of 5

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VI. General Procedure for Lines Open to the Atmosphere (Cont.)

9. If a welded pipe is plugged which can be opened only at specific locations, whichever method is used for unplugging the following rules must be observed:

a. The opening of the pipe should not face:

- 1) Any other operating area
- 2) Doorways
- 3) Control panels
- 4) Windows

If this is not possible, install an elbow on the end of the open line to direct any material discharged downward. Secure elbow to prevent it from flying off as a result of a pressure surge. Use a steel open-head drum to collect the discharge.

b. Secure the end of the pipe if it is small and not secured.

c. Proceed with appropriate unplugging procedure.

10. a. Keep spillage to an absolute minimum to avoid air or water pollution, odor release, and inhalation or skin contact.
- b. Have absorbent material available at line end or point of drain.
- c. Clean up all spilled materials.
- d. Report all unusual conditions.
- e. Use steam lines with care to avoid burns.
- f. Anticipate problems and guard for them.

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