

VINYL CHLORIDE MONOMER (VCM) EMERGENCY PLAN

Conoco Chemicals
Aberdeen, MS Plant

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VINYL CHLORIDE MONOMER (VCM) EMERGENCY PLAN

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I. DEFINITION OF A VCM EMERGENCY

A VCM emergency is any unexpected massive release of Vinyl Chloride, such as the venting of a reactor through the vent line of safety disc, breakage of a VCM line, release of liquid VCM in a building or area from a live reactor or VCM line of liquid discharge of VCM from a storage tank or tank car.

II. PURPOSE OF THE PLAN

- A. Prepare personnel for VCM emergencies in order to insure the health and safety of employees and the surrounding community in the event of a VCM emergency.
- B. Minimize personnel exposure to VCM, property damage and loss of material and provide for the resumption of normal operations following a VCM emergency.

III. AREAS INVOLVED

VCM emergencies at the Aberdeen Plant may occur at the VCM Tank Farm, at a VCM tank car, along the VCM pipeline to the Vinyl Reactor Areas and at each Vinyl Reactor Area. The VCM emergency may expand to include other areas or the entire plant, depending on the extent of the VCM release and the

weather conditions during the release.

IV. IMMEDIATE ACTION TO BE TAKEN IN THE EVENT OF A VCM EMERGENCY

In case of a massive Vinyl Chloride release, the following procedures should be followed in most cases. Each VCM escape will be slightly different and judgement will have to be made in each case. In most cases, the Vinyl Reactor Shift Supervisor will make the first determination of what actions are to be taken. The actions taken may range from handling the VCM emergency with personnel present at the time to full alert of the Plant Emergency Organization. Most cases will be handled in the following manner:

A. VCM ESCAPE IN A REACTOR BUILDING

1. Evacuate All Personnel - The Charging Operator is to notify all utilities and other personnel of the emergency and be sure that they get out of the reactors and out of the building.¹ In the absence of the Charging Operator, the Lead Operator is to be responsible for all personnel getting out of the building. If the release is in V-11, the Recovery Operator is to notify the Large Reactor personnel and they are to evacuate as if the escape were in their area. All operations personnel are to move away from the building and assemble at the East end of the V-11 Dryer Room (outside Control Room). Maintenance personnel who are in the affected area

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The correct respiratory protection must be worn during evacuation.

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are to return to the Vinyl Maintenance Shop (including Utility & Electrical - Instrument personnel). Contract personnel are to return to the Contractor's Shop, West of the Large Reactors. All other personnel are to return to their areas, including personnel who are in the Vinyl Area Break Room. No personnel should go toward the VCM vapor to get to his assembly area.

2. Set Off Deluge System - Do this while leaving the building (if possible) if the system has not started automatically.
3. Head Count - The Reactor Lead Operator or Dryer Supervisor is to make a head count to be sure that all personnel are accounted for (including Large Reactor Operators, if applicable). The Vinyl Maintenance Supervisor is to make a head count of his employees to be sure that all are accounted for. Hollis Martin and Jim White are to account for all Contractor personnel.
4. Turn In The Emergency Alarm For Vapor Release - Dial 62 for the Vapor Release Alarm and then dial 8 and announce over the Paging System the location and the nature of the problem. The alarm will alert the guard to stop traffic and alert other plant personnel to go to their primary assembly location. All welding and hot work in the plant is to stop immediately when the Vapor Release Alarm is sounded.
5. Shutdown Dryer Gas Burners - When the Vapor Release Alarm is sounded, the Dryer Lead Operator, Dryer Operator or

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Dryer Shift Supervisor is to immediately push the emergency shutdown button for the gas burners on the V-10 and V-11 Dryers. (Reactor personnel may have already done this in the affected area, but the Dryer personnel must double-check.

6. Provide Medical &/Or First Aid Treatment For Injured Personnel -

Standard First Aid procedures should be followed with the extent of treatment determined by the Shift Supervisor.

The Plant Nurse (week days) or the Laboratory Lead Tech (all other times) should be called to the scene if serious injury has occurred. An ambulance should be called if our own transportation is unavailable or unable to handle the injured. Oxygen should be given to anyone who has been exposed to VCM concentration high enough to cause dizziness or unconsciousness.

7. Relocation of Personnel - The Vinyl Reactor Shift Supervisor should determine from his Lead Operator and Reactor Operators from the affected area what the emergency is. Also, at this time, he should determine the wind direction and, if necessary relocate the assembly point to the concrete pad North of V-10. He may also send a messenger to another Reactor Area or Areas to request them to evacuate to the Dryer Control Room or V-10 Pad. If necessary, the Dryer Shift Supervisor will send someone to the highway in front of the plant to stop traffic from entering the plant road. All supervisors should check the wind direction and relocate their personnel if necessary. Jim White and Hollis Martin should check the wind direction and relocate

Contractor personnel to the Main Plant Gate, if necessary. If further evacuation is necessary, the Vinyl Reactor Shift Supervisor will again sound the Vapor Release Alarm (dial 62) and (dial 8) and announce over the Paging System the needed relocation or evacuation (including Compounding and other personnel evacuation, if needed).

Weekdays the Industrial Hygienist, and all other times the Dryer Lead Operator, equipped with an air mask will check the down wind assembly areas with an OVA.* If VCM concentration exceed 25 p.p.m. he will direct the evacuees to a safe location. He will also measure what VCM concentrations are reaching our neighbors and public roads. (* Kept in the Guard House)

8. Miscellaneous Action Steps - For a reactor bottom gasket leak, vent the reactor to the atmosphere while leaving the building, if possible.

For a reactor manhead gasket leak, blowdown the reactor to the atmosphere while leaving the building, if possible.

DO NOT BLOWDOWN A REACTOR IF UTILITIES ARE STILL IN THE REACTORS.

9. Re-Entering Building - A building or area that has a higher concentration than 3,600 p.p.m. should be entered only to rescue a person or to prevent a greater hazard from occurring. When the amount of VCM has been lowered, normally 15-30 minutes, the Vinyl Reactor Shift Supervisor and two other persons with Scott Air Paks, a century unit and an Explosimeter should return to the building. Only one person should enter, while the others watch

him from the outside. Everyone must have a Scott Air Pak on.

At this time, the person should stop the blowdown if the system has equalized and make changes in the reactor that are necessary (i.e. take reactor off heat-up). He should check the reactor to be sure that all the pressure has been released and if the reactor pressure is zero and the VCM concentration is below 20% on Explosimeter (0.7% VCM) in all affected areas, including lower levels, and shut off the deluge system. Check the building for VCM content with a Century Unit. If a reading above 25 p.p.m. is obtained, leave the building. Return after several minutes with a Scott Air Pak and check again until a reading of less than 25 p.p.m. is obtained. The building should then be ventilated for 10-15 minutes before re-entering by the operating personnel.

10. Notification of Plant Management - Depending on the nature of the emergency, certain members of the Plant Management will come to the Plant. However, if the Vinyl Reactor Shift Supervisor believes the VCM emergency to be extremely serious, he should notify the Guard to start calling in the Plant Emergency Organization (See Plant Emergency Procedure for Emergency Organization, Job Descriptions, etc.) . Emergency Organization Chart and Emergency Call List are found in the General Emergency Procedures. If Plant Management has not been notified by other means, the Vinyl Shift Supervisor will notify the Operations Superintendent, who in turn, notifies the Plant Superintendent. The Plant Superintendent is to notify the Plant Manager.
11. Turn In The All Clear, When Appropriate - The all-clear will not be sounded until all plant work areas have been checked by

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OVA and found below 25 p.p.m. The check will be made by the Industrial Hygienist week days, and by the Dryer Lead Operator visor at all other times. When the VCM emergency has been brought under control, the Vinyl Reactor Shift Supervisor will tell the Industrial Hygienist, pr Dryer Lead Operator to make the check, over the PA system.

12. Fire Pump Mechanic - Week days, 07:00 to 15:30 the Tool Room man, and at all other times the Vinyl Area Shift Mechanic will serve as the Fire Pump Mechanic. When the Vapor Release Alarm signals he will report to the fire pump house. He will keep all four (4) pumps running until the All-Clear is sounded.

B. VCM Release In The Large Reactor Area

1. Evacuate Personnel - The Senior Large Reactor Operator is to notify the Large Reactor Lead Operator by radio (do not open the Control Room, as this may allow VCM into the Control Room) and then notify all personnel in the area of the emergency and be sure that all personnel leave the area. The Junior Large Reactor Operator is to go to V-11 and notify the Lead Operator or any V-11 Reactor Operator of the emergency. V-11 personnel are then to be evacuated as if the VCM release were in V-11. All Operations Personnel (except the Large Reactor Lead Operator) are to move away from the area and assemble at the V-11 Dryer Control Room. Maintenance and Contract personnel are to evacuate the Large Reactor Area and V-11 the same as they would if the emergency were a VCM release in a reactor building.
2. Set Off Deluge System - The Large Reactor Lead Operator is to set off the Deluge system using the button under the MSA

Unit in the Control Room as soon as he is notified of the VCM release.

3. Turn In The Emergency Alarm For The Vapor Release- Large Reactor Operator is to dial 62 and then dial 8 and announce over the paging system the location and the nature of the problem.
4. Head Count - The Senior Large Reactor Operator is to make a head count and the V-11 Lead Operator is to make a head count to be sure that all operating personnel are accounted for. The Vinyl Maintenance Supervisor and Hollis Martin and Jim White are to account for the Maintenance and Contractor personnel, respectively.
5. Shutdown Dryer Gas Burners - Same as Item A-5.
6. Re-Location of Personnel - Same as Item A-7.
7. Re-Entering Area - Same as Item A-9.
8. Notification of Plant Management - Same as Item A-10.
9. Turn In All Clear - Same as Item A-11.
10. Fire Pump Mechanic - Same as Item A-12.

C. VCM Release From Tank Farm Or A VCM Tank Car -

1. Evacuate Personnel - The Yard Operator or other personnel observing a massive release of VCM from the VCM Tank Farm Area or a VCM Tank Car are to notify any other personnel in the area to evacuate and assemble in their other areas.
2. Turn In The Emergency Alarm For Vapor Release- Dial 62 and then dial 8 and report the location and the nature of the VCM release. Then proceed to the V-11 Dryer Control Room. The Vinyl Reactor Shift Supervisor is to meet the person who turned in the alarm at the Dryer Control Room.

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3. Determination Of Evacuation - The Vinyl Reactor Shift Supervisor should determine from the person who turned in the alarm what the nature of the emergency is. Also, at this time, he should determine the wind direction and direct evacuation, as needed, by again sounding the Vapor Release Alarm (dial 62) and then (dial 8) and announcing the evacuation plan necessary.
 4. Head Count - Same As Item A-3.
 5. Shutdown Gas Burners - Same as Item A-5.
 6. Provide Medical And/Or First Aid - Same as Item A-6.
 7. Re-Entering The Area - The Vinyl Shift Supervisor and two other persons with Scott Air Paks, a Century OVA Meter and an Explosimeter should re-enter the area to prevent further release of VCM. When this is done, leave the area again, until the area is clear. Use a similar procedure to Item A-9 before all personnel re-enter.
 8. Notification of Plant Management- Same as Item A-10, except that the Dryer Shift Supervisor is also to call the Warehouse Operations Superintendent.
 9. Turn in All Clear - Same as Item A-11.
 10. Fire Pump Mechanic - Same as Item A-12.
- D. VCM Release From A VCM Line, Receiver, Filter, Etc.
1. The person observing the massive release of VCM is to notify any other personnel in the immediate area to evacuate and assemble in their designated areas.
 2. Turn In The Emergency Alarm For Vapor Release - Dial 62 and then dial 8 and announce over the Paging System the location and the nature of the release. Set off Deluge System, if applicable. Then proceed to the Dryer Control Room. The Vinyl Reactor Shift Supervisor is to meet the person at the Dryer Control Room.

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3. Determination of Evacuation - If the release is located behind the V-11 Building, the V-11 and the Large Reactor personnel are to evacuate. Remainder of this procedure is the same as Item C-3.
 4. Head Count - Same as Item A-3.
 5. Shutdown Gas Burners - Same as Item A-5.
 6. Provide Medical And/Or First Aid Treatment - Same as Item A-6.
 7. Re-entering The Area - Same as Item C-7.
 8. Notification of Plant Management - Same As Item A-10.
 9. Turn In All Clear - Same as Item A-11.
 10. Fire Pump Mechanic - Same as Item A-12.

E. VCM Release From A Reactor Vent Stack

1. Turn In The Emergency Alarm For Vapor Release - In the event of a pending or existing release of VCM from a reactor rupture disc, relief valve system or manual venting system, dial 62 then dial 8 and announce the location and the nature of the Vapor Release. The Guard will then stop traffic.
2. Shutdown Dryer Gas Burners - Dryer personnel are to push the emergency shutdown button for the gas burners and exhausters on the V-10 and V-11 Dryers immediately upon hearing the Vapor Release Alarm, (beep-beep-beep) if reactor personnel have not already done this at the V-11 and V-12 stations.
3. Evacuation Determination- The Vinyl Reactor Shift Supervisor is to check the wind direction and determine if any evacuation is necessary by Operations Personnel. Maintenance and Contractor personnel should evacuate to their assembly areas as soon as the alarm has sounded. Further evacuation should be announced by the Vinyl Reactor Shift Supervisor by again sounding the Alarm

(dial 62) and announcing (dial 8) the necessary evacuation.

Head counts are to be taken at the assembly areas.

4. Notification Of Plant Management - Same as Item A-10.
5. Turn In All Clear - Same as Item A-11.
6. Fire Pump Mechanic - Same as Item A-12.

F. Power Failure

1. In the event of a power failure all reactor cooling water supply and agitation will stop. Therefore, it is very important to act quickly in order to keep the reactor venting to a minimum during the power outage.
2. Large Reactors - Inject 3 gallons Alpha-Methyl Styrene into each reactor immediately, using nitrogen and if the reaction runs away, inject AMS again, as needed.

Activate monitor nozzles and direct water on reactors requiring cooling.
3. Small Reactors - Inject one pint AMS into each reactor immediately, starting with the reactions most nearly complete or reactions on which the pressure is the highest. Inject Alpha-Methyl Styrene again, as necessary.

Additional help in preventing venting of the reactors will be to close the empty reactors and use them and blowdown drums for extra expansion volume for reactors nearing venting conditions.
4. Stop Traffic - Guard to stop traffic and prevent all personnel from starting cars and leaving the parking lot. The Dryer Shift Supervisor will send someone to the highway entrance and stop all except authorized personnel, see Emergency Plan.

If venting of reactors begins, all cars must be stopped.

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5. Reactor Venting - The Vinyl Reactor Shift Supervisor is to follow the Procedure in E-1, E-2, & E-3 as much as possible, but send messengers to areas needed in place of using the Vapor Release Alarm and the Paging System.
 6. Notification of Plant Management - Same as Item A-10.
 7. Turn In All Clear - Same as Item A-11.
 8. Fire Pump Mechanic - Same as Item A-12.

V. DEPARTMENT ASSEMBLY LOCATIONS

A. Vinyl Department

1. Primary - East end of the V-11 Dryer Room outside the Control Room.
2. Secondary - Concrete Pad North of V-10 Reactor Building.
Use if primary location is declared unsafe due to wind direction or extent of VCM release.

B. Vinyl Maintenance, Utility, Maintenance & Electrical/Industrial People In The Vinyl Area

1. Primary - Vinyl Maintenance Shop.
2. Secondary - Front Maintenance Shop. Use if primary location is declared unsafe due to wind direction or extent of VCM release.

C. Contractors

1. Primary - Contractors Shop.
2. Secondary - Front Gate. Use if wind direction or extent of VCM release is declared unsafe.

D. Plasticizer

1. Training Area or Hose Finishing Area, if required.

E. Compound

1. Training Area or Hose Finishing Area, if required.

F. Dry Blend

1. Training Area or Hose Finishing Area if required.

G. Maintenance

1. Front Maintenance Shop.

H. Laboratory

1. Transportation Trailer Area.

I. Warehouse

1. Shipping Warehouse, East Warehouse, if required.

J. Enginnering

1. Main Gate Area, if required.

K. Yard

1. Main Gate Area, if required.

L. Front Office

1. Main Gate Area, if required.

M. Visitors

1. Main Gate Area, if required.

VI. COMPLETE PLANT EVACUATION

If evacuation of the plant work site is ordered, personnel are to be directed to the appropriate Emergency Exit (s).

There are three (3) Emergency Exits.

A. Main Gate (North)

B. Shipping Yard Gate (East)

C. Railroad Gate South

Personnel leaving the plant work site during an emergency are to assemble in a group and remain on the plant property just beyond the Emergency Exit and await further instructions.

In the absence of instructions as to where to go following a decision to evacuate the plant work site, Personnel are to use nearest Emergency Exit and in no case are to go toward an endangered area, unless they are required to help cope with

the emergency.

VII. MEDICAL SURVEILLANCE

Any employee who lost consciousness from VCM exposure will be taken to the Company Doctor or to the Hospital Emergency Room, as soon as possible.

A statement of each employees suitability for continued exposure to VCM, including the use of protective equipment and respirators shall be obtained from the examining physician promptly after any examination. A copy of the physicians statement shall be provided to each employee.

At the earliest possible time, after a VCM emergency, the Plant Safety Director will discuss the individual's VCM exposure with them and Area Supervisory Personnel to determine estimated exposures. If anyone exposed exhibited symptoms of narcosis, he will then discuss the emergency with the Company Medical Personnel to determine what further medical surveillance is needed for each person.

VIII. REPORT TO OSHA AREA DIRECTOR

If there is indication that anyone was exposed to greater than 100 p.p.m. VCM, within twenty four (24) hours of any VCM emergency, the Plant Safety Director will report that emergency to the OSHA Area Director. A written report with additional information and corrective action may be requested by the OSHA Area Director.

IX. PLANT REPORTING

The Plant Manager (1) Plant Superintendent (2) Chief Process Engineer (3) will report the VCM Emergency, within twenty four (24) hours to Saddlebrook Management (Manager of Manufacturing or General Manager) and Houston Safety. The Vinyl Reactor Operations Superintendent will