

*update & mail  
12/3*

VCM Plant  
Safety Procedures

1. Accident Investigation

- report  
handed emp  
statement*
- major rpt  
in 2 weeks of CTH*
- A. Injuries - Injuries arising out of employment are treated in First Aid by on-duty lab technicians. When treated they prepare the supervisors accident investigation form, keeping a copy in First Aid and getting the original to the injured man's supervisor.
  - B. Each supervisor of an injured employee is to investigate the facts regarding the injury and determine the cause as well as any contributory causes for the accident. He is to report his investigation on the form and forward within 48 hours to his department head.
  - C. The department head reviews and makes any follow-up he feels necessary and forwards to the Plant Superintendent or Chief Process Engineer, depending on the department, for review.
  - D. The report is then forwarded to the Safety Director for classification or follow-up and then to the Plant Manager. It is returned to the Safety Director for filing by month. All accident investigation reports are kept by the Safety Director and are filed by month during the year in which they occurred.

2. Accident Records: There are two basic types of accident and injury records. These are supervisor accident investigation reports and numerical records by month and year. Records required by OSHA are kept separate.

- A. Investigation Records - These records also include all written data and reports concerning the injury. Doctor reports, insurance forms, and any special notes are kept with the investigation report.
- B. Various monthly injury records from 1968 are kept on annual sheets including a breakdown by department. Other figures such as manhours, annual accident analyses and summaries are included.

3. Biological Testing - Basically, three different tests are made in the plant. A check type record of all employees and biological tests given are kept confidential in the Plant Manager's file but is maintained by the Safety Director.

A. Annual Toxicity Tests

- 1. Given by Refinery nurse who maintain records of the tests.
  - 2. Test designed to uncover overexposure to chlorinated hydrocarbon plus some personal health problems.
  - 3. Test consists of
    - a. Blood Sample
    - b. Urine Sample
- ? urine lead vs blood lead*

- c. Blood Pressure
- d. Questionnaire on Health
- 4. Results or evaluation transmitted to Medical Department for evaluation.
- B. Audiogram - Conducted during 1971 on all, except female employees, by Safety Director.
  - 1. Plant has installation of booth and audiometer in old warehouse.
  - 2. Results sent to Medical Department for evaluation and they return to the plant and employee, their appraisal.
  - 3. Audiometer must be calibrated at least annually by authorized service firm. Last calibration on October 1971.
- C. Urine-Lead - Conducted on selected operating employees as a result of their exposure to organic lead during loading of DuPont cars with EDC.
  - 1. Test set up on a 3/annually frequency.
  - 2. Those taking test are:
    - a. Shift Foreman
    - b. Chief Operator
    - c. Pumper/Loader
    - d. Utility Operator
  - 3. Samples sent to John Ray with DuPont in Beaumont for analysis.
  - 4. Results communicated to supervisors and employees.
- 4. Chemtrec - An organization of the MCA for the purpose of supplying emergency technical information to officials (fire, police) for handling transportation accidents. A procedure is written and has been distributed which outlines the VCM Plant's responsibility, not only for our products but shipments originating in other Conoco Chemicals' plants.
- 5. Equipment Inspection (Safety)

Routine formal inspections of certain safety equipment and other devices affecting safety are carried out. Records of these are kept by the Safety Director or Maintenance Department in separate files. These would be expected to be available in an OSHA inspection.

  - A. Fire Protection Equipment
    - 1. Extinguishers - Inspected monthly on a standing work order for condition and report form is made. Originals kept by Carl Morris with copies to Safety Director.

2. Deluge Systems - Checked monthly by maintenance with inspection form completed. Systems are tripped at least twice per year wet.
3. Fire Hose - Hydrostatically tested to 150% of fire water pressure. Hoses marked and report on tests made by Safety Director.
4. Fire Monitors - No formal program but effort is made to flow each monitor weekly to keep flushed out.

C. Electrical Tools and Equipment

1. Portable Lights - Inspected monthly with report to Safety Director. Done by electricians.
2. Low Voltage Lights - Monthly by electricians with report.
3. Electrical Tools and Equipment - Monthly by electricians with report.

D. Maintenance Equipment - Such things as chainfalls, slings, safety belts, etc. made twice annually and records are kept by Carl Morris.

6. Fire Protection - Basic fire protection for the plant is provided by water and dry chemical extinguishers. Protection systems and equipment are:

A. Firewater - Interconnected to petrochemical system.

1. VCM Fire Pumps (P-60) - Electric, 250 H.P., 2000 gpm, Class A firewater pump pulling from VCM cooling tower basin. Total of 450,000 gallons and makeup available.
2. Ethylene Plant Pumps - One 2000 gpm, electric pump taking suction from 150,000 gallon basin plus a 1500 gpm steam pump in the same basin.
3. Other Pumps - A 2500 gpm diesel-powered pump is located in the north petrochemical effluent pond with a 9 MM gallon supply. There is also a 1000 gpm steam pump in the Alfol basin.
4. Underground Piping - Original piping mains are 12" cast iron with mechanical joints. Piping installed since startup is welded steel.

B. Combustible Gas Detection

1. Locations

- a. North of T-252
- b. North side of BL-501
- c. Near H-201A
- d. Control Room - 1 head

2. Operation - Units analyze continuously by diffusion using a hot

1

wire filament and Wheatstone Bridge circuit.

3. Settings - Units are arranged as separate modules independent of the others. Calibration and alarm points are:

- a. T-252 - VCM with 20% and 50% alarms.
- b. BL-501 - Propylene with 20% and 50% alarms.
- c. H-201A - VCM with 20% and 50% alarms.
- d. Control - Two head on one module. Heads are located in air intake stack and south end of control room at near floor level. Alarms are at 20% and 40% and on high alarm the intake blower and damper in the makeup air duct close. Manual reset is necessary.

4. Inspections - Instrument department checks these instruments monthly. Plans are to include in this check calibration using standard VCM gas sample. Test equipment has been bought.

C. Fire Hose-Monitors - In the plant are five 1-1/2" hose reels with 250' of hose and combination nozzle. There are 12 monitors having 600 gpm flow rating and 4 having 1100 gpm rate. Adjustable combination nozzles compensate for flow. There are 500' of 2-1/2" hose on two portable reels and 200' of 1-1/2" hose.

D. Deluge and Automatic Systems - All storage spheres have fixed water protection. Deluges on T-411A, B&C and check tanks is automatic on "rate of rise" and remote manual trips. T-411D is tripped manually from the control room.

E. Loading Rack Monitors - The three monitors on the south side of the rack are normally open and the 6" supply line dry. Water may be started in all three by opening either or both of the isolating valves on the east or west end of the rack area.

7. Incentive Programs - Past incentive awards have been based on time without disabling injury rather than manhours. Previous awards were:

A. August 25, 1969 - 1 year without disabling injury - average cost of awards \$10.47.

B. January 11, 1971 - 1 year without disabling injury - average cost of awards \$10.91.

C. January 11, 1972 - 2 years without disabling injury.

*gift sel.*

No other incentive programs are in effect at this time. Consideration should be given to recognizing individuals who go an entire year without an injury.

8. Insurance

A. Fire and extended coverage insurance underwritten by Oil Insurance Association and they usually make annual visits.

IBM  
run

- B. Machinery's Boiler coverage written by Travelers and inspections are made annually. Operating permits for the oxy steam drums are issued after inspection by Travelers.
- C. Business Interruption - Coverage written by Travelers with deductible of about 30 days.
- D. Workmans Compensation - Written by Hartford Insurance. Claims are handled through local Lake Charles claims office. On all injuries requiring doctor's attention, insurance form is necessary.
- E. Records
  - 1. Compensation - Records are kept with the injury report in the accident investigation files.
  - 2. Fire Insurance - Recommendations resulting from OIA or Marsh-McLennan are kept in common file along with correspondence to carrier, Insurance Division, or corporate safety.
- 9. Manufacturing Chemist Association - Activities in the past have involved two basic areas:
  - A. VCM Tankcar Emergencies - Member of "Task Group B" concerned with emergency action following an accident. Various letters, reports and reviews are kept in a single file covering the entire activity.
  - B. VCM Toxicity - Attended one meeting on reported toxicity (carcinogenic effects) of VCM. All files, communications and reports on this activity are kept in the Plant Manager's file.
- 10. Mutual Aid Association - The VCM Plant is presently an independent member of the Southwest Louisiana Mutual Aid Association. However, we do not provide any equipment during emergency situations at other member plants.
  - A. Zone and Communications - The VCM Plant is Zone 30 and does have a two-way radio at a fixed 154.28 mc frequency to call upon the association for assistance in the form of equipment. This radio is located in the main office and is operated under license granted to the Lake Charles Fire Department.
  - B. Meetings - Luncheon meetings are held by the association on the second Wednesday of each month. Each member hosts these meetings on a rotational basis.
  - C. Drills - Drills are held monthly at that months host plant.
- 11. OSHA (Occupational Safety & Health Act)
  - A. Records
    - 1. Log (OSHA-100) - A chronological list of all reportable injuries under the OSHA rules. Log kept in Plant Manager's files coded 10.4.
    - 2. Supplementary Record (OSHA-101) - A form containing specific information concerning an individual injury classified as reportable.

- B. Procedures Guide - Kept by the Safety Director and contains various corporate instructions regarding the handling of OSHA requirements.
- C. OSHA Regulations - Maintained by the Safety Director and contains the various regulations necessary under the act. These are updated only when new standards are sent out by the Houston Safety Department and no effort is made in the plant to keep informed on changes.

## 12. Off the Job Safety

- 1. Records - Kept in Plant Manager's file. Safety Director reports to Saddle Brook on a quarterly basis using form. Previous reports were monthly.
- 2. On quarterly basis, Family Safety, a publication of NSC is distributed by mail to all employees. Subscription bought through 1972.
- 3. Occasional use of State Police Educational Office or Coast Guard in Safety Meetings covering off the jobs subject.

## 13. Plant Inspections - Records and follow-ups kept by Safety Director who sets up and participates in the inspection.

- A. Inspections - Procedure written and includes two per month of plant areas. Those participating are Process Superintendent, Mechanical Superintendent, Shift Foreman or Mechanical Foreman. *+ 1 hourly*
- B. Reports - Written in letter form to Plant Superintendent. Those items needing immediate attention are noted. Work Orders written are also noted.
- C. Follow-up - Followed by Process Superintendent and Mechanical Superintendent. Reports to Plant Superintendent.

## 14. Reports (Safety)

- A. Progress Reports - At end of each month covering injury data and significant safety information.
- B. Injury Data - Submitted quarterly to:
  - 1. Employee Relations - Saddle Brook
  - 2. Manager of Manufacturing - Saddle Brook
  - 3. Area Safety Coordinator - Teterboro
  - 4. Safety Department - Houston
- C. Accident Analysis - Monthly and filed with monthly reports and covers each injury during the month. Distributed to all interested supervisors and on bulletin boards.
- D. Injury Data - Annual requirement in January covering statistical analysis of previous years injuries. Submit to Manager of Manufacturing.

E. Fire Report - On each unplanned fire in the plant, a report must be made within 48 hours to Manager of Manufacturing. Safety Director has responsibility to see that this is done.

F. "Lost Time" Injury Reports - A narrative report on each disabling injury occurring in the plant is required to be submitted by the Plant Manager to the Manager of Manufacturing. The Safety Director should see that such a report is submitted to the Plant Manager as soon as possible after the injury.

G. Insurance Reports - Reports arising due to occupational injuries are the responsibility of the Safety Director. These are outlined in Plant Procedures Manual and in the Insurance Procedures Guide. Copies are distributed per instructions only after review by the Plant Manager.

*Process Review  
by Mgmt.*  
15. Safety Evaluation - A complete program of periodic review in the various phases of plant activity based on safety. A procedures guide containing the overall purpose and method along with the check sheets for each segment involved is kept by the Safety Director. He will coordinate the over-  
*Survey help from R. Giles?*  
all program.

16. Safety Glasses and Shoes - A formal program is written covering the company shoe policy. Safety glasses are handled on a similar basis but contributions by the company are different.

A. Prescription Safety Glasses - The company will pay 100% of the direct cost of up to two pair of prescription safety glasses per year for any permanent plant employee requiring corrective glasses.

1. The employee must pay the cost of an eye examination.

2. All prescription glasses are ordered from American Optical.

3. Contact lenses are not acceptable in the plant.

4. While not stated, generally a new prescription is necessary after two years.

B. Safety Shoes

1. Requests - Requests for shoes are made in the warehouse. Once made, the warehouse forwards the request to the Safety Director for approval to order that style for that man. Composition soles required.

2. Records - These are maintained in the warehouse on a card system.

## 17. Safety Training

A. Employee Indoctrination - Each new employee is given an indoctrination talk regarding safety by the Safety Director usually on his first day. A talk outline is used and is signed by the employee and filed by the Safety Director under safety orientation.  
*follow up? feedback?*

B. Turnaround Orientation - All new temporary employees hired for turnaround work are given a basic indoctrination from a prepared outline.

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- C. Retraining - At least annually chemical hazards and emergency treatment are reviewed in safety meetings. Also, items such as Scott-Air Paks, phenolator, and emergency action are reviewed annually.
  - D. Records - Records of orientation and safety meetings are kept. Previous fire training and a log of sessions was kept of operator training.
  - E. Safety Meetings - Maintenance safety meetings are being revised presently to consist of meetings every two weeks. Responsibility to conduct these meetings is assigned to Maintenance Foremen and Leadmen. Records will be sent to the Safety Director.
18. Transportation Safety - Formal participation is limited to the procedure set up under Chemtrec. In the past, the Safety Director was a member of the MCA., vinyl producer "Task Force B", concerned with transportation accidents involving VCM. Some records on Conoco VCM accidents are maintained.

*new form (complete) for inspections.*

*Disaster Plan  
Process Review*