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C PLANT SAFETY AND HEALTH MANUAL
ERDEEN, MS

BJECT: Emergency Plan-Immediate Actions

FECTIVE DATE: March 18, 1983

EPARED BY: A. H. Sather Safety Director

PROVED BY: John Friend Manager

ferences: CRF 1910, Subpart L-Fire Protection, 1910.1017 Vinyl Chloride

rpose: The Aberdeen Plant Emergency Plan is broken into two separate and supporting parts. This section, entitled Emergency Plan-Immediate Actions, contains the essential steps necessary to control an emergency condition in the plant. The primary objectives of this section are to:

1. Insure the safety and welfare of employees and the general public in the event of a plant emergency;

2. Minimize property damage and provide for the resumption of normal operations following a plant emergency;

3. Satisfy the legitimate concern of employees, their families, and the general public by providing prompt, accurate information concerning the extent and effects of plant emergencies.

finition Of Plant Emergencies

plant emergency is any unexpected event or condition which requires immeate action to prevent injury to personnel and/or damage to equipment. ant emergencies include, but are not limited to: fires, explosions, lease of toxic, flammable, or corrosive materials, or an injury which quires removal of an employee from an elevated location.

gnificant vapor release conditions can cause human overexposures and/or re. The conditions that warrant vapor or any alarm are described in tachment A. Follow-up announcements must be made as noted to prevent posure and maintain a clear area.

mediate Actions To Be Taken In Event Of A Plant Emergency

mediate actions are the direct responsible of the Emergency Officer. In s absence, they are the responsibility of the Emergency Crew Chief (Shift pervisor).

Immediate Actions To Be Taken In Event Of A Plant Emergency (Continued)

The extent and severity of a plant emergency shall dictate the extent to which the emergency plan is utilized. The initial determination of required action shall be made by the Shift Supervisor in charge of the affected area(s). The action taken may range from handling the emergency with personnel present at the time to full alert of the emergency organization. In general, the following actions, as applicable, are required during an emergency:

I. Activate The Emergency Alarm System

Anyone who detects an emergency situation shall communicate it to the Vinyl Control Room by the radio, the Gaitronics System, or by dialing 2200 on the plant telephone system. In each case, the caller shall clearly communicate the location and nature of the problem to control room personnel (this information must be recorded on the forms provided). The Operator who takes the message shall then activate the appropriate alarm by depressing that button on the emergency alarm system control panel. Once the alarm system has been activated and the alarm is no longer operating, the operator shall dial 641 on the plant telephone system and give the nature and location of the emergency in a clear, calm, and distinct manner. This message must be given a minimum of three (3) times in order that plant personnel understand the nature and location of the problem. The message shall also be given three (3) times over the Gaitronics paging system as noted above.

Plant Emergency Alarm Codes

The plant emergency alarm tones are generated electronically from a tone generator that is a part of the Gaitronics paging system. As is noted above, the generator is controlled by the Vinyl Operators in the Vinyl Control Room. This alarm system has been designed such that anytime the Gaitronics alarm is activated by an operator in the control room, a relay closes causing the Gaitronics and public address systems to be interconnected. This allows the signal tones to be broadcast plantwide by all the Gaitronics and public address speakers.

The alarm tones and their corresponding meaning are shown below:

Alarm Tone	Meaning
Siren	Fire
Pulse	Vapor
Warble	Evacuation
Yelp	Severe Weather/Tornado
Steady	All Clear

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II. Use The Proper Emergency Equipment

Protective equipment needs are dictated by the emergency conditions. Personnel responding to an emergency must evaluate the risks before they attempt to correct problems. For emergencies involving VCM or propane vapor releases, the minimum requirements for personnel protective equipment would be a Scott Air Pak. For more serious releases where flammable vapors have been released into an area where an ignition could occur, protective equipment needs could reasonably include full fire turnout equipment, Scott air packs and water sprays from deluge systems, fire hose handline or all again depending upon the needs.

III. Evacuate Non-Essential Personnel From Danger Areas

Always evacuate non-essential personnel and all personnel not properly equipped with personnel protective equipment which is appropriate for the hazards present. Emergency crews are to report to the emergency location as directed in the Emergency Crew utilization section below. Evacuated personnel shall not be allowed to return until the emergency situation has been corrected. In all cases, evacuated personnel shall immediately proceed to primary evacuation areas as noted below. If the wind directs hazardous vapors into the primary evacuation areas, evacuated personnel shall proceed to the secondary evacuation area at the guardhouse and assemble in departmental groupings as noted on the fence located east of the parking lot and south of the guardhouse. If that area is noted as being contaminated by VCM vapor, evacuated personnel will be moved to a safe location along the property line north of the plant. ALL EVACUATIONS MUST BE PROMPT AND ORDERLY - RUNNING SHOULD BE AVOIDED!

Supervisors must designate non-emergency personnel to act in their place for head count purposes (noted below) if the emergency condition requires the activation of the Emergency Crews or Emergency Organization.

Wind direction at the time of fire or vapor emergency will play an important role in the choice of escape routes. Evacuation routes should always be at right angles to the wind (cross-wind). Use the wind socks located on silos 415 and 281 or slurry blend tank 502 to determine the wind direction.

PRIMARY EVACUATION AREAS

Vinyl Area - At pad north of the control room.

Lab & Compound/Plasticizer - Warehouse at northwest corner of the staging area directly south of the plant auditorium.

Maintenance, Receiving Warehouse/Stores, Yard - Main Shop

Off Shift (Evenings Nights, and Weekends) Stores/Warehouse - Guard House

PRIMARY EVACUATION AREAS (Continued)

Transportation - Warehouse at northwest corner of the staging area but east of the lab and compound/plasticizer group.

Off Shift - Yard And Mechanics - At pad north of vinyl control room.

Office Personnel - Lobby in each office area.

Contractors - North of main gate.

IV. Account For All Personnel

When personnel have assembled in the primary evacuation areas, head counts must be made as noted in the Evacuate Non-Essential Personnel From Danger Areas section above. Personnel not accounted for at this time must be regarded as trapped and/or injured and rescue efforts initiated. It is extremely important for all personnel to understand the location of their primary evacuation areas and to get to them as quickly as possible; otherwise, other personnel may have to jeopardize their personal safety to conduct search and rescue operations. NOTE: Where supervisors have been pre-assigned duties under this plan, other arrangements must be made by the various departments to insure that personnel are accounted for on a timely basis.

Each department shall develop a plan to account for their personnel. Personnel in that department shall be trained in the prompt and proper execution of their plan when it is approved by the manager. Each department will report the status of their personnel to the guard. Any missing personnel will then be reported to the Emergency Officer by the guard.

V. Rescue Trapped Personnel

Search and rescue operations in the immediate area of VCM and propane vapor releases and fires must be attempted only with fire turnout gear due to the likelihood of vapor ignition causing a flash fire or explosion, or exposure to extreme heat.

In the event that rescue operations are required during serious plant emergencies, the Emergency Officer (Emergency Crew Chief on off shifts) will utilize personnel who are not assigned specific emergency duties to conduct search and rescue operations. In all cases, the buddy system is required to perform these duties and the Emergency Officer must take that into account as he assigns the duties. Personnel protective equipment requirements must be defined by the Emergency Officer. These requirements are outlined in "Use The Proper Emergency Equipment" section above.

Rescue operations may become necessary due to serious personal injury in elevated plant locations. In this event, the rescue equipment kept in first aid and the Emergency Equipment Station must be assembled and utilized by plant personnel under the joint direction of the Emergency Officer and either the Plant Nurse or ambulance attendant.

VI. STOP ALL HOT WORK! - Motor vehicles, portable transfer systems, the incinerator, welding machines and other sources of ignition must be positively shutdown immediately whenever the plant emergency alarm is activated! Shut down and secure operations as required to prevent further injury to personnel or damage to equipment.

VII. Stop flow of:

A. Flammable materials feeding fires or potential fires, including dryer and incinerator gas burners.

B. Boilerhouse operation is to be shutdown only in cases where unfavorable wind conditions and flammable material release is great enough to present a hazard. Boilerhouse shutdown can occur only on direct orders from the Emergency Crew Chief, the Emergency Officer, or the Safety Director.

VIII. Fire Control

This section is divided into two interrelated parts - Activation Of Fire Protection Systems And Emergency Organization Utilization. Although they are treated separately in this plan, actual emergency conditions in the plant will dictate a coordinated effort using every safe and reasonable control method at our disposal.

Activation of Fire Protection Systems

The fire protection system available in the plant should be used to control ignition sources in event of vapor release or to remove heat in event of fire. Whenever a vapor release occurs, deluge systems or fire monitors should be put into operation immediately to disperse vapors and reduce ignition sources, depending upon the conditions. In the reactor modules, vapor sensors detect the presence of flammable gases and at preset concentrations, these sensor units will "trip" or activate the unit deluge valves automatically. Other methods of fire water activation for the deluge systems include:

A. Operation from the control room panel;

B. Manual release at the deluge valves; and

C. Thermostatic release sensors. (High heat or rapid rate of temperature rise such as fire or direct steam impigement will cause a trip condition.)

(The above tripping methods simply release control air from the top chamber of the deluge valves. Loss of control air causes the valve to open and allows fire water to flow through the deluge valve into field piping.

The conditions that would reasonably dictate the need to use either the deluge system or fire monitor nozzles and other equipment are:

Deluge System

- Serious leaks from rotating equipment seals.

- Abnormal discharges of flammable material from process piping, valves, and relief systems.

- Serious leaks in the VCM compressor shed or storage vessel areas at the VCM tank farm.

  (NOTE: Cold Water On A Hot Corken Compressor Could Cause A Rupture Of The Compressor. Use Caution And Sound Judgment In This Area.)

- Fires resulting from any of the above.

Fires Monitors - Permanently installed fire monitors in the various areas provide supplemental fire water to locations which may need additional water for equipment protection due to direct flame inpingement, high concentrations of VCM vapor, or during periods when the deluge system is out of service. During VCM vapor releases which involve the reactor relief systems, the Supervisor may decide to utilize only the fire monitors since the point of discharge is above all other operating equipment. Due to high volume demand of the deluge systems, fire streams from monitor nozzles may not reach the top of the relief lines if both reactor area systems are in operation. If supplemental fire water is needed or in cases where there is no permanently installed fire protection system (i.e. the initiator freezers), the Supervisor should utilize the portable fire monitor in that area and hose reel stored in the Emergency Equipment Station.* Lead Operators should make sure the fire pumps are operating when major leaks occur in the reactor areas and only the fire monitors are in use. If the pumps are not operating and there is flow through the monitors from the process water system, the pumps can be started by briefly opening and closing the deluge water valve to the sphere from the old module control panel.

* Phase IV of the Fire Protection Improvement Project will provide a hose house at the initiator storage freezer.

Other Equipment - In the event that stationary fire fighting equipment is inadequate to control or reduce the impact of an emergency condition, additional fire fighting equipment is available in the Emergency Equipment Station. The equipment available includes fire turnout gear, portable fire monitor, firehose nozzles and water wall nozzles (used to protect adjacent exposures from fire damage or to provide vapor shield barrier - water is supplied with 2½ or 3 inch fire hose

Emergency Crew Utilization

Recently, many of the fire hose stations in the Vinyl operating areas were put on the new fire water system. This resulted in higher operating pressures available to fight fires at these stations. Increased supply pressure causes increased nozzle reaction forces (more effort is required to control the hose when water is flowing). The operating pressures from the north (#1) and south (#2) fire pump houses are 140 and 155 psig respectively at design flow rates. This high pressure requires additional manpower for hose handling. Previously, a five man hose crew was planned. A seven man hose crew should be used now to handle the hand lines and nozzles (three (3) men for each of two (2) hoses and a Crew Chief). No changes have been made in the basic structure of the Emergency Crews since no additional staffing is available for this work. The Emergency Organization is shown in Attachment C.

The utilization of the Emergency Crews must be directed to controlling fires and vapor releases as follows.

A. In the event of any serious emergency, the Emergency Crew Chief is to activate the Emergency Organization.

Activation Of Emergency Organization - Whenever the acting Emergency Officer (Operations Superintendent of affected area - alternate - on duty supervisor) determines that the Emergency Organization must be activated, it shall be done in the following manner.

1. Weekdays - Announce "ACTIVATE EMERGENCY ORGANIZATION" three (3) times over the paging systems (P. A. and Gaitronics).

2. Off Hours - Instruct the plant guard to initiate call out of the Emergency Organization using the current Emergency Organization Call List (Attachment B.)

The on-duty Supervisor can instruct a lead operator to initiate either action.

In the event of a fire alarm, Emergency Crews are to assemble upwind of the fire and await further instructions. In the event of a vapor release alarm, Emergency Crews will assemble only if requested by general plant announcement. An assembly point must also be announced as directed by the Emergency Officer.

B. Use stationary fire protection systems to our greatest advantage. Use deluge systems and fire monitors to remove heat from a fire, reduce ignition sources, disperse flammable vapors, and protect nearby equipment and structures. Supplement stationary equipment with portable fire protection equipment such as monitors, fire hose and nozzles using a ground loop as necessary to protect personnel or equipment.

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C. Obtain fire turnout equipment (helmets, coats, boots, and cotton gloves from the Emergency Equipment Station as needed to protect personnel from potentially hazardous exposures in vapor releases and fires. Scott air packs must also be used to protect personnel from toxic or otherwise harmful vapors and smoke.

D. Emergency Crew personnel should provide help to operating unit supervisors and unit personnel to block in fuel sources away from the fire or vapor release as directed by the Emergency Officer. Personnel performing this work should put on fire turnout gear and Scott Air Packs before attempting to enter an area near a fire or serious vapor release.

E. The Emergency Crew Chief shall guide fire fighting personnel into fire areas to block in fuel sources only after all other reasonable methods of fire control have been tried and found unsuccessful. The hose crew size is seven personnel (Chief and two-three man hose crews for handlines). All personnel must understand that each move must be controlled by the Crew Chief and is commanded verbally by him.

F. If a man is down near a fire or serious vapor release, the Emergency Officer must quickly assess the risks his crew must face to rescue the downed person. He must take into account such things as the injured person's location, the location of the fire or vapor release, climbing requirements, obstructions, available manpower, hose availability, and other similar considerations. The specific question that must be answered by this analysis is: Can the injured person be removed under the conditions at the time without seriously endangering the lives or safety of the rescuers? Extra personnel will be required to attend the needs of the injured in this case.

IX. Utilize outside assistance and notify the community as required.

A. Aberdeen Fire Department 369-9551

B. Ambulance. 369-2455

C. Hospital Emergency Room. 369-2455

D. Dr. R. E. Coghlan (Office) 369-2411
(Home) 369-4418

E. Dr. J. N. Turnage (Office) 369-2413
(Home) 369-6311

F. Aberdeen Police Department 369-6454

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In the event that an emergency condition necessitates the assistance of the Aberdeen Fire Department, the following guidelines must be understood.

1. The Aberdeen Fire Department has agreed to provide assistance in the areas of manpower and fire water pressure boosting for handlines.

2. The Emergency Officer is responsible to determine if Fire Department assistance is necessary to control a fire. If he determines that they are needed, he must initiate the call by notifying the guard to make the call. (This can be done by radio to the control room and a lead calls the guard.) He must also assign someone to meet the fire trunk at the guard-house. The guard should be informed as to who has been assigned to meet the fire truck so he can tell the fire truck driver who to follow. The guard will hold the fire truck until the escort arrives. Specific instructions should be given to the employee assigned to meet the fire truck so the route of travel and destination are understood.

3. The Emergency Officer shall retain control of all fire fighting operations.

4. Additional manpower from the fire department may arrive at the plant in personal vehicles. They should be allowed to pass through any roadblock. They are to park in the employee parking lot. Any fire department personnel who do not have protective equipment should be stopped at the gate. Fire department personnel are to assemble at the gate and will be escorted to the fire location by a CONOCO employee, designated by the Emergency Officer. Aberdeen Fire Department personnel must be equipped with fire turnout equipment that covers all body parts to fight fires of a serious nature in the vinyl or propane areas. For fires in other areas, full fire turnout equipment may not be required. The Emergency Officer must judge the needs and send firemen back if the turnout equipment is inadequate. Outside fire fighting personnel must be escorted at all times by CONOCO escorts.

Have local police warn adjacent plant and residential areas if they are threatened by fire, flammable material releases or toxic gases (chlorine or hydrogen chloride (HCl) as a result of a VCM fire). Plant Manager approval is required prior to contacting the police department unless the delay increases the danger to the community. (See Public Alert section in Safety And Health Manual Section 1.232 Emergency Plan-Reporting Requirements and Emergency Organization Duties.)

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X. Locate the boundaries of contaminated areas during vapor releases. This will normally be done by the Safety Supervisor during weekdays. The Vinyl Shift Supervisor will perform this duty during off-shift hours only after he has successfully contained the emergency condition and completed the work assignments necessary to clear the emergency.

Readers of the plan must understand that the items discussed in this plan have not been placed in any priority. In fact, most of the items will have to occur at the same time.

Responsible personnel must exercise sound judgment in their decision making and obtain help whenever they think they may need it. It is far better to call out the Emergency Organization in a time of potential need and the help arrive only to find out that the problem has been taken care of, than to find out after people have been hurt that help was needed.

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ATTACHMENT A
PLANT ALARM SYSTEM
TRIGGER LEVELS

CONDITION	RESPONSE
Three (3) consecutive readings on the Honeywell at or above 5 ppm - VCM at any point (EPA leak).	1. Notify unit or Chief Operator to clear personnel from affected area and keep them clear. 2. Find and properly report leak.
Known release, three (3) consecutive readings on the Honeywell's 10 ppm-VCM or greater, or a major vapor release in any VCM or propane handling area.	1. Sound VAPOR RELEASE ALARM. 2. Announce which unit is affected and should be cleared on the Gaitronics and public address systems. (Announce 3 times - each system.) 3. Dispatch Supervisor, Chief or unit operator to find leak, check size of leak, clear personnel, and report conditions to control room personnel. THIS MUST BE DONE ON A TOP PRIORITY BASIS.
Fire	1. Sound Fire Alarm. 2. Announce location of fire on Gaitronics and public address systems (3 times each system). 3. Announce Emergency Crew assembly point as specified by Supervisor. 4. Activate Emergency Organization as directed by Supervisor/ Emergency Officer.
Evacuation	1. Sound Evacuation Alarm. 2. Announce Plant Evacuation over Gaitronics and Public Address systems (as noted above).
Severe Weather/Tornado	1. Sound Severe Weather Alarm as specified by Supervisor or guard (if tornado is seen). 2. Initiate steps to control reactors or rapidly shut down equipment. 3. Seek shelter in protected area.

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ATTACHMENT B

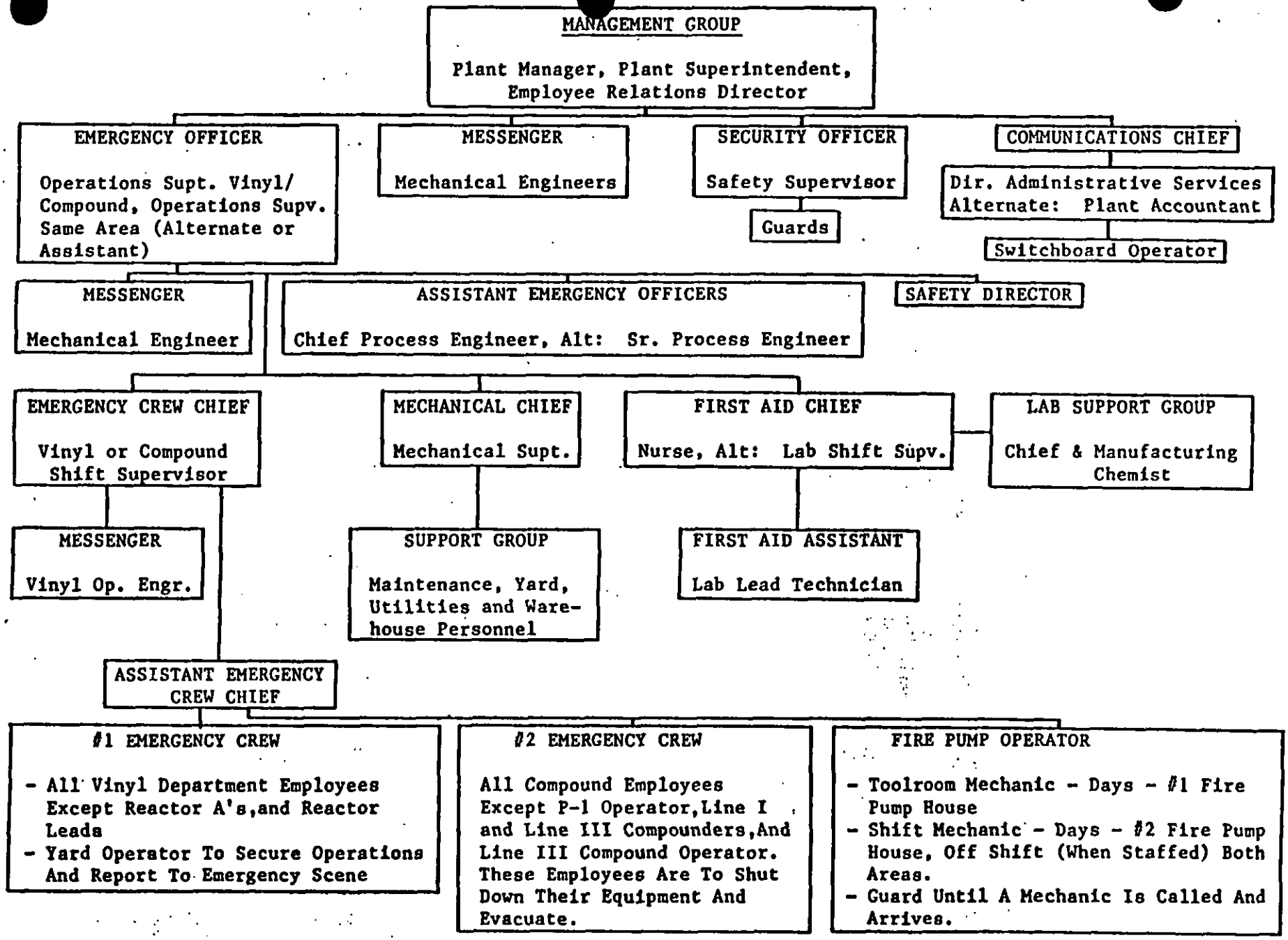
EMERGENCY ORGANIZATION CALL LIST

When advised by the Shift Supervisor, or his designee, the guard will start calling the names listed bleow in numerical sequence (rank order) from the appropriate list.

Vinyl	Compound	Utilities
1. D. J. Miller 369-9234	1. R. G. Gilreath 369-7745	1. J. L. Horstman 369-6005
2. P. E. Markey 369-6019	2. P. J. Kober 369-7096	2. F. W. Frantz 369-8508
3. L. D. Honeycutt 343-5595	3. L. D. Honeycutt 343-5595	3. C. E. Davis 369-8780
4. C. R. Miller 369-9100	4. C. R. Miller 369-9100	4. C. R. Snowden 1-327-7382
5. A. H. Sather 369-9271	5. A. H. Sather 369-9271	5. C. R. Miller 369-9100
6. V. A. Belk 369-4416	6. V. A. Belk 369-4416	6. A. H. Sather 369-9271
7. J. Friend 369-7377	7. J. Friend 369-7377	7. V. A. Belk 369-4416
		8. J. Friend 369-7377
(1) J. Frossard 369-6990	(2) L. Michels 369-6743	(3) J. Pope Unlisted (Call So. Central Bell Operator)
8. J. L. Horstman 369-6005	8. J. L. Horstman 369-6005	9. L. D. Honeycutt 369-5595
9. C. E. Davis 369-8780	9. C. E. Davis 369-8780	10. P. E. Markey 369-6019
10. C. R. Snowden 1-327-7382	10. C. R. Snowden 1-327-7382	11. D. J. Miller 369-9234
11. F. W. Frantz 369-8508	11. F. W. Frantz 369-8508	12. P. J. Kober 369-7096
12. P. J. Kober 369-7096	12. P. E. Markey 369-6019	13. R. G. Gilreath 369-7745
13. R. G. Gilreath 369-7745	13. D. J. Miller 369-9234	14. J. G. Roberts 369-8059
14. J. G. Roberts 369-8059	14. J. G. Roberts 369-8059	15. J. V. Uptain 369-8109
15. J. V. Uptain 369-8109	15. J. V. Uptain 369-8709	16. M. H. Williams 1-963-2796
16. M. H. Williams 1-963-2796	16. M. H. Williams 1-963-2796	
17. G. A. Morgan 369-6522	22. J. C. Green 369-9288	27. R. W. Rye 369-4730
18. R. A. Miller 1-327-0951	23. W. W. Robinson 369-8606	28. D. D. Knight 1-205-698-9545
19. R. A. Frohreich 1-328-3628	24. W. F. Higginbotham 1-327-0827	29. R. D. Jackson 369-2405
20. V. L. Thornhill 369-8952	25. J. A. Dixon 369-8372	30. V. E. Messick 1-327-0741
21. S. C. Hillman 369-7892	26. J. L. White 369-2991	31. D. S. Cox 369-8752

ATTACHMENT C
EMERGENCY ORGANIZATION

EMERGENCY ORGANIZATION



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ATTACHEMENT D

PLANT EMERGENCY

ALARM DATA SHEET

DATE: _____ TIME: _____

ALARM: Fire Vapor Evacuation* Tornado**
(Circle One)

* Evacuation alarm must follow either the fire or vapor alarm.

** The tornado alarm and the evacuation alarm are the same alarm. The difference lies in the fact that the evacuation alarm by itself means a tornado is approaching. The evacuation alarm must be proceeded by either the fire or vapor alarm.

LOCATION: _____

SPECIFIC NATURE OF PROBLEM

_____

_____

_____

_____

_____

_____

Alarm Activated By: _____

E. SAMPLE RAILCAR PLACARD

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CHICAGO IL 60626

TCS FLAMEPROOF

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F. PHOTOGRAPHS

FIG. 1 - VCM TANK CARS "SPOTTED" FOR UNLOADING AT EAST SIDE OF TRANSFER STATION NO. 1.

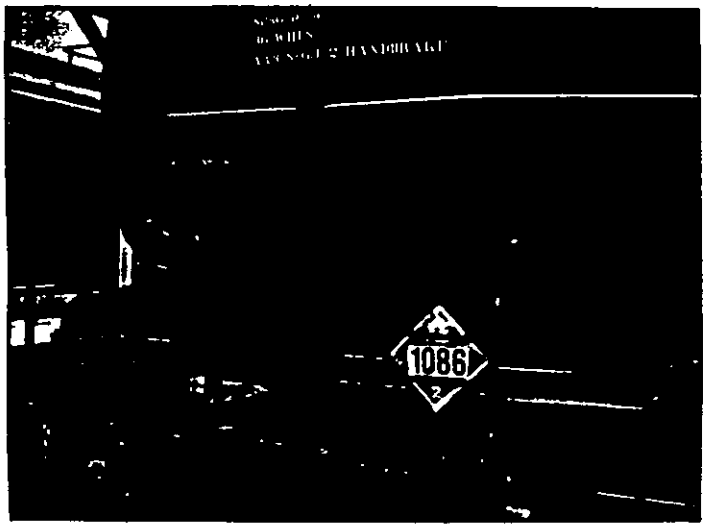

FIG. 2 - VIEW OF HANDBRAKE LOCATED AT THE END OF TANKCAR

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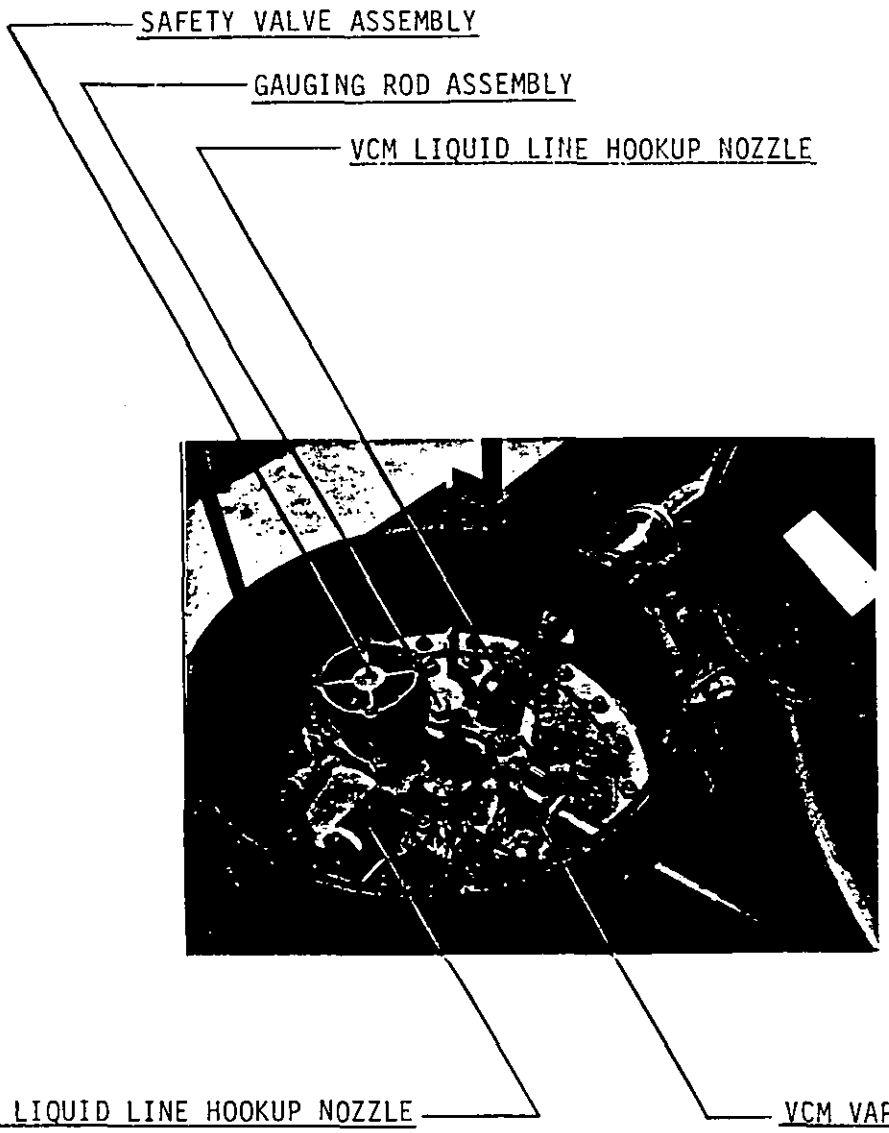

#4 SIGH

FIG. 3 - UNLOADING ARRANGEMENT FOR VCM TANKCARS

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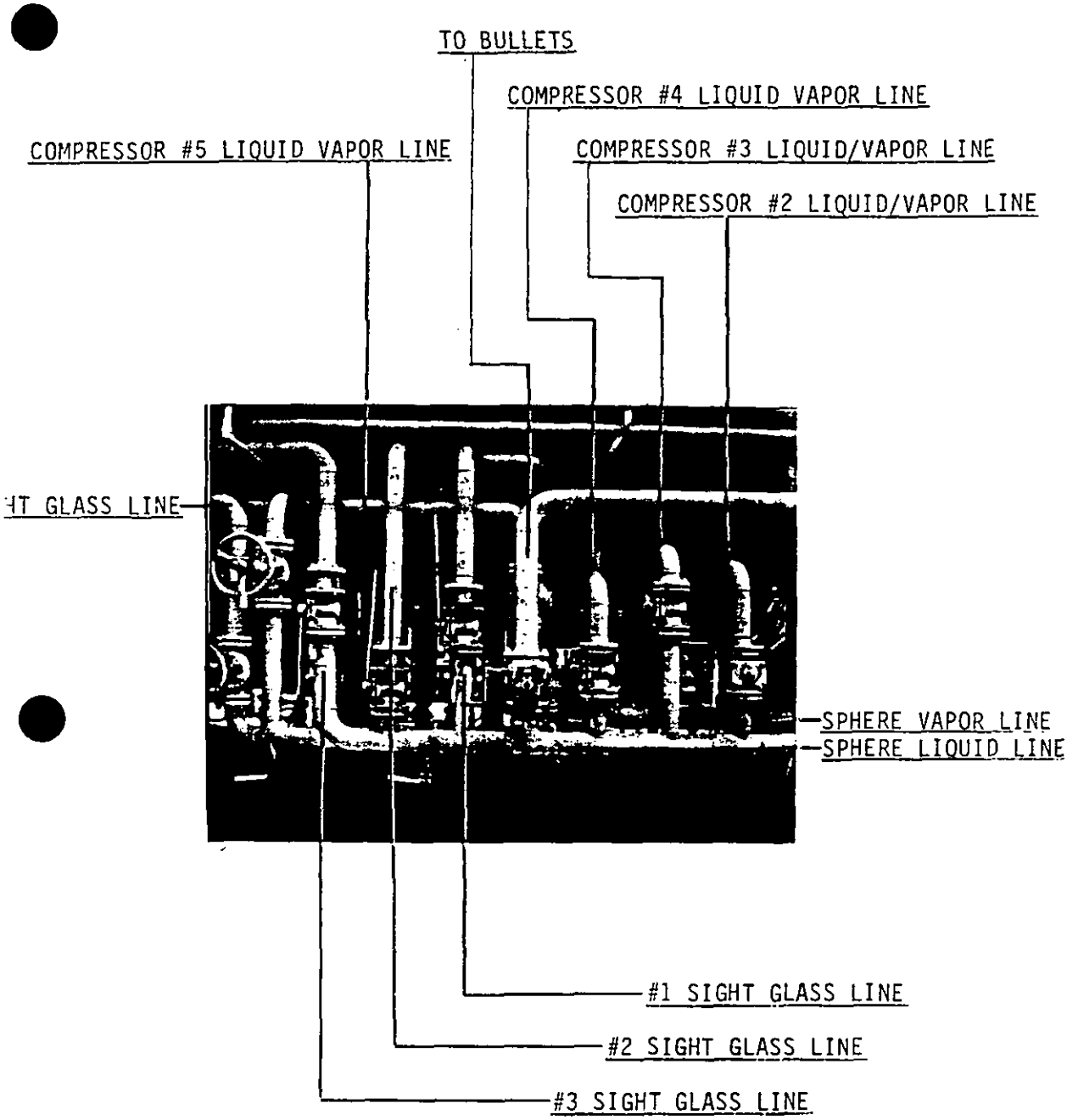

FIG. 4 - PIPING AND VALVES ON WEST SIDE OF THE COMPRESSOR SHED

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FIG. 5 - SIGHT GLASSES FOR CHECKING VCM LIQUID UNLOADING, LOCATED ON EAST SIDE OF COMPRESSOR SHED

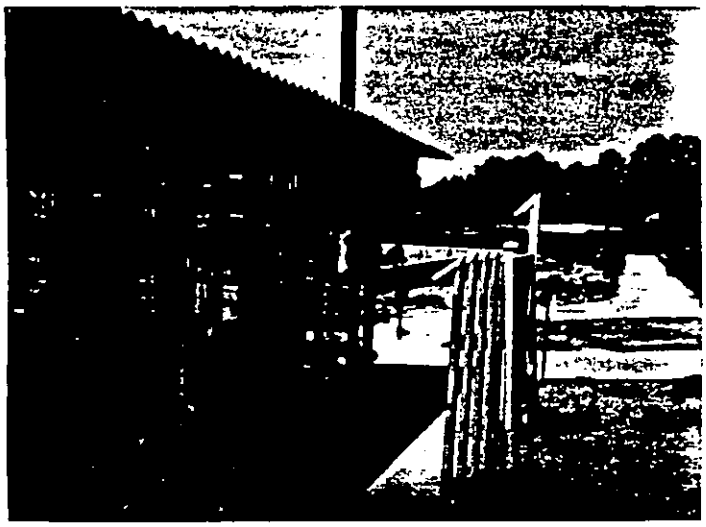

FIG. 6 - ANOTHER VIEW OF SIGHT GLASSES AS SEEN LOOKING NORTHWARD

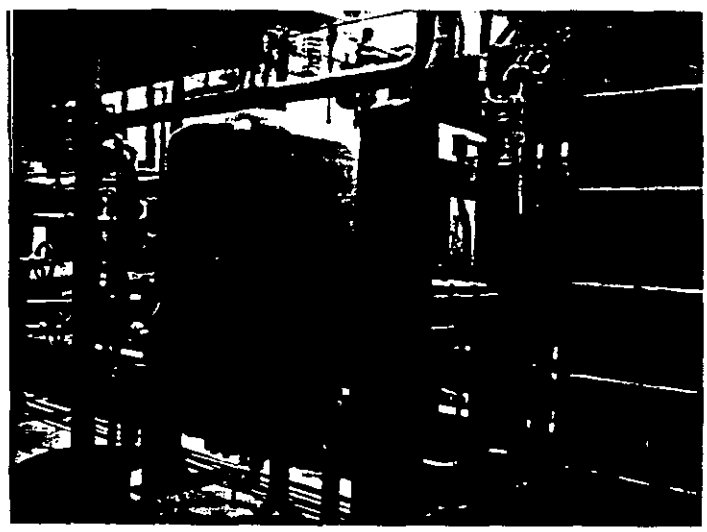

FIG. 7 - T (201) EMISSION RECOVERY SYSTEM KNOCKOUT POT-

NORTHWEST CORNER OF COMPRESSOR SHED

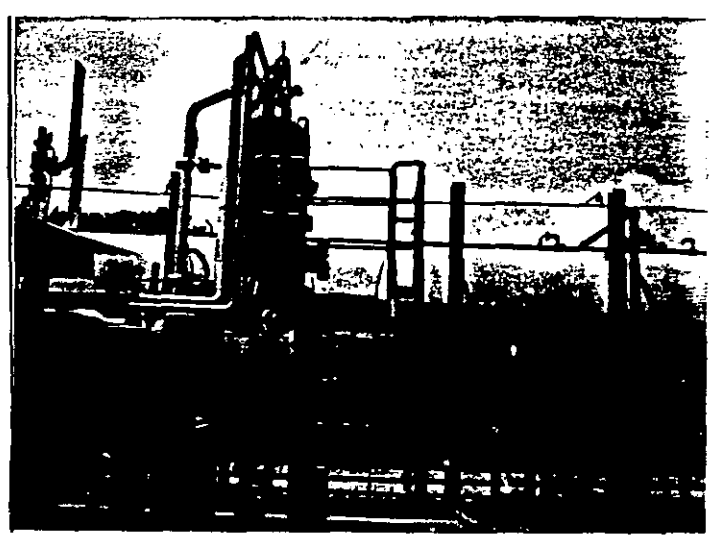

FIG. 8 - T (202) VCM KNOCKOUT POT - NORTHWEST CORNER

OF COMPRESSOR SHED